

**A Thesis Submitted for the Degree of PhD at the University of Warwick**

**Permanent WRAP URL:**

<http://wrap.warwick.ac.uk/165752>

**Copyright and reuse:**

This thesis is made available online and is protected by original copyright.

Please scroll down to view the document itself.

Please refer to the repository record for this item for information to help you to cite it.

Our policy information is available from the repository home page.

For more information, please contact the WRAP Team at: [wrap@warwick.ac.uk](mailto:wrap@warwick.ac.uk)

# Exploring smoking behaviour in homes with young children in Romania through a capability lens: a mixed-methods study

by

Alexandra Brinzaniuc

A thesis submitted in partial fulfilment of the requirements for the  
degree of Doctor of Philosophy in Health and Social Studies

Warwick Medical School  
University of Warwick  
July 2021

# Table of Contents

|   |    |
|---|----|
| LIST OF TABLES .....  | 6  |
| LIST OF FIGURES.....  | 9  |
| ACKNOWLEDGEMENTS .....  | 11 |
| DECLARATION.....  | 13 |
| SUMMARY .....   | 14 |
| ABBREVIATIONS .....   | 15 |
| CHAPTER ONE: INTRODUCTION.....  | 16 |
| An Introduction to the Topic: The Why?.....   | 17 |
| An Introduction to the Research Strategy: The What and How? .....                     | 19 |
| An Introduction to the Setting: The Where and in What Context?.....                   | 21 |
| Structure of the Thesis.....  | 28 |
| Motivation for Pursuing the Research.....   | 30 |
| CHAPTER TWO: LITERATURE REVIEW.....   | 32 |
| The Tobacco Epidemic, Child Health and Inequalities .....                             | 33 |
| The Global Burden of Tobacco.....   | 34 |
| Children and Secondhand Tobacco Smoke Exposure .....                                  | 35 |
| The Social Patterning of Smoking and Secondhand Tobacco Smoke Exposure .....          | 38 |
| Is Tobacco Control Widening Health Inequalities?.....                                 | 41 |
| Prevention Strategies to Reduce Child Exposure .....                                  | 45 |
| Conclusions to Part One.....  | 50 |
| Social Disadvantage Through a Capability Lens: Implications for Tobacco Control ..... | 52 |
| A Visitation of Health Inequalities Theories .....                                    | 53 |
| The Capabilities Approach: An Overview .....  | 62 |
| Health Capability and the Capability to Be Healthy.....                               | 71 |
| Capabilities, Families and Gender Roles .....   | 77 |
| The Capabilities Approach: Relevance for Tobacco Control.....                         | 79 |
| Bridging Structure and Agency: Capabilities, Capitals and Their Interplays.....       | 82 |
| Conclusions to Part Two.....  | 85 |
| CHAPTER THREE: METHODOLOGY AND METHODS .....  | 87 |
| Study Purpose and Research Questions .....  | 88 |
| Purpose of Study.....   | 88 |

|  |            |
|--|------------|
| Research Questions .....   | 89         |
| Study Design .....   | 92         |
| Description of Study Design.....   | 92         |
| Justification of Study Design.....   | 94         |
| Research Paradigm .....  | 96         |
| Study Setting, Population and Sample.....                                    | 101        |
| Study Setting.....   | 101        |
| Selection of Recruitment Sites .....   | 102        |
| Study Population and Sample.....   | 104        |
| Data and Measures .....  | 108        |
| Qualitative Data and Measures .....  | 108        |
| Quantitative Data and Measures .....   | 111        |
| Data Collection .....  | 119        |
| Qualitative phase data collection protocol.....                              | 119        |
| Quantitative phase data collection protocol.....                             | 120        |
| Data Analysis.....   | 123        |
| Thematic Analysis.....   | 123        |
| Statistical Analysis .....   | 124        |
| Ethical Aspects.....   | 126        |
| Procedural Ethics .....  | 126        |
| Study Documents.....   | 127        |
| Human Subjects' Protection Procedures .....                                  | 129        |
| Reflexivity and Positionality .....  | 132        |
| Summary of Methods and Methodology .....                                     | 136        |
| <b>CHAPTER FOUR: QUALITATIVE FINDINGS.....</b>                               | <b>137</b> |
| Description of Study Population.....   | 138        |
| Main Findings .....  | 140        |
| Capability & Functionings for Smoke-Free Homes .....                         | 142        |
| Changes in In-home Smoking.....  | 148        |
| Control Over the Living Environment and Capability for Smoke-Free Homes..... | 154        |
| The Social Space of Smoke-Free Homes: The Role of Social Norms .....         | 158        |
| Reconciling Tensions Between Capabilities .....                              | 161        |
| Summary of Main Qualitative Findings .....                                   | 165        |



|  |            |
|--|------------|
| <b>CHAPTER FIVE: QUANTITATIVE FINDINGS.....</b>  | <b>167</b> |
| Sample Description .....   | 168        |
| Smoking Behaviour in the Home .....  | 173        |
| Living Arrangements.....   | 177        |
| Capitals .....   | 181        |
| Economic Capital (Income and Financial Strain) .....   | 181        |
| Social Capital.....  | 183        |
| Cultural Capital and Cultural Capital for Health.....  | 186        |
| Capital Dynamics: Transfer and Acquisition of Cultural Capital .....   | 189        |
| Capabilities.....  | 192        |
| Description of Capability Measures .....   | 192        |
| Capability Items and Their Association with Smoking Behaviour in the Home .....                                  | 197        |
| Effect of Capabilities on In-Home Smoking .....  | 199        |
| Direct Effect of Capabilities Score .....  | 199        |
| Direct Effect of Capability to Restrict Smoking for Guests .....   | 202        |
| Capabilities Interactions with Capitals .....  | 204        |
| Summary of Main Quantitative Findings .....  | 211        |
| <b>CHAPTER SIX: DISCUSSION .....</b>   | <b>213</b> |
| Relevance of the Research .....  | 214        |
| Main Contributions to the Literature.....  | 220        |
| Implications for Further Research .....  | 230        |
| Limitations and Challenges .....   | 241        |
| Summary of Discussions .....   | 246        |
| <b>CHAPTER SEVEN: CONCLUSIONS.....</b>   | <b>248</b> |
| A Brief Overview of the Research Outcomes .....  | 249        |
| Knowledge Gained from Using a Capability Lens on a Health Behaviour .....  | 252        |
| Implications for Policy and Practice .....   | 256        |
| Concluding Remarks .....   | 258        |
| <b>REFERENCES .....</b>  | <b>259</b> |
| <b>APPENDICES.....</b>   | <b>283</b> |
| Appendix 1. University of Warwick Biomedical and Scientific Research Ethics<br>Committee (BSREC) Approvals ..... | 284        |

|   |     |
|---|-----|
| Appendix 2. Local approvals and ethics approvals for data collection..... | 289 |
| Appendix 3. Participant Information Leaflets .....                        | 292 |
| Appendix 4. Consent for Contact Forms.....                                | 300 |
| Appendix 5. Informed Consent Forms .....                                  | 302 |
| Appendix 6. Semi-structured Interview Guide (Phase I).....                | 305 |
| Appendix 7. Questionnaire (Phase II) .....                                | 309 |

## List of Tables

|   |     |
|---|-----|
| <b>Table 1</b> - Successful intervention strategies for reducing child SHS exposure as reported in systematic reviews .....                         | 47  |
| <b>Table 2</b> - Summary of social aid concentration among primary care doctors (GPs) in Mures County (2013) .....                                  | 103 |
| <b>Table 3</b> – Qualitative study sample description .....   | 139 |
| <b>Table 4</b> - Summary of qualitative themes.....   | 141 |
| <b>Table 5</b> – Quantitative sample distribution by living context.....  | 169 |
| <b>Table 6</b> – Quantitative sample distribution by education, employment and languages spoken in home .....                                       | 170 |
| <b>Table 7</b> – Quantitative sample distribution by self-reported health status .....  | 171 |
| <b>Table 8</b> – Quantitative sample distribution by caregiver-reported health status of children .....   | 172 |
| <b>Table 9</b> – Quantitative sample Distribution by Smoking Variables.....   | 173 |
| <b>Table 10</b> - Correlation Matrix (Kendall's Tau-b) on Financial Strain items (n=197) .....  | 182 |
| <b>Table 11</b> - Factor loadings and communalities based on a Principal Component Analysis for 4 items of the Financial Strain Scale (n=197) ..... | 182 |
| <b>Table 12</b> - Correlation Matrix – Social Capital Items (n=196) .....   | 184 |
| <b>Table 13</b> - Factor loadings and communalities based on a Principal Components Analysis for 6 items of the Social Capital Scale (n=196).....   | 185 |
| <b>Table 14</b> - Correlation Matrix (Kendall's Tau-b) on Capability Items (n=188).   | 194 |
| <b>Table 15</b> - Factor loadings and communalities based on a Principal Components Analysis for 10 items of the Capabilities Scale (n=188) .....   | 196 |

|  |     |
|--|-----|
| <b>Table 16</b> - Association between capability measures and smoking behaviour in the home. ....  | 197 |
| <b>Table 17</b> - Multinomial Logistic Regression Model for General Capability Score: Predictors' Unique Contributions to the Multinomial Logistic Regression (n=184) .....                                | 200 |
| <b>Table 18</b> - Multinomial Logistic Regression Model for General Capability Score: Parameter estimates contrasting Non-Smoking Group versus Each of the Other Groups (n=184).....                       | 201 |
| <b>Table 19</b> - Multinomial Logistic Regression Model for General Capability Score: Parameter estimates contrasting Smoking Group versus Each of the Other Groups (n=184).....                           | 201 |
| <b>Table 20</b> - Multinomial Logistic Regression Model for the Capability to Restrict Smoking for Guests: Predictors' Unique Contributions to the Model (n=192).....                                      | 202 |
| <b>Table 21</b> - Multinomial Logistic Regression Model for the Capability to Restrict Smoking for Guests: Parameter estimates contrasting Non-Smoking Group versus Each of the Other Groups (n=192) ..... | 203 |
| <b>Table 22</b> - Multinomial Logistic Regression Model for the Capability to Restrict Smoking for Guests: Parameter Estimates Smoking Group vs. Each of the Other Groups (n=192) .....                    | 204 |
| <b>Table 23</b> - Multinomial Logistic Regression Model for the Capitals: Predictors' Unique Contributions to the Model (n=188) .....  | 205 |
| <b>Table 24</b> - Multinomial Logistic Regression Model for the Capitals: Parameter estimates contrasting Non-Smoking Group versus Each of the Other Groups (n=188) .....                                  | 206 |
| <b>Table 25</b> - Predictors' Unique Contributions in the Multinomial Logistic Regressions .....   | 207 |

|  |     |
|--|-----|
| <b>Table 26</b> - Comparative Multinomial Logistic Regression Models for Capabilities, while Controlling for Capability Measures: Parameter estimates contrasting Non-Smoking Group versus Each of the Other Groups..... | 209 |
| <b>Table 27</b> Integration of qualitative and quantitative data in inferring main contributions to the literature.....  | 220 |

## List of Figures

|   |     |
|---|-----|
| <b>Figure 1</b> - The capability-functioning dyad as defined by Sen .....   | 64  |
| <b>Figure 2</b> - A capability taxonomy as described by Nussbaum.....   | 66  |
| <b>Figure 3</b> - Criteria to consider when defining capabilities lists as defined by Robeyns .....                       | 68  |
| <b>Figure 4</b> - Mechanisms of fertile functioning and corrosive disadvantage as described by Wolff and De-Shalit .....  | 70  |
| <b>Figure 5</b> - Causal factors which shape human capability as described by Venkatapuram .....                          | 73  |
| <b>Figure 6</b> Mixed-methods research design and data mixing strategy .....  | 94  |
| <b>Figure 7</b> - Egocentric social mapping tool .....  | 109 |
| <b>Figure 8</b> - Life grid interviewing tool .....   | 111 |
| <b>Figure 9</b> - Crosstabulation between maternal smoking and in-home smoking behaviour groups (n=200) .....             | 174 |
| <b>Figure 10</b> - Crosstabulation between paternal smoking and in-home smoking behaviour groups (n=200) .....            | 175 |
| <b>Figure 11</b> - Smoking in the social group (n=200) .....  | 176 |
| <b>Figure 12</b> - Sample distribution by living arrangements (n=202) .....   | 177 |
| <b>Figure 13</b> - Crosstabulation between in home smoking and living arrangements (n=200) .....                          | 178 |
| <b>Figure 14</b> - Sample distribution by perceived level of control over living environment (n=200) .....                | 178 |
| <b>Figure 15</b> - Sample distribution by degree of satisfaction with the physical state of current dwelling (n=199)..... | 179 |

|  |     |
|--|-----|
| <b>Figure 16</b> - Sample distribution by perceived level of home adequacy to current needs (n=200)..... | 180 |
| <b>Figure 17</b> - Distribution by family income, after tax (n=188).....                                 | 181 |
| <b>Figure 18</b> - Crosstabulation between in-home smoking and highest family education (n=197).....     | 186 |
| <b>Figure 19</b> – Sample distribution by knowledge on children's SHS exposure (n=201) .....             | 187 |
| <b>Figure 20</b> - Crosstabulation between in-home smoking and SHS knowledge (n=200) .....               | 188 |
| <b>Figure 21</b> - Sources of information on child health and child rearing (n=201).....                 | 189 |
| <b>Figure 22</b> - Capital dynamics: Transfer and Acquisition of Cultural Capital Items (n=200) .....    | 190 |

## Acknowledgements

I would like to express my gratitude towards all the persons who helped me make this thesis possible and supported me in my journey. As all journeys, it intersected with, and was impacted by, many wonderful and kind people, in ways which are hard to put into words. I would like to thank all the women who offered their time and shared their valuable stories as participants in my research – thank you for your trust. I would also like to express my appreciation towards the healthcare professionals who supported me in setting up recruitment sites despite their tight schedules, with a special thanks to Professor Oana Marginean.

I would like to particularly thank my supervisors, Dr Clare Blackburn and Dr Wolfgang Markham, and in my first years of this journey, Dr Jane Kidd. Your invaluable guidance, patience, support, and constant encouragements helped me finalize this journey, and I am very grateful to have benefited from your supervision throughout these years. I felt you believed in me, even in moments in which I had stopped doing so, and that was pivotal in finding the resources to finalize my journey. I have also learned greatly from the kind, empathic and supportive ways you have guided me – I hope to be able to carry it forward. I would also like to express profound appreciation to Professor Gillian Hundt and Professor Christine Harrison for being a true inspiration on a professional and personal level, empowering me, and helping me build confidence in finding and following my path – I feel very fortunate to have had the opportunity to meet you. And to prof. David Ormandy, who in a serendipitous conference meeting, created my initial link with Warwick, which then allowed me to pursue this degree – without you, none of this would have been possible.



I would also like to express thanks to all my former colleagues at the Cluj School of Public Health at Babes-Bolyai University Cluj-Napoca, which have been an extended family for my years of public health research in Romania, and generated the interest, context and initial motivation for pursuing this degree: Ioana Rus, Razvan Chereches, Diana Dulf, Ema Marton, Marius Ungureanu, Alex Coman, Elena Bozdog, Oana Blaga, Alexandra Onisor, Paula Alexa, Andreea Silaghi, Cristian Meghea – thank you for all your support, and I am very grateful for having had the opportunity to grow with you. Also, to Dr Anne Baber-Wallis, who mentored me in my initial years of public health research and helped me discover the field of maternal and child health research – thank you for your guidance, support and for providing me with great learning opportunities.

Nonetheless, without the care of my loving family and friends, their patience and encouragements, this long journey would have been impossible. Mum & Dad, you have been a constant inspiration, an infinite source of support, and backed-up even my wildest decisions – thank you for believing in me. Mihai & Fish, you have brightened up the longest lockdowns and grounded me in the intense period of wrapping up this journey – I feel fortunate to have had you by my side. Magda, Julie, Anca, Lu, Dia, Cristi and many other dear ones who are part of my life – thank you for your constant support and bearing with my long absences.

I also feel very privileged to have had the opportunity to study at Warwick University, and I would like to extend my thanks to all the faculty, staff and peers who helped me and encouraged me in this process, and to express my deep gratitude for all the wonderful people I have met. It has been a life-changing experience.

Finally, I would also like to acknowledge that my data collection for the research presented in this thesis was partly supported by an internal grant for young researchers offered by Babes-Bolyai University Cluj-Napoca.

## **Declaration**

This thesis is submitted to the University of Warwick in support of my application for the degree of Doctor of Philosophy. It has been composed by myself and has not been submitted in any previous application for any degree. The work presented (including data generated and data analysis) was carried out by the author. No parts of this thesis have been published by the author.

## Summary

Protecting children from the harmful effects of secondhand tobacco smoke (SHS) exposure is a critical public health problem, which needs to be addressed to reduce tobacco-attributable mortality and morbidity. However, children's SHS exposure is strongly embedded in the socio-cultural environment, and interventional studies suggest mixed results. As a result, there is an increased need for more research on the socio-cultural environment within which smoking takes place, to ultimately inform effective interventions to reduce child exposure, while mitigating health inequalities.

The capability approach, which emerged as a critical response to income inequality theories and utilitarian approaches to social inequalities, became highly influential through the work of Amartya Sen and was best known in the area of human development. Since then, it was increasingly adopted in health studies, however with limited empirical applications around health behaviours. My study aimed to lay the foundation for the exploration of children's secondhand tobacco smoke exposure via a capability lens.

The research explored decisions around indoor smoking in homes with young children (ages 36 months and younger), in an Eastern European country, Romania, as experienced and reported by mothers. Guided by the capability approach, it followed a two-phase sequential mixed-methods study design, with a qualitative component followed by a quantitative component. Results are reported on 17 qualitative interviews and 202 questionnaires. Findings suggested that the operationalisation of capabilities for smoke-free homes holds high potential and was also statistically associated with in-home smoking. The research thus brings a novel contribution to knowledge, by further expanding the application of the capability approach to understanding health behaviours.

## Abbreviations

|       |                                |
|-------|--------------------------------|
| CA    | Capability Approach            |
| CS    | Capability Score               |
| DALYs | Disability-Adjusted Life Years |
| GP    | General Practitioner           |
| HDI   | Human Development Index        |
| MCH   | Maternal and Child Health      |
| PCA   | Principal Component Analysis   |
| SHS   | Secondhand Tobacco Smoke       |

## **CHAPTER ONE: Introduction**

This first chapter introduces the thesis, with a focus on the research topic, the study design as well as an introduction to Romania, as the setting in which the research was conducted. The chapter starts by briefly introducing the topic of study and its scientific relevance, thus defining the “Why” space of the thesis. The aspects discussed in this section are treated in more depth in chapter two, the Literature Review. The chapter continues with a brief overview of the purpose of the research and the study design, to offer readers an introduction to the “What” and “How” of the thesis. I continue this discussion in more detail in chapter three, Methodology and Methods. The third section of the Introduction addresses the “Where” or the “in What Context” of the research, where I provide background information on Romania, as the country in which data collection took place. It provides the needed perspective on the socio-economic, political, and health characteristics of the setting, which help contextualise the findings, while justifying the relevance of its selection. The chapter then continues with an overview of the structure of the thesis, to support its navigation, and ends with a short section regarding my personal motivation for pursuing this research.

## An Introduction to the Topic: The *Why*?

Smoking poses a significant challenge for reducing child mortality and improving maternal health, as passive smoking disproportionately affects women's and children's health (Collishaw, 2010). Children's exposure to secondhand tobacco smoke (SHS) is also an important contributor to increasing health inequalities world-wide, while reducing child exposure also positively impacts their health into adulthood (World Health Organization, 2005). Systematic reviews on the effectiveness of family and carer interventions for reducing children's SHS exposure suggest that only a minority of interventions have been reported as effective in reducing exposure, with limited evidence to understand the underlying mechanisms of their effectiveness (Behbod, Sharma, Baxi, Roseby, & Webster, 2018). As a result, it is essential to advance the current knowledge on preventing early, in-home exposure to secondhand tobacco smoke, across all socio-economic groups, to prevent widening inequalities into adulthood.

The most prominent theories explaining the relation between smoking and inequalities focus on smoking as a coping mechanism in psychosocial stress, differences in perceived gain from health behaviours, the use of smoking in class differentiation, lack of knowledge and access to care of smokers, efficacy and agency in smoking cessation, differences in benefiting from aid in acquiring health behaviours, or access to different community opportunities (Pampel, Krueger, & Denney, 2010). But despite extensive research being conducted on smoking behaviour, there still is a limited understanding on how inequalities emerge and widen. Interest in assessing the impact of tobacco control interventions on health inequalities has substantially increased in the past 20 years, but there still is limited empirical evidence to help us fully understand the impact of interventions on equity, especially in low- and middle-income countries (Smith, Hill, & Amos, 2020).

Most studies developed on the social patterning of smoking have been conducted after the gradient was observable and steepening, with the most extensive data being available from higher income countries. Having such information *before* experiencing a steep gradient, could not only inform tailored interventions, but could also be employed to measure the impact of public health interventions on health inequalities. At the time of starting the work for this PhD thesis (2012) Romania had a high smoking prevalence and an emerging social patterning of this behaviour (Nazar, Lee, Arora, & Millett, 2016). This context was identified as having a great potential to understand the social patterning of the behaviour before the gradient in smoking exposure is well established. Growing tobacco control initiatives and de-normalization of smoking had the potential to contribute to widening health inequalities, similar to their path in developed countries. However, with no existing baseline data, it is difficult to assess the impact of public health interventions on inequalities. From this perspective, developing a study in Romania to understand the social context of smoking in homes with young children, and the interrelations between structure and agency, was considered essential.

## An Introduction to the Research Strategy: The *What* and *How*?

This thesis aimed to explore smoking in homes with young children (as an important determinant of SHS exposure), in an Eastern European country, Romania, as experienced and reported by mothers of young children (ages 36 months and younger). As an innovative approach to understanding the social patterning of a health behaviour, the scope of the research was to explore if a capability lens could be used to understand in-home smoking decisions. It also aimed to identify and understand the role of maternal capabilities in determining in-home smoking decisions, in relation to cultural, social, and economic capitals and their interplays (or their *dynamics*). My empirical exploration of children's exposure to SHS in Romania, was conducted using an ontological, epistemological, and methodological mix, guided by pragmatism and critical realism. A two-phase, sequential mixed-methods study, with a qualitative strand followed by a quantitative strand was used. I thus inferred the results of the current research from 17 qualitative interviews and 202 questionnaires, collected between June 2014 and February 2016. The methodological aspects and philosophical foundations of my research are discussed in detail in chapter three.

The work of Amartya Sen on the capability approach, further elaborated by scholars such as Nussbaum, Wolff, de-Shalit, Robeyns and Venkatapuram, has been highly influential on my current research (Sen, 1992; Sen, 1993; Nussbaum, 2000; Nussbaum, 2010; Wolff & de-Shalit, 2007; Robeyns, 2003; Venkatapuram, 2011). Whereas the formers' work inspired the design of my conceptual framework, the work of Venkatapuram on translating the capability approach to the field of health was important for the operationalization of *health* capability. It guided my effort of understanding smoking behaviour in the context of individual capabilities, and to develop a conceptual framework for my empirical investigation of in-home smoking behaviour among families with



young children. Robeyn's work approaches in more depth capabilities through a gender inequality perspective (Robeyns, 2003), which was important to my work, as I documented mothers' experiences. I also draw on the work of Thomas Abel, which was in turn inspired by Bourdieu, in his approach to cultural capital for health and capital interplays (Abel, 2007). Abel & Frohlich's conceptual work on *associating* Bourdieu's capitals and Sen's capabilities theories, was also highly influential on the current thesis (Abel & Frohlich, 2012). These are discussed in more detail in the second part of the Literature Review chapter of the thesis, where I present in more depth the capability approach.

## An Introduction to the Setting: The *Where* and in *What* Context?

Romania is an Eastern-European country with a population of roughly 19 million people, and a member of the EU since 2007, status attained after a 7-year processes of accession negotiations (World Bank, 2021). The country has undergone a long transition into a democratic society since 1990, as in December 1989 the communist regime which had been installed after the Second World War was overthrown. This transition had significant implications on both a political level, with a transition from totalitarian government to a democratic one, as well as on the economy of the country, transitioning from a planned economy to a market economy (European Commission, 2019). The official language of the country is Romanian, and it hosts a majority of ethnic Romanians (89.5%), and a minority of 6.6% Hungarians, 2.5% Roma, 0.28% Ukrainians, 0.28% Germans and 0.9% other nationalities. The country is administratively organised in 41 counties plus the capital region of Bucharest, and roughly half of the population lives in urban areas (54.9%) (European Commission, 2019).

In 2012, Romania was classified as a middle-income country, having graduated to become a high-income country in 2019 (The World Bank, 2021). In 2011, Romania had a Human Development Index<sup>1</sup> (HDI) value of 0.806, which increased to 0.828 in 2019. According to the Human Development Report, it currently ranks 49 from 182 countries included in the HDI, with a value above the cut-off for the “very high human development” category<sup>2</sup> (United Nations, 2021). The overall life satisfaction reported by Romanians has also slightly

---

<sup>1</sup> The Human Development Index is a composite index which reflect national achievements on long and healthy life, education or knowledge and a decent standard of living, which are viewed as basic dimensions of human development (UNDP, 2020).

<sup>2</sup> HDI Cut-offs, according to UNDP: Low human development – below 0.550; Medium human development – 0.550-0.699; High human development – 0.700-0.799; Very high human development – 0.800 and above (UNDP, 2020)

increased, from 7.1 in 2013 to 7.3 in 2018, measured on a 10-point scale (Eurostat, 2021). The country has also experienced improvements in the population's information technology skills. In 2011, half of Romanians (50%) had never used a computer, compared to 27% in 2017 (Eurostat, 2021). However, 10% of the population was estimated to have above basic digital skills in 2019, compared to 31% in EU27 countries (Eurostat, 2021).

Although the country has experienced an accelerated growth and a 47% increase in GNI per capita from 2010 to 2019 (United Nations, 2021), it still experiences significant poverty. It is estimated that 23.8% of the population still lives below the national poverty line, and 2.4% of the population lives on less than 1.9 USD per day, according to 2018 data (World Bank, 2020). Over one third of the population (31.2%) were estimated to be at risk of poverty or social exclusion in 2019, with stark differences across educational levels (54.5% for lower education compared to 5.8% of tertiary education graduates) as well as degree of urbanisation (44.3% of rural inhabitants compared to 14.5% of city inhabitants). It was also estimated that 16% of children aged 6 or younger faced severe material deprivation in 2019, however with a significant improvement from 2011 when the same estimate was 39.3% (Eurostat, 2021). At the same time, Romania is one of the countries in the EU which still spends the least amount for social protection, with a total of 1,547 euro spent per inhabitant in 2018, significantly lower compared to the EU average of 8,234 euro (Eurostat, 2021).

In 2020, Romania's employment rate calculated for the population aged 15-64 was 70.8%, experiencing a significant increase from 2011 when it was 63.8% (Eurostat, 2021). Although the median equivalised income has increased from 2011 to 2018 (from 2,091 to 3,284 euros), it is still one of the lowest in the EU (EU27 median: 17,522 euro) (Eurostat, 2021). The gender employment gap has increased from 15.3% in 2011 to 19.3% in 2020, whereas the gender pay gap has decreased from 9.6% to 3.3% (Eurostat, 2021).

### *Health status and health services in Romania*

According to the European Commission State of Health in the EU Report, Romania's life expectancy has increased from 71.2 years in 2000 to 75.3 years in 2017; however, it still lags 6 years behind the EU average. The gender gap is also wider compared to the EU, with women living 7.4 years longer compared to men. Inequalities in life expectancy at age 30 by education level are also stark, higher among men (9.7 years between higher educated and lower educated) and more reduced but still present among women (3.8 years). One third (31%) of people aged 65+ report limitations in activities of daily living, compared to 18% EU25 average, affecting more women than men. The leading causes of death are cardiovascular diseases, with ischaemic heart diseases and stroke accounting for 550 deaths per 100,000 individuals in 2016. Lung cancer is the most prevalent type of cancer, with a mortality rate which has experienced a 14% increase since 2000, associated with high smoking rates. More than half of all deaths in Romania are attributable to behavioural risk factors such as tobacco consumption (17% of all deaths), alcohol consumption (14%), nutrition (27%) and reduced physical activity (4%) (OECD & European Observatory on Health Systems and Policies, 2019).

From 2009 to 2019, a significant improvement has been observed across relevant child health indicators such as infant mortality rate (which decreased from 10.05 to 5.69 per 1,000 live births), neonatal mortality rate (decreased from 5.29 to 3.45 per 1,000 live births) as well as under-five mortality rate (decreased from 11.82 to 6.98 per 1,000 live births). However, the rates are still higher compared to the European average (IGME, 2020). In relation to respiratory health conditions, in 2015, Romania experienced a rate of 8.92 deaths per 100,000 children ages 1-4 (WHO European average 6.42), and a much higher rate of 188.03 deaths per 100,000 infants (WHO European average 56.95). For pneumonia specifically, the rate was 7.74 deaths per 100,000 for children ages 1-4, and 179.27 deaths per 100,000 for infants

(WHO-European averages 3.59 and 35.3 respectively) (World Health Organization, 2020).

In 2017, the national social health insurance system covered 89% of the population. The governance of health services is coordinated by the Ministry of Health and their district level public health authorities, present in the 41 counties plus the Bucharest municipality. The system is financed by the national health insurance fund, receives funds from the national budget and local budgets, but is also supported by out-of-pocket payments (European Observatory of Health Systems and Policies, 2021). The latter accounted in 2017 for 20.5% of the total health expenditure, which has a high potential to reduce access to healthcare services (OECD & European Observatory on Health Systems and Policies, 2019). Although the self-reported unmet need for medical examination and care due to the inaccessibility of healthcare services has reduced significantly from 12.2% of the population in 2011 to 4.9% in 2019, it is still well above the EU27 average of 1.7% (Eurostat, 2021).

According to Eurostat, the health expenditure for all health care providers in 2018 was of 584 euro per inhabitant, significantly lower than the EU27 average of 2,982 euro. Out of these, only 1.6 euro were expenditures for providers of preventive care (EU27 average is 36 euro) (Eurostat, 2021). In 2018, Romania had 305 practicing doctors and 721 nurses per 100,000 inhabitants, significantly lower compared to other countries such as Germany (431 and 1,322 respectively). This pressure on the healthcare system has been amplified by an intense migration of healthcare professionals. For example, throughout 2016 and 2017, more than 100,000 medical doctors and 300,000 nurses migrated to other states (Eurostat, 2021).

### **Smoking behaviour and tobacco control efforts in Romania**

Latest available estimates on Romania from 2018 suggest that 21% of the population smoked, with 38% of males and 19% of females (ages 15 and above), and 14.6% of adolescents ages 13-15 (World Health Organization, 2019). Even though smoking rates are still high, a decreasing trend can be

observed, as in 2011 the national smoking prevalence was estimated at 26.7% (Ministry of Health Romania, 2011), and in 2000 it was 36.1% (Center for Health Policy and Services Bucharest, 2004). It is also estimated that 20.69% of all male deaths and 7.61% of all female deaths were attributed to tobacco consumption in 2016 (The American Cancer Society, 2016). In addition, in 2010, Romania registered a rate of 2,818 per 100,000 hospital discharges following a respiratory system disease, which was double compared with the WHO European average of 1,421 per 100,000 discharges (World Health Organisation, 2020).

In 2016, only one third of adult respondents living with children had a total ban on smoking in their homes, whereas almost half (46.7%) reported a restricting smoking to certain areas or time periods in the home (Fu, et al., 2019). A pilot study developed in 2011 by the Centre for Health Policy and Public Health on a sample of 1177 sixth grade children, recruited from 31 schools in Cluj-Napoca Romania, revealed that 30.2% lived with at least one smoker in their home, and 42.8% were exposed daily to SHS in their homes, by at least one person (Brinzaniuc, Chereches, Rus, Duse, & Pop, 2011).

The tobacco industry's interventions to deflect policy and influence tobacco control were felt in Romania after 1989, the year that marked the fall of the communist regime. In 2004, Romania was described as the largest cigarette market for the tobacco industry in South-Eastern Europe, and a significant producer of tobacco products; only 11.3% of cigarettes from the total demand of cigarettes were being imported in the year 2000 (Bozicevic, Gilmore, & Oreskovic, 2004). Romania was also one of the seven countries included in the CEMA 2000 project undertaken by Philip Morris, one of its first international pursuits of the "societal alignment" of smoking world-wide (Philip Morris, 2001). CEMA 2000 conducted a cross-country, rigorous qualitative and quantitative assessment of the social acceptability and attitudes towards smoking, existing support for litigation regarding healthcare costs, smoking bans, as well as perceived health hazards of second-hand smoke (Yang & Malone, 2008). As a

result, “youth smoking prevention” programs were implemented in 2001, sponsored by Philip Morris, British American Tobacco and JTI International, and conducted in collaboration with the Ministries of Health and of Education (Landman, Ling, & Glantz, 2002; Simpson, 2000). Additionally, advocacy activities for indulgent taxing of tobacco products were proposed, as an important pillar in the tobacco industry strategy (Yang & Malone, 2008). The tobacco industry still has a strong presence in the country, with 72.5 billion cigarettes still being produced in Romania in 2016 (The American Cancer Society, 2016).

With the accession to the European Union, however, Romania adopted tobacco control policies into its national policies (Studlar & Christensen, 2009). The Association of European Cancer Leagues developed the *Tobacco Control Scale in Europe*, an instrument comparatively assessing European countries on their implementation of tobacco control policies at a national level. The 2010 evaluation placed Romania at the middle amongst fellow states (16<sup>th</sup> place, with 45 points out of the maximum 100 possible, far behind the top country, the UK, with 77 points). Romania presented high scores on pricing policies and treatment, medium scores on advertising bans and low scores on public place bans and health warnings; no money were reported as being spent on health information campaigns (Joossens & Raw, 2011). According to the most recent WHO MPOWER Country Profile, in 2018, Romania had a complete policy on monitoring of prevalence data, smoke-free policies and health warnings, a moderate policy on cessation programs, advertising bans and taxation, and a weak policy on media (World Health Organization, 2019). In July 2018, the price of the lowest cost brand of cigarettes was 15.3 RON, and the price of the most sold brand of cigarettes was 17.5 RON (4.43 US dollars at official exchange rates, for a pack of 20 cigarettes) with 3.66% of the GDP per capita required to purchase 100 packs (World Health Organization, 2019). On the other hand, available data from 2006 suggest that Romania’s tobacco *control* budget per capita was of 0.01 Euros (Joossens & Raw, 2007). In 2018, it reported having a national agency for tobacco control with 3 full-time

equivalent staff and spent 538,000 RON on tobacco control (World Health Organization, 2019), roughly the equivalent of 100,000 Euros.

Using Lopez's model of the four stages of the smoking epidemic (Lopez, Collishaw, & Piha, 1994), Romania could have been positioned (at the time of starting data collection for this research) in stage III transitioning to stage IV, from the perspective of smoking prevalence, and in stage II transitioning to stage III, from the perspective of tobacco control. Within stage III male smoking rates decline considerably and by the end of the stage, female smoking rates also start to decline; at this point, smoking prevalence will decrease significantly among high SES, whereas the decrease among lower SES is more modest, partially explained by the limited reach of health interventions; finally, smoking-attributable mortality among men increases to 25-30%, whereas women's mortality for the same causes is measured at 5%. Stage IV is characterized by a steady but slow decline in smoking rates among both men (33-35%) and women (30%), and a very high smoking-attributable mortality, reaching 40-45% in middle aged men and about 20-25% in women (Lopez, Collishaw, & Piha, 1994). From a tobacco control perspective, Stage II is defined by unsystematic, educational campaigns and very little support for tobacco control initiatives, as the risks associated with smoking are not fully understood. Within stage III, policies on tobacco control are widely enacted, smoke-free places promoted and smoking uptake prevention and cessation interventions are more rigorously implemented; finally, the smoking behaviour is being de-normalized. Only the fourth stage is characterized by an increased interest in reducing tobacco smoke exposure in personal environments (Lopez, Collishaw, & Piha, 1994). The model proposed by Lopez in 1994 was further assessed with more recent data, which suggested that it still proves useful in describing the progression of the tobacco epidemic in developed countries, however it could be improved to be more relevant for developing countries, by differential description of separate trends for men and women (Thun, Peto, Boreham, & Lopez, 2012).



## Structure of the Thesis

The structure of the thesis follows seven chapters, each of them having a summary or conclusion at the end. This first chapter introduced the topic, the research strategy, and the research setting. In the next section of this first chapter, I will offer a brief personal motivation for choosing this research topic as my focus.

Chapter two of the thesis documents the literature review conducted for the research. It is structured in two parts, which follow the interdisciplinary nature of my approach. As a result, the first part of the literature review contextualises the importance of the topic, by presenting the public health literature on the smoking epidemic, children's SHS exposure and evidence on tobacco-related documented inequalities. The second part of the literature review discusses the literature around health inequalities and the capability approach, which was used as a guiding framework for my research.

Chapter three presents the methods and methodology aspects of the research conducted in this thesis, discussing the study purpose and research questions, the study design, guiding research paradigms, the study setting and population, describes the data and measures used in each of the strands of the research, as well as the data collection and data analysis protocols. The chapter also provides insights on the ethical aspects of the conducted research, as well on the process of reflexivity and positionality I undertook for this research.

In chapter four I present the findings from my qualitative research, as uncovered through the thematic analysis of in-depth interviews conducted in the first phase of the research. In chapter five I present the findings from my quantitative phase, as they emerged from the statistical analysis of the data collected through questionnaires, in the second phase of my research.

In chapter six I discuss the findings of both research phases in the context of the current literature, with a focus on the relevance of the research, main contributions to the existing body of knowledge, and implications for future research. Within this chapter, I also discuss the limitations and challenges of my research, as derived from my choice of, and the implementation of the study design, participants and their recruitment, data collection setting, potential reporting bias, as well as data analysis.

Finally, chapter seven contains the conclusions of my thesis. It is structured around a brief overview of the research outcomes mapped to my research questions, a conclusion on the knowledge gained by applying the capability approach to a health behaviour, as well as implications for policy and practice. The thesis ends with a concluding remark.

## Motivation for Pursuing the Research

Ever since my first interactions with the field of public health, I have been motivated by two overlapping areas which shaped my interest in the field: maternal and child health (MCH) and health promotion. In the 11 years spent collaborating and implicitly growing professionally with the Centre for Health Policy and Public Health (later becoming the School of Public Health) at Babes-Bolyai University in Cluj-Napoca, Romania, my main focus was community and behavioural health, with a specific focus on MCH, a severely understudied topic in Romania at the time. Although initially I had focused on perinatal health and breastfeeding, psychosocial stress during pregnancy, and even the prevention of unintentional child injuries, I had the opportunity to start working on tobacco and MCH a few years prior to starting my work for this PhD thesis. I had focused on smoking during pregnancy, as an important public health concern, but had discovered an even more understudied issue – children's exposure to secondhand tobacco smoke. With my personal narrative as a former smoker, I had become more interested in understanding the best mechanisms to reduce child exposure. And as a first step in this direction, I had implemented a small-scale pilot project (ETS-KIDS) in Cluj-Napoca together with my colleagues, to collect some preliminary data on this topic on an older age group (school children). As the results suggested significant exposure for this group of older children, I became more interested in younger age groups, where the literature suggested that exposure is even higher, and local data was extremely scarce.

My initial training was in communication sciences, which I then translated to the field of health promotion, collaborating with health psychologists and public health professionals in designing and evaluating behavioural health interventions. As a result, my initial proposal for this PhD thesis was to develop a tailoring algorithm which could support person-centric interventions to reduce child exposure. However, while following that path, I had become more interested in the structural factors which shape behaviours and became

disconcerted with the limited efficacy of purely educational interventions. From this experience, my interest around the social determinants of health grew and I decided to pursue it further throughout my PhD work. This gave me the context to grow professionally in understanding more about the social determinants of health and health inequalities and study the role of tobacco in widening inequalities. I had embarked on a journey of understanding the theories which were employed to explain health inequalities, understand their strengths and limitations, as well as to identify a theoretical framework which would account for the structure-agency bridge, which I found most interesting. In this journey, I came across the capability approach, and I was surprised about its limited application at that time on health behaviours, and more specifically on issues around smoking. I have thus continued investigating this area in an attempt to define the theoretical space of my research on children's exposure to tobacco smoke and decided to use the capability approach as a guiding framework for my work.

The research conducted in the thesis lies more in the scope of fundamental research, but I was strongly motivated by its potential applications towards improving health outcomes. The way towards translating these findings into practice is still a long way off, but the results show promising perspectives in using a capability lens to look at health behaviours in a more equitable manner and starting to think about developing person-centric interventions (my initial interest deriving from designing tailored interventions). And at the time of writing this, after finalising my research, I strongly feel that the capability approach can support a nuanced and equitable understanding of health behaviours.

## CHAPTER TWO: Literature Review

This chapter is structured into two parts, with part one focusing on the relevance of the studied topic, and part two focusing on describing the theoretical framework used for the research. As a result, in the first part (*The tobacco epidemic, child health and inequalities*) I review the available public health literature to provide insights on the magnitude and mechanisms of children's secondhand tobacco smoke exposure, in the context of the global smoking epidemic. I also discuss the social patterning of the behaviour, and its association with health inequalities. In part two of the literature review (*Social disadvantage through a capability lens: implications for tobacco control*) I present the literature review conducted on health inequalities theories in general, and a more in-depth discussion on the capability approach. It thus provides the theoretical foundations for the guiding framework used for the research conducted in my PhD thesis. As each of the two parts of the literature review address two different facets of the research problem studied, a short Conclusions section is provided at the end of each of them, summarising the main points.

## **Part One:**

# **The Tobacco Epidemic, Child Health, and Inequalities**

Part one of the literature review starts with an introduction to the global burden of tobacco, followed by a discussion on the available scientific knowledge on children's exposure to SHS in terms of prevalence, sources of exposure and documented consequences, together with identified national variations. The section continues with a discussion on the social patterning of smoking and child SHS exposure, presenting the available empirical evidence on the social inequalities associated with smoking. It also presents the evidence on the unintended consequences of tobacco control efforts, and their impact on health inequalities, by discussing how some public health interventions have contributed to widening inequalities. Finally, it summarises the current state of knowledge on interventions to reduce child exposure, providing the context for the current research. At the end of the section, main aspects are presented in a short conclusions section.

## The Global Burden of Tobacco

Tobacco-attributable deaths were assessed at 7.1 million globally in 2016, with almost 884,000 deaths attributable to SHS, and wide disparities across countries (Drope, et al., 2016). World-wide, the number of smokers is declining in very developed countries, but for the rest of the world, the number of smokers is increasing, with an expected significant burden to be placed on health systems in the upcoming years (Drope, et al., 2016). Lower income countries in particular have been on an increasing trend of tobacco-attributable morbidity and mortality (GBD 2015 Tobacco Collaborators, 2017), and it's projected that by 2030, more than 80% of tobacco-related deaths will occur in low and middle-income countries (Matthers & Loncar, 2006). Despite intensive public health efforts to reduce the burden of tobacco consumption, the WHO 2025 target of lowering smoking and tobacco use by 30% is not supported by an accelerated-enough process; current estimates suggest that by 2025, 17.1% of the global population would still be smokers, compared to the targeted 15.1% (Peruga, López, Martinez, & Fernández, 2021).

Prospective studies suggest that smokers lose approximately 10 years of their lifespan (Pirie, Peto, Reeves, Green, & Beral, 2013), with smoking contributing to overall mortality as well as socioeconomic inequalities in mortality (Blakley & Wilson, 2005; Gregoraci, et al., 2016). A pooled analysis of 12 case-studies from Europe and Canada established that smoking accounted for up to half of the risk for lung cancer in lower socioeconomic groups (Hovanec, et al., 2018). Across Europe, the largest educational inequalities in lung cancer mortality among men were present in Eastern Europe and the Baltic countries, and they were associated with the distribution of the smoking epidemic (Van der Heyden, et al., 2009). However, even if studies reported significant inequalities in smoking-attributable *mortality*, inequalities in smoking *rates* were still reduced in magnitude (Mackenbach, et al., 2008). On the other hand, smoking

is more prevalent in low socioeconomic groups, especially in developed countries (Hiscock, Bauld, Amos, Fidler, & Munafò, 2012).

Approximately 53% of medical expenditures for individuals with lung and laryngeal cancer are attributable to smoking (Johnson, E., Dominici, Griswold, & Zeger, 2003). In 2003, 1.6 million years of potential life lost were attributed to smoking in Germany alone, rendering a loss of 21.0 billion euros in direct and indirect expenditures (Neubauer, Welte, Beiche, & al, 2006). In 2012, an economic modelling on data from 152 countries (accounting for 97% of the world's smokers) estimated that the total cost of smoking (as a result of direct healthcare expenditure and cost of productivity lost) reached 1,483 billion USD, which is 1.8% of the world's annual GDP (Goodchild, Nargis, & d'Espaignet, 2018). A study conducted in Denmark estimated that the net lifetime public expenditure associated with a male 18-years-old smoker is 20,520 euros higher compared to a never-smoker; costs incurred on the healthcare system are 9,921 euros higher, and their average lifetime income is 91,159 euros lower (Rasmussen, Søgaaard, & Kjellberg, 2021).

Consequently, the global burden of tobacco consumption is still high, although improvements have been experienced by certain countries. It impacts individual health and well-being, with a rippling effect through societies as a result of the burden they place on healthcare systems and communities.

## **Children and Secondhand Tobacco Smoke Exposure**

Children's exposure to SHS is positively associated with a range of poor health outcomes. Its effect on respiratory health is well established, with negative implications for infant lung development and children's upper and lower respiratory tract infections (Vanker, Gie, & Zar, 2017). A meta-analysis of 60 studies established that children living with a smoker parent had a significantly higher risk of lower respiratory tract infections compared to the ones who lived with non-smoking parents, and the risk increased even more if both parents



were smokers (Jones, et al., 2011). Children exposed to SHS are also at increased risk for ear infections, as well as initiation and aggravation of asthma symptomatology (U.S. Department of Health and Human Services, 2006). Studies also suggest that exposure to SHS in the first years of life is positively associated with obesity in children (Raum, et al., 2011). Findings from a prospective birth cohort in Germany suggested that children exposed to SHS have a 30% higher relative risk for experiencing behavioural problems during school-age, which increased to twice the estimated risk if they were also exposed prenatally (Rückinger, et al., 2010). SHS exposure was also found as a risk factor for dental caries in children, even after controlling for confounding factors (Aligne, Moss, Auinger, & Weitzman, 2003), as well as cardiovascular diseases (Raghuveer, et al., 2016) and acute gastroenteritis (Kum-Nji, Mangrem, Wells, & Herrod, 2009). In addition, SHS exposure is considered the most preventable cause of sudden infant death syndrome (Fleming & Blair, 2007).

It is estimated that 70% of children are exposed to SHS globally (Vanker, Gie, & Zar, 2017), but estimates vary by study and unless biochemically validated, they are subject to reporting bias. A recent review of the burden of SHS exposure in children in Europe suggested a 12.1% exposure rate in 2017, with 35,633 DALYs attributable to SHS exposure (which included effects of SHS exposure during pregnancy). It also suggested that Eastern European countries showed the highest burden. Romania in particular showed the highest proportion of DALYs attributable to SHS exposure among the studied European countries (above 1.5%), mostly due to lower respiratory tract infections (Carreras, et al., 2020).

Studies suggest that prenatal and postnatal infant exposure to environmental tobacco smoke is positively associated with increased hospitalization rates in the first 18 months of life (Lam, Leung, & Ho, 2001). Household exposure to SHS is also associated with higher risk for hospital admission for infectious illness within the first 8 years of children's age, with a stronger association in

the first 6 months of life (Kwok, et al., 2016). Costs associated with respiratory diseases among children, especially asthma, have extensively been documented (Stoddard & Gray, 1997; Wang, et al., 2015). A study conducted in 2006 estimated that the yearly costs associated with interventions to address developmental delay in children, attributable to early-life exposure to SHS, was of 99 million USD for births in New York City alone (Miller, et al., 2006). Reducing children's SHS exposure would improve the quality of their lives and lower the burden on healthcare systems. This approach is especially important in middle and low-income countries, where healthcare systems resources are scarce. Thus, smoking cessation programs are among the most cost-effective as well as cost-beneficial public health interventions (Niaura & Abrams, 2002).

Children's SHS exposure is strongly embedded in the socio-cultural environment, and studies suggest mixed results. Level of household education, parental attitudes, and awareness of SHS and its health risks predict in-home exposure (Rise & Lund, 2005). Maternal smoking, single parent families, financial difficulties, family size and child age under 7 are independently associated with children's in-home or in-car exposure (Bolte & Fromme, 2009; Delpisheh, Kelly & Brabin, 2006). Nonetheless, international socio-cultural differences have been observed across determinants. Data from 2007 suggested that parental education was negatively associated with child exposure in Northern America (exposure increasing with decreasing education), positively associated with child exposure in France (higher education being associated with increased exposure), and no significant relationship was found in Turkey (Cobanoglu, et al., 2007).

Even if evidence suggests that maternal smoking is associated with higher exposure, fathers can also constitute substantial sources of exposure. In England, fathers contributed significantly to the child's exposure as households were more likely to have a smoking father rather than a mother. Also, households with both smoking parents needed specific attention in terms of

members' interaction in minimizing SHS risk (Blackburn, et al., 2005). A more recent study from Indonesia, where male smoking is more prevalent than female, suggested that paternal smoking was a significant source of exposure (Nadhiroh, Djokosujono, & Utari, 2020).

A qualitative systematic review by Passey et al (2016) identified 7 analytical themes which were reported in the literature in relation to barriers, motivators as well as what the authors defined as enablers of smoke-free homes (based on evidence from qualitative studies conducted in the UK, Australia, the USA, Canada, and China). The authors identified that most of the dimensions played dual roles, where they could be both barriers as well as motivators and/or enablers. For example, reduced knowledge, awareness, and risk perception acted as a barrier, while increased levels being identified as motivators for fostering smoke-free homes. Similarly, authors reported that a lack of agency (shaped by social norms, gender imbalances and structural factors) was identified as a barrier, while structural agency (rooted in the perceived rights of roles such as mother, homeowner and/or non-smoker) acted as enablers. This was also discussed by the authors from the perspective of personal skills or attributes, as they identified a set of personality traits, attitudes and skills being described in association with increased agency. Other aspects such as the ability to influence others, took on both negative and positive influences (Passey, Longman, Robinson, Wiggers, & Jones, 2016). All these findings further illustrate the complexities associated with transitioning and maintaining smoke-free homes.

## **The Social Patterning of Smoking and Secondhand Tobacco Smoke Exposure**

Health inequalities impact on children especially through living conditions, as socioeconomically disadvantaged households are associated with a range of exposures such as secondhand tobacco smoke (SHS), noise, traffic-related

pollution, lead, over-crowding, dampness and insulation problems, increased risk for injuries due to inadequate housing, as well as adverse neighbourhood conditions (Bolte & Fromme, 2009).

Data from the 1990s suggested strong international variations in smoking inequalities and across age groups. Female smokers belonging to an older age group, living in Great Britain, Sweden and Norway were more likely to be lower educated, whereas an inverse relationship was observed in Southern European women; however, the same pattern was not kept in younger age groups, as inequalities tended to increase in most countries in the 20-44 year age group (Cavelaars, et al., 2000). The authors suggested that these international differences could partially be explained by dissimilar smoking epidemic stages each country experienced and hypothesized that socioeconomic inequalities are expected to widen in many European countries, in the upcoming years (Cavelaars, et al., 2000).

Similar mixed relationships occurred in a cross-country analysis of the 2008-2010 Global Adult Tobacco Survey (GATS), suggesting increased national variations on the determinants of inequalities. Only several countries showed a significant association between tobacco consumption and low education (Bangladesh, India, Egypt, Philippines and Thailand), whereas more countries showed a significant association with low income (Bangladesh, India, Philippines, Thailand, Ukraine, Turkey, Viet Nam and Uruguay), or with decreased knowledge on the effects of smoking (India, Poland, China, Russian Federation, Ukraine, Thailand and Viet Nam) (Palipudi, et al., 2012).

Fleischer and colleagues (2012) focused on educational inequalities in smoking across 70 countries, suggesting that there is a social gradient among men, irrespective of any country-level factors (with geographically limited exceptions in sub-Saharan Africa). For women, however, the gradients were highly dependent of urbanity and tobacco marketing and rendered mixed results across countries (Fleischer, Diez Roux, & Hubbard, 2012). A cross-sectional time-trend analysis developed by Bacigalupe and colleagues (2012) on

smoking in Southern Europe (Basque countries), suggested that smoking rates had significantly declined in the overall population between 1986 and 2007, but widening health inequalities were still observed among younger age groups. These inequalities, however, did not persist in older age groups, as especially among high socio-economic women an increase in smoking was detected (Bacigalupe, Esnaola, Martín, & Borrell, 2013). A study developed in Spain reported inequalities in smoking among men; still, a reversed relation was observed among women in the same population, with higher education predicting increased likelihood for smoking uptake (Fernandez, et al., 2001). Another study in the US comparing two longitudinal samples, suggested that across an 8-year timespan, the dynamics of smoking uptake had changed, with widening educational disparities. According to the authors, individuals with less than a high-school education had 1.5 times greater odds to initiate smoking compared to individuals with the highest education in 2002-2003, and 3.4 times the odds in 2010-2011 (Yi, Mayorga, Hassmiller Lych, & Pearson, 2017).

Longitudinal data from the UK suggests that deprivation has limited impact on cessation *attempts*, however, it significantly impacts attempt *success rates* (Harper & McKinnon, 2012). In other words, individuals experiencing financial difficulties have roughly the same chances of engaging in a cessation attempt but are less likely to succeed. The main explanations for reduced success rates among lower SES include lack of social support, reduced motivation for quitting, increased stress and depression, differences in perception of benefits, reduced adherence to treatment, exposure to tobacco industry marketing strategies, and even greater nicotine dependence (Hiscock, Bauld, Amos, Fidler, & Munafò, 2012). Similarly, a study developed in Spain reported increased odds for higher educational groups, across both genders, to quit smoking, as compared to lower education (Fernandez, et al., 2001).

A cumulative effect of deprivation on smoking was also observed, with single parenting, living in rented accommodations, having decreased community

support, low occupational class, and low family affluence, determining higher tobacco consumption (Caleyachetty, Lewis, McNeill, & Leonardi-Bee, 2012). Research also suggests that community level inequalities impact smoking prevalence and cessation, with individuals living in disadvantaged neighbourhoods being two times more likely to smoke, compared to individuals living in less disadvantaged ones (Sharma, Lewis, & Szatkowski, 2010). However, data from low and middle-income countries suggests there are significant geographical variations in smoking inequalities *gradients*. An analysis of socioeconomic differences in smoking behaviours among 50 countries, developed by Harper and McKinnon (2012), suggested an increased heterogeneity in smoking inequality, with positive as well as negative gradients, which were not explained by national income. Thus, the authors suggest that the historical trends and patterns observed in wealthier countries across the stages of the tobacco epidemic might not be reflected in low and middle-income countries (Turrell, Hewitt, & Miller, 2012). As a result, it is important to assess the association between socioeconomic status and smoking in each geographical setting, as different underlying mechanisms such as individual-level determinants or national tobacco policy (Turrell, Hewitt, & Miller, 2012) might determine specific gradients.

## Is Tobacco Control Widening Health Inequalities?

Tobacco use is on a decreasing trend globally, mostly supported by a reduction in women's smoking rates; on the other hand, in the WHO European Region specifically, only 6 countries are expected to meet the 2030 goal of a 30% reduction in smoking rates, while it also experiences the highest female prevalence of smoking compared to all WHO regions (WHO, 2019). A significant improvement has also been observed globally regarding the scale of harm of SHS. The SHS index suggests that in 1990, for every 31.3 individuals who smoked, the death of 1 non-smoker was associated (due to SHS exposure), which changed to 52.3 smokers to 1 SHS-related death in 2016

(Yousuf, Hofstra, Tijssen, & et.al., 2020). However, despite investments in tobacco control, evidence from southern Europe suggests a widening of inequalities in smoking from the late 1980s up to 2007, trends which are stronger for younger age groups (Bacigalupe, Esnaola, Martín, & Borrell, 2013). The same results were found in Argentina, with steepening gradients in smoking in younger generations, and especially pronounced among women (Fleischer, Diez Roux, & Hubbard, 2012). These data suggest that despite public health efforts and a global reduction in smoking prevalence and exposure, significant inequalities persist and widen.

Several tobacco-control actions, such as pricing policies, smoking bans, and media campaigns, are documented to positively impact smoking prevalence (Wilson, et al., 2012). However, there is an increased concern in the literature about the unintended consequences of public health interventions, and especially about their potential in increasing health inequalities. Multiple mechanisms have been hypothesized for how interventions can widen inequalities in health, with a focus on dimensions such as inequitable access, adoption, adherence, and general effectiveness among disadvantaged groups (Veinot, Mitchell, & Ancker, 2018). Further critique brought to current health promotion interventions also discuss the aspect of “moralisation” and a culture of “healthism”, which can be present in health promotion which relies on provision and health information and educational strategies (Brown, 2018).

In his analysis of smoking beliefs and behaviours, Link (2008) assesses their changes and trends in the American society, starting with the 1950s. The results show that in the early years (1950-1954), despite the high reach of public health messages (85.8%) there is a significant educational gradient in health *message penetration*, however no significant gradient in *smoking beliefs* or *behaviours*. Message penetration increased throughout the years, but the educational gradient in beliefs started to appear in the late 1960s, stayed strong until the mid-1980s, and was still present in the 1990s, but more moderated; on the other hand, a gradient in smoking behaviours started to

appear in the late 1970s and consistently increased up to the 1990s, where 32.2% of high-school graduates and 14.6% of college graduates smoked (Link B. G., 2008).

Certain tobacco control intervention mechanisms, such as media campaigns and workplace smoking bans, were found to be associated with an increase in socioeconomic inequalities, whereas tobacco pricing as well as provision of resources are documented to decrease inequalities in smoking (Lorenc T. , Petticrew, Welch, & Tugwell, 2013). Pricing initiatives were specifically successful, as they appeared effective among low-income adults and manual occupation groups, but also impacted individuals with a higher level of education (Thomas, et al., 2008). Workplace health promotion interventions are not found to increase inequalities based on systematic review evidence, and from the limited available information they even seem to contribute to the reduction of inequalities, however more research is needed (van de Ven, Robroek, & Burdorf, 2020). A recent systematic review focusing on the impact of public smoking bans on the social disparities of children's SHS exposure, reported that very few studies assessed the equity implications of such policies, but none identified a negative impact on social inequalities (Nanninga, Lehne, Ratz, & Bolte, 2019).

Mass-media interventions are considered to provide some positive effects in reducing overall smoking rates, although results in the literature are mixed (Bala, Strzeszynski, Topor-Madry, & Cahill, 2013). A recent meta-analysis focusing on the impact of smoking bans and media campaigns on women's smoking in the US, found no statistically significant effect of media campaigns (Bird, Kashaniamin, Nwankwo, & Moraros, 2020). In terms of their effectiveness in reaching socially disadvantaged groups with tobacco control messages, a 2012 systematic review conducted by Guillaumier and colleagues suggested that the existing literature lacks the methodological and reporting rigorousness needed to yield consistent results. Thus, studies reporting on non-cessation outcomes as well as their lack of focus on severely disadvantaged groups have



brought mixed results, with limited applicability (Guillaumier, Bonevski, & Paul, 2012).

On the other hand, a study developed by Cantrell and colleagues (2013) on the impact of pictorial health warnings on cigarette packets in an American population, suggested that Hispanics and African Americans reported a stronger perceived impact and salience of the message delivered as such. Additionally, lower education (high-school or less) predicted a stronger impact, but no significant differences were observed between different income groups (Cantrell, et al., 2013).

Even though considerable attention was given to reducing smoking inequalities and, subsequently, health inequalities attributable to smoking, the impact of the multitude of interventions is still unclear (Smith, Hill, & Amos, 2020). In New Zealand, the existing strong relation between socio-economic deprivation and smoking prevalence was found to be consistent and unchanged over 10 years, between 1996 and 2006 (Salmond, Crampton, Atkinson, & Edwards, 2012). A 2012 review from the UK concluded that even if the country was on top of the *Tobacco Control Scale in Europe*, and smoking prevalence was significantly decreasing among the overall population, there was yet inconclusive evidence regarding the existing strategies' influence in reducing smoking among vulnerable, disadvantaged groups (Murray & McNeill, 2012). Mackenbach, in his attempt to describe the impact of the English strategy to reduce health inequalities in general, declared that *"reducing health inequalities is currently beyond our means. That is the sad but inevitable conclusion from the story of the English story to reduce health inequalities. Health inequalities are a stubborn phenomenon"* (Mackenbach J. P., 2010).

However, more recent data from the Smoking Toolkit Study in the UK show that smoking prevalence in November 2020 was of 9.9% in the higher socioeconomic group (reduced from 15.7% in Nov. 2010) and 20.8% in the lower socioeconomic group (reduced from 29.7% in Nov. 2010) (West, Kock, Kale, & Brown, 2020). Based on this data, it can be observed that in the 10-

year timespan, the higher socioeconomic group experienced a 36.9% reduction in smoking prevalence, compared to 30% of the lower socioeconomic group, suggesting a reduction in disparities of quitting, but not enough to account for prevalence disparities (as the prevalence of smoking is higher in the disadvantage groups). Taxation policies seemed to have had some positive impact on lower socioeconomic groups in the UK, despite the fact it sometimes resulted in an increased purchase of cheaper tobacco products (such as roll-your-own tobacco), as well as attempts to increase the affordability of products by rolling less tobacco in a cigarette (Partos, et al., 2020), diluting the observed effect on cessation.

## **Prevention Strategies to Reduce Child Exposure**

The main targeted behaviours in interventions aiming to reduce children's exposure to SHS focus on caregiver smoking reduction, complete cessation, or on minimizing exposure by keeping children away from smoking environments (Winickoff, et al., 2008). However, up to this point, there is insufficient evidence to recommend particular intervention strategies and associated mechanisms to support the reduction of children's SHS exposure.

A 2018 Cochrane systematic review identified 78 studies which aimed to reduce children's exposure to SHS, out of which 67 reported on data from high-income countries (out of which 45 in the USA), and 11 from low- or middle-income countries (China, Turkey, Iran, and Armenia). More than half of the studies (45 out of 78) reported using some type of a theoretical framework in the design and/or the implementation of the interventions, with 15 studies reporting using motivational interviewing (MI), 7 using a social learning model, 6 using Prochaska's transtheoretical model with a focus on the stages of change component, and the rest using combinations of other theories. Particularly prevalent were the combinations of MI with other theoretical approaches such as the Maori and Aboriginal holistic models of health, the teachable moment framework, cognitive-behavioural therapy (CBT), social-

cognitive theory and/or cognitive-behavioural skill building (Behbod, Sharma, Baxi, Roseby, & Webster, 2018). Thus, a high diversity of individual theoretical frameworks can be observed, further amplified by the combination of two or more theoretical frameworks in one study.

From the total pool of studies, only 24 reported statistically significant beneficial effects for the reduction of SHS exposure, however providing little insights on the reasons for their effectiveness, as they used a wide range of intervention mechanisms (some of which were also employed by the studies which did not report a significant improvement in the intervention group): one-stage as well as multi-stage counselling (in-person and telephone-based), motivational interviewing, education-based programs, school-based programs, smoking-cessation interventions and even brief advice. The authors concluded that the interventions which showed positive results were a minority and the characteristics of the effective interventions to differentiate them from the ones which did not have evidence of effectiveness remains unclear (Behbod, Sharma, Baxi, Roseby, & Webster, 2018).

However, even if intervention effects can be highly contextual and are difficult to compare due to differences in measurement and reporting, it is worth discussing the intervention mechanisms which were reported as successful in this latest available systematic review. Table 1 below briefly lists the intervention methods which were reported in the 2018 Cochrane Systematic Review as successful in the reduction of SHS. They are included regardless of the metric they employed to measure success, or the methods used to validate success. However, to contextualise the information, the table also mentions the type of validation used in the respective studies. These ranged from biochemical measures such as nicotine or cotinine measures in hair or urine, to environmental measures through ambient monitors, and self-reported measures (which were sometimes validated through additional saliva tests).

**Table 1 - Successful intervention strategies for reducing child SHS exposure as reported in systematic reviews**

| Intervention mechanism   | Validation   |
|--|--|
| In-person smoking cessation counselling, at different intensities and delivery mechanisms (Wahlgren 1997; Emmons 2001; Borrelli 2010; Baheiraei 2011; Collins 2015; Borrelli 2016; Chen 2016; Abdullah 2005) | A range of biochemical (urinary cotinine, hair nicotine), environmental measures (household air nicotine monitors) or self-reported measures |
| Complex intervention: initial counselling sessions, tailored educational brochures, demonstration of home air pollution, follow-up 2 sessions of telephone counselling (Harutyunyan 2013)                    | Biochemical (child hair nicotine)  |
| Minimal intervention: 3 mailings and one coaching call (Kegler 2015)   | Environmental (household air nicotine monitors)  |
| Complex educational intervention in a school setting: caregivers received counselling and self-help materials; children received in-class participatory health education sessions (Wang 2015)                | Biochemical (child urinary cotinine) + Self-reported (caregiver point prevalence)  |
| Brief intervention: 10-minute brief intervention based on the 5 As, offered by primary care physicians during 3 well-child visits (Ortega 2015)  | Biochemical (child hair nicotine)  |
| Bilingual comic book for children and two <i>fotonovelas</i> for adults (Prokhorov 2013)   | Environmental (household air nicotine monitors)  |
| School-based intervention encouraging students to help fathers quit smoking, using a tobacco control curriculum (Zhang 1993)   | Self-reported (paternal smoking cessation for at least 180 days)   |
| Home-visiting programme (Armstrong 2000; Kuiper 2005)  | Self-reported (reduction in smoking around the infant; postnatal maternal cessation)   |
| Brief motivational message and telephone counselling (Curry 2003)  | Self-reported (smoking abstinence at 12 months)  |
| Discussions about the effects of smoking on child or maternal health (Yilmaz 2006)   | Self-reported (maternal quit rate)   |
| <i>Continued on next page</i>  |  |

| Intervention mechanism   | Validation   |
|--|--|
| Motivational interviewing (French 2007)                                      | Self-reported with salivary cotinine validation (quit rates) |
| Motivational interviewing plus information on infant bonding (Phillips 2012) | Self-reported (maternal smoking cessation)                   |

As it can be identified in the table above, the intervention mechanisms which were reported as successful are extremely diverse, and difficult to pool and compare. Only counselling sessions were implemented individually and in combination in multiple of the studies quoted above, whereas other types of interventions (or combinations of methodologies) were used in single studies. Even so, the counselling sessions in themselves differed in approach. For example, Wahlgren (1997) included parents of children ages 6-17 in an ill-child setting and used intensive in-person counselling over a period of 6 months. Abdullah (2005) implemented a well-child setting intervention including parents from a birth cohort study, using 20-30 minutes telephone counselling, where information provision was kept minimal, unless specifically requested by participants. Collins (2015) conducted a community-based study including underserved smoking mothers, using 2 in-home and 7 telephone counselling sessions, over 16 weeks, focusing on skills training and modelled support (Behbod, Sharma, Baxi, Roseby, & Webster, 2018). As a result, even if the studies reported successfully using counselling as an intervention strategy, the diversity in approaches makes it difficult to isolate which mechanisms were associated with intervention success. Nonetheless, these show potential to be included in further interventions aiming to reduce child SHS exposure.

In addition, the authors of the systematic review also reported that many of the studies included had small sample sizes, which makes it difficult to conclude if the studies which did not observe a statistically significant effect (and hence I have not included in the table above) were indeed unsuccessful or not able to measure a true effect due to the sample size limitations (Behbod, Sharma, Baxi, Roseby, & Webster, 2018).

Similar Cochrane reviews have been conducted previously in 2003 including 19 studies (Roseby, et al., 2003) and in 2008 including 36 studies (Priest, et al., 2008) with similar results in terms of identifying the characteristics of effective interventions to reduce SHS. Although the number of studies has clearly increased in this time-span, and consistent efforts have been made to design effective interventions to reduce child SHS by addressing parental smoking behaviour, more research is needed to fully understand what intervention strategies could have better results.

A systematic review and meta-analysis focusing on the effectiveness of interventions which use air quality validation measures, included 7 trials which had measured air nicotine or particulate matter. In all of the settings, there had been an observed improvement in tobacco smoke air pollution in the intervention groups, but some degree of pollution was still present, representative of significant contamination (Rosen, Myers, Winickoff, & Kott, 2015). Another recent systematic review focusing on interventions delivered in hospitals or secondary care to reduce SHS exposure among children and young people, also suggested some short-term effects (which was not seen in longer-terms measurement) and only when using self-reported parental data; no effect was seen when objective measures were used in studies (Ferris, Cummins, Chiswell, & Jones, 2021).

Gender differences have also been documented in the literature, in terms of population engaged in delivering tobacco control interventions. For example, in the case of children's exposure to second-hand tobacco smoke, historically, there were more efforts to reduce women's tobacco use in a family context, compared to men. However, White and colleagues (2012) suggest the employment of a "father-centred discourse of masculinity" in interventions to maximize children's protection from the harmful effects of tobacco smoke from their fathers. As discussed earlier, fathers can also be important sources of exposure, and they also play an important part in family dynamics. An approach which would address masculine identity expressed through

fatherhood (defined as less individualistic, oriented towards caring for the family), could follow the good practice of similar gendered methodologies successfully employed for women (Biggs, King, Basu, & Stuckler, 2010). A more recent scoping review investigated father's attitudes and experiences in creating smoke-free homes. The authors concluded that although there is increased potential to involve paternal figures in interventions, as perceptions and responsibilities of fatherhood are changing, there are currently too few studies in the literature to map effective approaches (O'Donnell, et al., 2019).

## Conclusions to Part One

The global burden of tobacco is significant, disproportionately affecting lower income countries and disadvantaged social groups. Children's secondhand tobacco smoke exposure (SHS) is an important public health concern, as it is associated with a range of short-term and long-term poor health outcomes, and increased utilisation of healthcare services. Socially disadvantaged groups experience higher rates of smoking, and reduced response to a range of policy and population-based interventions, which contributes to widen inequalities. This also affects the prevalence and magnitude of child SHS exposure among disadvantaged groups, contributing to inter-generational transmission of health inequalities. As SHS exposure is a preventable risk factor, reducing child exposure is critical to be addressed, to improve population health, improve quality of life and well-being, while supporting health systems through reducing the burden of tobacco-attributable morbidity.

Despite sustained efforts in tobacco control at a policy and population level, overall tobacco consumption has not decreased at the targeted levels, and a social patterning of smoking is still highly present across high-income countries and emerging in low-income countries. Smoking behaviour is also highly contextual, and the literature documents conflicting evidence on a range of determinants, as well as on the effectiveness of interventions. Child SHS exposure interventions have increased in number and complexity throughout

the years, however there is limited evidence on their effectiveness in reducing exposure, as well as on addressing health inequalities. As a result, there is an urgent need to address child SHS exposure with an equity lens in mind, to reduce the burden of tobacco on low-income countries and socially disadvantaged groups. Increased research efforts focusing on socioeconomic determinants of child SHS exposure especially in lower- and middle-income countries, where data is scarcer, should be further conducted.

The next part of the literature review discusses the theoretical foundations for an exploration of children's SHS exposure through an equity lens. It provides an overview of the most common theories of health inequalities, while focusing on the Capability Approach (CA), as stemming from the work of Sen, Ruger, Nussbaum, Wolff & de-Shalitt, Robeyns, Venkatapuram, Abel & Frohlich. It aims to discuss CA as an alternative to existing theoretical explorations of the social patterning of child SHS exposure, and subsequently ground it in empirical data.



Part two:

## **Social Disadvantage Through a Capability Lens: Implications for Tobacco Control**

With this second part of the literature review, I present a brief overview of major health inequalities theories, to offer the context for the place of the capability approach in this area. The subchapter continues with an overview of the capability approach, and then discusses in more depth some of the core mechanisms relevant for the current thesis, such as health capabilities, capabilities, and gender roles, as well as the relevance of the framework for tobacco control. The section also provides an overview of the integration of the theory with the Capitals theory, as relevant for understanding in more depth the mechanisms bridging structure and agency. At the end of the section, main aspects are presented in a short conclusions section.

## A Visitation of Health Inequalities Theories

Philosophical approaches to social disadvantage, articulated in different forms, have been highly influential in guiding theories in political philosophy, development economics, sociology, ethics, and social justice, as well as public health. Despite their different implications, these approaches have shared a common root in the way they described inequalities and the social distribution of advantage in societies. Most of these theories have also been translated to address *health* inequalities, and will be reviewed throughout this chapter, with the purpose of delineating the conceptual framework for the current PhD thesis. I do not aim to render an exhaustive description or a comprehensive classification of theories of social disadvantage across disciplines, but rather to discuss the philosophical foundations for the current empirical study, in relation to the existing theories.

National income levels are associated with health outcomes; however, income inequality and national poverty independently and significantly affect the relationship between GDP and health outcomes (Biggs, King, Basu, & Stuckler, 2010). Occupation also significantly predicts self-reported health status, with manual workers being more likely to have a poor health (Aldabe, et al., 2011). A study developed across 22 European countries suggested that low education increases risk for poor self-rated health as well as functional limitations. It also emphasized larger educational health inequalities in younger age groups, as well as in countries from Southern and Eastern Europe (von dem Knesebeck, Verde, & Dragano, 2006). Historically, there has been a strong debate in the literature on the sources and pathways explaining the distribution of income in societies and their role in determining population health. Even though the methods, populations, settings, and measurement levels are different, two major types of income inequalities hypotheses (focusing on absolute inequality and relative inequality) and two major interpretations (the psychosocial and neo-materialist interpretations and their derivative class-based and lifecourse

interpretation) are present in the literature (Macinko, Shi, Starfield & Wulu, 2003; Mackenbach 2012). These are discussed briefly in the following sections.

### *Absolute income inequality perspective*

Focusing on population-level data, Wagstaff and Doorslaer (2000) bring evidence to support the absolute-income hypothesis, which proposes that health is determined by the total (absolute) income of each individual. They argue that income inequality at a group level (community, nation) is just an expression of aggregated individual differences, which independently determine health outcomes; they further hypothesize that as average income increases in a particular society, income inequality decreases and average health improves (Wagstaff & van Doorslaer, 2000). Conversely, Lynch (2000) refers to the *individual income interpretation*, which further supports the hypothesis according to which there is an individual level relationship between health and income, and at a group level we observe only a sum of individual effects (Lynch, Smith, Kaplan, & House, 2000).

### *Relative income, relative position, deprivation, and income inequality hypotheses*

Four main alternative hypotheses to the absolute income gained a lot of attention throughout the years: the relative-income hypothesis, the deprivation hypothesis, the relative-position hypothesis, and the income-inequality hypothesis. According to Wagstaff and Doorslaer (2000) these are characterized by:

- The relative-income hypothesis proposes that the position an individual has on the income gradient is a stronger determinant of health, as compared to absolute income. This is convergent with the psychosocial interpretation discussed in the following section.
- The deprivation hypothesis argues that socioeconomic standards which are below a conventional poverty or deprivation line, affect health status.

It differentiates from the absolute income hypothesis through its focus on population level and the extent of the deprivation gap.

- The relative-position hypothesis focuses on a broader understanding of income gradient, as it states that not only the income itself is significant, but also the individual's position within the income distribution, at a macro level. This is also convergent with the psychosocial interpretation discussed in the following section.
- The income inequality hypothesis, promoted by Wilkinson and colleagues and further discussed in the following section, puts forward the model according to which the scale of socioeconomic differences in a society is the major determinant of population health, as egalitarian societies are more functional and healthier societies (Wagstaff & van Doorslaer, 2000).

### *The psychosocial interpretation of income inequality*

Marmot and Wilkinson are the major proponents of this interpretation (Mackenbach J. P., 2012), generating a wide debate on the subject. A 2006 review conducted by Wilkinson and Pickett suggested that more than two thirds (70%) of the studies developed up to that point, assessing the relation between income distribution and population health, supported the hypothesis according to which greater income differences are associated with a lower health status (Wilkinson & Pickett, 2006). However, the theory was subjected to strong criticism on multiple levels (Lynch, et al., 2001; Mellor & Milyo, 2001; Deaton, 2003; Elison, 2002).

The psychosocial theory describes the relationship between income and health as an indirect one, mediated by the social environment, where relative income is a stronger predictor of health, compared to absolute income (Wilkinson, 1999). However, Wilkinson's theory focuses on developed countries, acknowledging the importance of absolute income on health in poor countries (Wilkinson, 2000). In other words, relative income is the main determinant of poor health outcomes, only above a certain poverty threshold (after all *basic*

needs are covered). Wilkinson develops and tests his theory on three main observations: a) there is a stronger association between relative income and mortality in high-income countries, compared to the association with absolute income; b) there is a consistent difference in national mortality rates between countries with different inequality levels – the higher inequality, the higher the mortality, and c) economic growth seems unrelated to long-term increases in national life expectancy (Wilkinson, 1997).

Additionally, Wilkinson promotes a set of potential mediators within this pathway, such as social cohesion and division (social trust), low locus of control, self-esteem, and insecurity, and increasing psychosocial chronic stress (Wilkinson, 1997). In a response to Muntaner and Lynch (1999), Wilkinson emphasizes the independence of the mechanism which, regardless of its sources (different sources of income or status change), leads to the same outcomes: individuals losing status will be subject to assaults on their “psychosocial welfare and social confidence”, promoting a *culture of inequality*, with deteriorating social relations and increased chronic stress and social anxiety on low socioeconomic groups, ultimately leading to poorer health outcomes (Wilkinson, 1999; Wilkinson, 2000). Interpersonal violence receives particular attention in this context, as it is found to be closely associated to income inequality as well as social trust (Wilkinson, 1998). Moving even further, Wilkinson supported his theory on the inequality culture and how it is embedded into dysfunctional societies, by bringing evidence on an array of constructs strongly associated with income inequality. Thus, relative deprivation is associated with increased mortality and morbidity, obesity rates, teenage birth rates, mental illnesses, the quality of social relations, trust, hostility and racism, educational performance, imprisonment rates, drug overdose mortality as well as social mobility (Wilkinson & Pickett, 2007).

In a response to Coburn (2000), who criticizes the narrow focus of Wilkinson’s theory on income inequalities, detrimental to other *neoliberal* forces in the political arena, he further describes the psychosocial pathways; according to

him, income inequality is used as an indicator of a deteriorating social environment and health outcomes are an expression of individuals experiencing low social status and subordination (Wilkinson, 2000). Additionally, in a response to Lynch and colleagues (2000) Wilkinson argues the importance of social capital in relation to health, as social affiliation significantly impacts health, without being mediated by material factors (Wilkinson, 1999). Furthermore, in a response to the same authors and the neo-material critique, Marmot & Wilkinson (2001) strongly claim that after satisfying basic needs, “consumption served social, psychological and symbolic purposes”, being an expression of social position and identity (Marmot & Wilkinson, 2001). In other words, income inequality is more than an inequality in assets, but rather an indicator of status, subordination, locus of control, success, self-efficacy, happiness, stress, anxiety, and depression. Finally, in a reaction to Kanazawa’s article (2006), on the genetics of IQ as a main determinant of population health (and confounder of health inequalities), Wilkinson strongly counters with further arguments on how IQs are socially shaped and they could be a mediator in the relationship at most (he discusses it as originating as a response to early life stress) (Wilkinson & Pickett, 2007). Thus, he argues for a case of confounding variable in this situation, where both IQ and health are determined by the same construct: income inequality, mediated by early childhood stress, biasing the outcomes.

### *The neo-material interpretation of income inequality*

The neo-material interpretation put forward by Lynch et al supports the hypothesis according to which differences in health outcomes are determined by differentiated exposures to hazards as a function of material deficiencies. The authors thus reject the psychosocial explanations theory, which they heavily criticize, and focus on the impact of individual and public resources – such as access to healthcare and social welfare, schooling, working, and living conditions (Lynch J. , Smith, Kaplan, & House, 2000). According to them, interventions aimed at increasing access to these resources would

consequently improve population health. Additionally, the neo-material approach argues that the psychosocial theory's use of the perception of disadvantage, sense of control, trust, social cohesion, social capital, (and their psychological responses such as anxiety, stress and depression) are in fact "biological responses to neo-material living conditions" (Lynch J. , 2000; Lynch J. , et al., 2001). A systematic review conducted by Lynch and colleagues (2004) on 98 studies suggested that there is limited evidence supporting the income inequality health hypothesis (Lynch, Davey Smith, Harper, & Hillemeier, 2004).

### *Class-based neoliberal model to health inequalities*

Coburn (2000, 2004) proposes a new interpretation of health inequalities, supporting Lynch's approach to some extent. Coburn proposes an alternative to income-based theories, in the form of a *neoliberal*, class-based approach. He reports his model as accounting for both the causes as well as the consequences of inequality and suggests that countries with more neoliberal policies determine increased income inequality, increased poverty, but also unequal access to important resources which impact health (Coburn, 2000). Thus, Coburn argues that this model accounts for income inequalities, but in a wider conceptual framework, considering similarly important covariates such as medical systems and adequacy of care, socio-political structures influenced by the transition to a neoliberal model as well as the existing welfare regimes (Coburn, 2004).

### *The personal characteristics theory to health inequalities*

Even if individual level determinants have largely been disregarded in favour of structural determinants in the literature, partly not to feed conservative views suggesting that social inequalities are functions of individual ignorance or irresponsibility, these approaches have started to re-emerge in more recent years (Mackenbach J. P., 2010). Thus, there is a limited body of literature suggesting that some personal traits have the potential to be associated with health inequalities. Studies such as the one developed by Batty and colleagues

(2006) pursue to assess the extent to which IQ explains the socioeconomic gradient and health. Results suggest that controlling for IQ in the models significantly reduced the gradient but did not fully account for it (Batty, Der, & Macintyre, 2006). The hypothesized mechanisms put forward by the authors are that IQ is associated with certain health behaviours, or even that it is an indicator of exposure to insults and social marginalization throughout the lifespan (Batty, Der, & Macintyre, 2006). Additionally, Chapman and colleagues recently brought evidence from the US to support the claim that low socioeconomic groups have significant personality differences when compared to high socioeconomic groups, with increased neuroticism and friendliness, and low openness, extraversion as well as conscientiousness (Chapman, Fiscella, Kawachi, & Duberstein, 2010).

Mackenbach proposes three mechanisms in the association between socioeconomic status and cognitive or personality characteristics: firstly, the *genetic* explanation is refuted due to the highly complex character of both cognitive as well as personality development which could not be reduced to a pool of genes, as well as the impossibility of a clustering of such “genes” throughout history to explain low socioeconomic groups (for both personality as well as IQ); secondly the *early environment* explanation suggests that children’s environment accounts for a great variation in their personality and cognitive abilities; thirdly, the *selection during social mobility* explanations implies that personal characteristics impact social mobility, as social achievement would be determined by increased cognitive abilities and certain types of personalities (Mackenbach J. P., 2010).

### ***Fundamental causes of health inequalities***

The fundamental causes theory developed by Link and Phelan (1995), states that SES influences health outcomes by determining and supporting risky behaviours, as well as by affecting health outcomes through multiple mechanisms. Thus, a low SES affects multiple health outcomes as well as multiple risk factors, and it limits access to resources that would prevent or



mitigate the impact of a disease when it occurs; also, its association with a given disease is kept beyond the intervention mechanisms (Link & Phelan, 1995). The latter condition describes the feature of fundamental causes of replacing or translating to any intervention mechanism, throughout time. Thus, if SES significantly impacted health outcomes in the developed world centuries ago by infectious diseases or poor sanitation, nowadays they constitute significant determinants of non-communicable diseases, through behaviours such as diets, physical activity, or smoking behaviours (Phelan, Link, & Tehranifar, 2010). Consequently, the gradient of health inequalities is kept, even if the mechanisms change over time.

### *Life course perspectives on health inequalities*

A life course perspective on health inequalities argues that health inequalities in adulthood can be explained by different types of health hazard exposure over the lifetime (Mackenbach & Howden-Chapman, 2003). This approach accepts the roots of health inequalities in the macro-social environment, but the relationship of determination between the two is seen as occurring throughout the lifetime (Mackenbach & Howden-Chapman, 2003).

George Davey Smiths' work on life course exposure to socioeconomic and behavioural risk factors on cardiovascular diseases (CVD), suggested that adverse exposures cluster within particular groups and that there is an increased need to move interventions beyond single risk factor approaches (Davey Smith & Hart, 2002). In his work with Lynch (2005) they conceptualised a life course approach to chronic disease epidemiology, describing how social-environmental determinants of health throughout the life course (including the social patterning of smoking behaviours) can differentially impact the development of chronic diseases (Lynch & Davey Smith, 2005).

Hilary Graham advocated for the development of an interdisciplinary approach to health inequalities, which would account for factors determining socioeconomic position, adding a strong social inequality and social exclusion focus to the widely employed epidemiological evidence. She argues that to

adequately mitigate health inequalities, both the health consequences as well as the dynamics of inequalities must be accounted for, and a life course approach would support such a strategy (Graham, 2002).

Chittleborough, Baum and Taylor (2006) review the three main models which pursue to explain the relationship between early life and adulthood health. The *critical period* model supports the hypothesis that exposure to deprivation in key stages throughout the lifespan determine long-term effects on health. The *pathway* model implied that early life influences socioeconomic trajectories (education, affluence, etc) thus influencing health in adulthood. The *cumulative* model argues that exposure (its intensity and duration) affects health in a dose-response relationship, embracing both biological as well as social exposures, cumulated throughout the lifespan (Chittleborough, Baum, Taylor, & Hiller, 2006).

### *Capitals and capabilities theories*

Populations-based approaches advocates argue that large environment changes to modify behavioural norms (such as smoking bans) are most efficient in reducing the overall health effects of risk factors (Frohlich & Potvin, 2008). The criticism brought by researchers such as Frohlich and Potvin (2008) to such approaches is that the unequal distribution of risks, determine an unequal distribution of intervention outcomes; furthermore, they argue that this effect is masked by an overall improvement of health outcomes, at a population level (Frohlich & Potvin, 2008) which dilutes the low impact that such interventions have on low socio-economic groups.

The mechanism that Abel and Frohlich (2012) found to explain health promotion failure, based on the work of Hays (1994), is the promotion of structurally *reproductive* agency – promoting a health advantage among socio-economically advantaged groups and thus widening health inequalities (Abel & Frohlich, 2012). An alternative proposed by the authors is the promotion of structural *transformative* agency, a form which allows and contributes to structural modification as well as social change (Abel & Frohlich, 2012). The

work of Amartya Sen on capability theory can provide a framework for the promotion of transformative agency, by the active involvement of individuals as agents of change. Sen draws important differences between functioning (achievements) and capabilities (ability to achieve or choose between a range of *functionings*) (Sen, 1993).

The capability approach distances itself from the purely resource-focused approach to health inequalities (Ruger, 2010). It focuses on individuals and their values, together with what is defined as their “practically possible opportunities” to achieve outcomes, towards a “good or flourishing life” (Chiappero-Martinetti & Venkatapuram, 2014). In her work, Frohlich promotes capability theory as a mechanism to increase equity of health interventions focusing on non-communicable diseases, as differential capabilities are pivotal on differential effects at population-level (Frohlich, 2013). As a result, the theoretical framework put forward by the capability approach was seen as providing significant insights on how to address health behaviours with a health equity lens in mind. The following sections discuss the capability approach in more depth, alongside with its potential for being employed in tobacco control research.

## The Capabilities Approach: An Overview

The capabilities approach (CA) became highly influential through the work of Amartya Sen. It was best known in the area of human development and development economics hence it being identified as the *human development approach*. Sen’s work on CA initially emerged as a critical response to income inequality theories and utilitarian approaches to social inequalities (Foster & Sen, 1997, pp. 195-198). The approach is described in terms of its dual focus on “realized functionings” - what one is able to do or be and their associated “capabilities” - the set of alternatives or opportunities one has access to, in order to realize functionings (Foster & Sen, 1997, pp. 199-200). Within the CA, “individual claims are not to be assessed in terms of the resources or primary

goods the persons respectively hold, but the freedoms they actually enjoy, to choose the lives that they have reason to value” (Sen, 1992).

Sen even defines poverty in terms of *capability deprivation*. He states that “the connection with lowness of income is only instrumental” and argues that income deprivation alone underestimates the intensity of the effects of poverty (Foster & Sen, 1997, pp. 211-212). According to Sen, this counter-theory which focuses on what people can actually do or achieve, is an improved measure as it accounts for both resources as well as perceived utility. Similarly, Wolff and de-Shalit’s position CA at the intersection of distributional and social theories of equality, emphasizing that social equality is built upon a dynamic association of resources and relations in between individuals, within a society (Wolff & de-Shalit, 2007, pp. 5-7). They also argue against resource-based theories, as the solutions these offer to societal injustice problems tend to be monetary in nature (financial-oriented) which, they argue, cannot adequately address inequality.

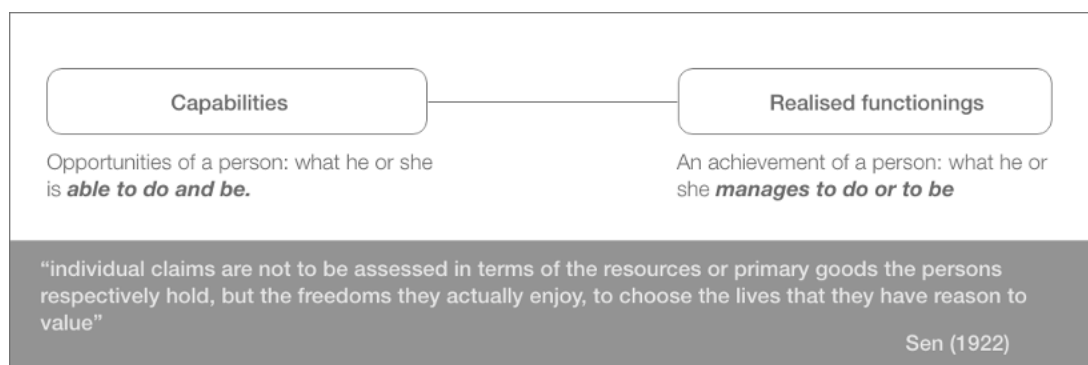
I use the term proposed by Nussbaum (*capabilities* approach) who asserts that the plural form of capability is more suggestive, as plurality is a key element of the approach (Nussbaum M. C., 2011, p. 18). Plurality, as Nussbaum describes it, is the approach’s complex view on individual quality of life, which cannot reduce to one simple measure, qualitatively distinct elements such as education, health, bodily integrity, emotions, affiliation (Nussbaum M. C., 2011, p. 18). Wolff and de-Shalit take the implications of its pluralism even further and emphasize that CA acknowledges the limitations of compensating for disadvantage in one area of life with a greater provision of a different resource or increased satisfaction in another area (Wolff & de-Shalit, 2007, p. 34).

Without dwelling too much on nuances, I embrace the plurality view and will refer to *capabilities*, however I will be referring to *capability theory* or *capability approach* (as a singular form) throughout my PhD, when reflecting the work of other scholars or discussing the more generic theoretical underpinnings.

## Capabilities and functionings

To describe capabilities, Nussbaum encourages the use of the question “What is this person able to do and be?” and defines capabilities as interconnected opportunities which individuals may act upon (Nussbaum M. C., 2011, p. 20). Alternatively, *functionings* are defined as “an achievement of a person: what he or she manages to do or to be”, which Sen clearly distances from the *process* of attaining a good or characteristic (which makes the functioning possible) and *gaining a certain utility* as a result of the functioning (Sen, 1985, pp. 10-11). Sen distances capabilities from resources or primary goods, as well as achievements – one might enjoy abundant resources but have less capability due to other constraints (such as physical limitations, for example); similarly, one might value other functionings and thus similar resources and capabilities might render different outcomes across different individuals (Sen, 1992, pp. 81-82). The figure below summarises the capability-functioning dyad and Sen’s statement on the role of resources, which helps contextualise the differences between and complementarity of capabilities and realised functionings.

Figure 1 - The capability-functioning dyad as defined by Sen



Nussbaum, in turn, clarifies that capabilities represent individual opportunities to select from available options, in order to reach a functioning (Nussbaum M. C., 2011, p. 25). An example used by Sen to differentiate between capabilities and functionings is the contrast between *starving* due to resource deprivation, and *fasting* by choice, due to reasons one person might value: “Fasting, as a function, is *not* just starving; it is *choosing to starve when one has other*

*options*” (Sen, 1992, p. 52). This clearly illustrates how value for certain functionings are core to capabilities.

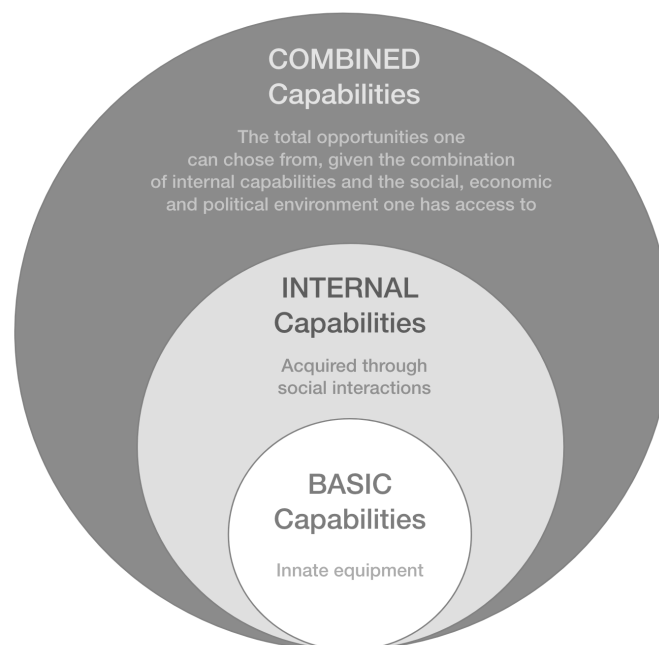
Wolff and de-Shalit further advance the definition of capabilities, as “(*genuine*) opportunities for (*secure*) functionings” (Wolff & de-Shalit, 2007, p. 37). The use of “genuine” in Wolff’s definition urges a reflection upon the nature of the opportunities which are available (Wolff & de-Shalit, 2007, pp. 74-75). *Genuine opportunities*, refer to the ones individuals actually have access to, and they can also have the actual resources to make use of them. In this context, individuals might not be able to take advantage of an opportunity (such as a job opportunity) because it conflicts with other responsibilities or because it would need additional resources to be attained. In this case, even though the opportunity technically exists, it is not *genuine* as one cannot make use of it. The use of “secure” emphasizes the risks associated with functionings, especially among disadvantaged groups. Whether it is the threats associated with maintaining a certain functioning (in the form of job insecurity, for example) or the risks posed by engaging in a functioning (such as occupational hazards or work exposures), the authors emphasize the need to focus on *secure* functionings (Wolff & de-Shalit, 2007, pp. 68-69).

### ***A taxonomy of capabilities***

Nussbaum extends Sen’s work and introduces a capability taxonomy, and distinguishes between *basic* capabilities, *internal* capabilities, and *combined* capabilities (Nussbaum M. C., 2011, pp. 20-24). Basic capabilities are described as individuals’ “innate equipment”, which enables their subsequent development. Even though this category of capabilities is important to be acknowledged, Nussbaum warns about the pitfalls of overemphasizing this dimension as a justification for inadequate resource allocation in societies. Basic capabilities, as health and developmental outcomes, are determined by perinatal exposures; in addition, epigenetics allows us to understand the long-lasting effects and complexities of deprivation, across multiple generations of offspring (Nussbaum M. C., 2011, pp. 23-24).

Internal capabilities derive from basic capabilities and are the dynamic states of persons, such as personality, cognitive and emotional capacity, health and fitness or skills and abilities individuals gain throughout life. They are different from basic capabilities since they are acquired through interactions with the social environment, and they can be actively enhanced through adequate educational, health, social and family policies (Nussbaum M. C., 2011, p. 21). Figure 2 below offers a visual representation of the capability taxonomy proposed by Nussbaum.

Figure 2 - A capability taxonomy as described by Nussbaum



Ultimately, combined capabilities are defined by the combination of internal capabilities and the social, economic, political environment which makes up the total opportunities one can choose between (Nussbaum M. C., 2011, pp. 20-21). This level of capabilities coincides with the one described by Sen as “substantial freedoms”.

### *The central capabilities*

Sen’s approach to CA is unspecified (or underspecified), and it posits that each use of CA should be context-sensitive and participatory mechanisms should be

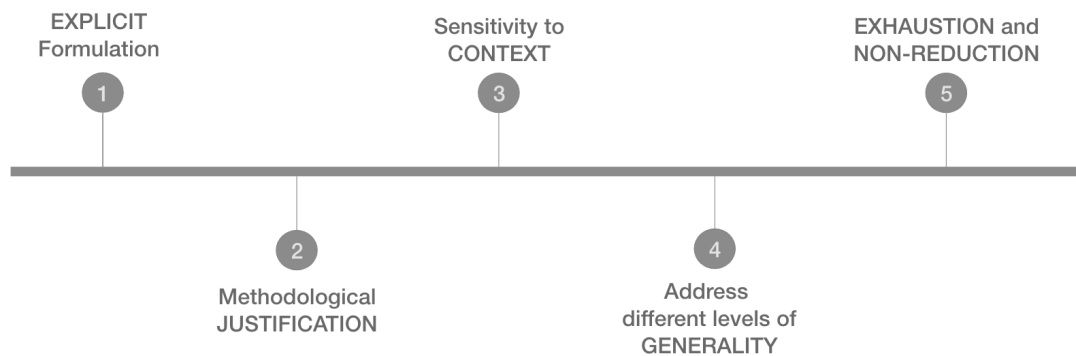
employed to identify relevant capabilities, in order to define the evaluative space (Robeyns, 2003). This underspecification of the framework has the advantage of allowing increased flexibility in its application, as the spirit of CA can be used to guide different approaches. Nussbaum, on the other hand, was a strong advocate for the definition of core capabilities, and advanced Sen's work on CA by developing a list of ten central capabilities. According to Nussbaum, systems are expected to ensure at least at a *certain* threshold of their achievement. I have emphasized "certain" because the literature abounds with discussions on what is this threshold and how should capabilities be measured. This discussion is beyond the purpose of this thesis, so it will not be explored. The ten capabilities articulated by Martha Nussbaum (life; bodily health; bodily integrity; senses, imagination & thought; emotions; practical reason; affiliation; other species; play; control over one's environment) have been further explored by Wolff and de-Shalit, and four more brought into discussion (doing good to others; living in a law-abiding fashion; understanding the law; being able to communicate including being able to speak the local language or being verbally independent).

Robeyns (2003) on the other hand, advocates for using CA as a guiding framework, and argues that using a definite capability list, would narrow the capability approach. The rationale described by her in relation to the use of CA for studying gender inequality, is that the democratic process of selecting relevant capabilities is critical to offer legitimacy to the list (Robeyns, 2003). However, she provides a list of five criteria to use when defining a list of functionings: (1) explicit formulation - to ensure that they are "explicit, discussed and defended"; (2) methodological justification - assessing the method which generated the list; (3) sensitivity to context - ensuring that the level of abstraction of the list is adequate for the scope of the assessment; (4) different levels of generality – using a multi-stage definition of the list, where an unconstrained, ideal initial version is generated, followed by a pragmatic approach, ensures that efforts are made to avoid reproducing existing biases; (5) exhaustion and non-reduction – ensuring that all important elements are



included, they cannot be reducible to other elements, and the overlap between them is not major (Robeyns, 2003). These criteria are illustrated in the Figure below.

Figure 3 - Criteria to consider when defining capabilities lists as defined by Robeyns



### *The capability-functioning dynamic*

Sen argues that capabilities are relevant to the well-being of individuals, through their connection with functionings. In this sense, capabilities are seen as an individual's freedom to obtain well-being, as *achieved* functionings constitute, in fact, the individual's actual well-being. Thus, a good society shouldn't be the one that offers an array of functionings (and thus well-being), but also a society which *fosters* functionings, through freedoms (Sen, 1992, p. 40). Alternatively, capabilities are also directly linked to well-being, as they have intrinsic value, as freedom of choice is seen as extremely important to well-being (Sen, 1992, pp. 51-52).

The dynamics between capabilities and functionings is complex, as a set of capabilities can enable the achievement of multiple functionings (Wolff & de-Shalit, 2007, p. 64). Wolff and de-Shalit use the example of a person who has enough money for a nutritious meal *or* to buy a theatre ticket (but not both). In this context, both functionings cannot be attained and a trade-off will be made, based on the options the person has at hand. This is helpful as it allows us to understand the complexities of the real world, without over-simplifying it.

However, it also increases the difficulties around applying the conceptual model and measuring capabilities and functionings.

A recent study from the UK brought empirical evidence to support the co-existence of different capabilities and functionings on the same aspects of life. Findings suggested that in 12% of the cases capability exceeded functioning, for 86% capability equalled functioning and in a minority of cases (2%), functioning exceeded capability (Al-Janabi, 2018). In other words, the study brought valuable insights that in most cases, capabilities matched functionings in the sense that people reported they *can* have, and they *do* have certain aspects in their life. In other cases, which the authors linked to individuals with degree-education, but also with individuals with caring responsibilities and impaired health status, capabilities exceeded functionings; which suggested a process of trade-off in capabilities (Al-Janabi, 2018).

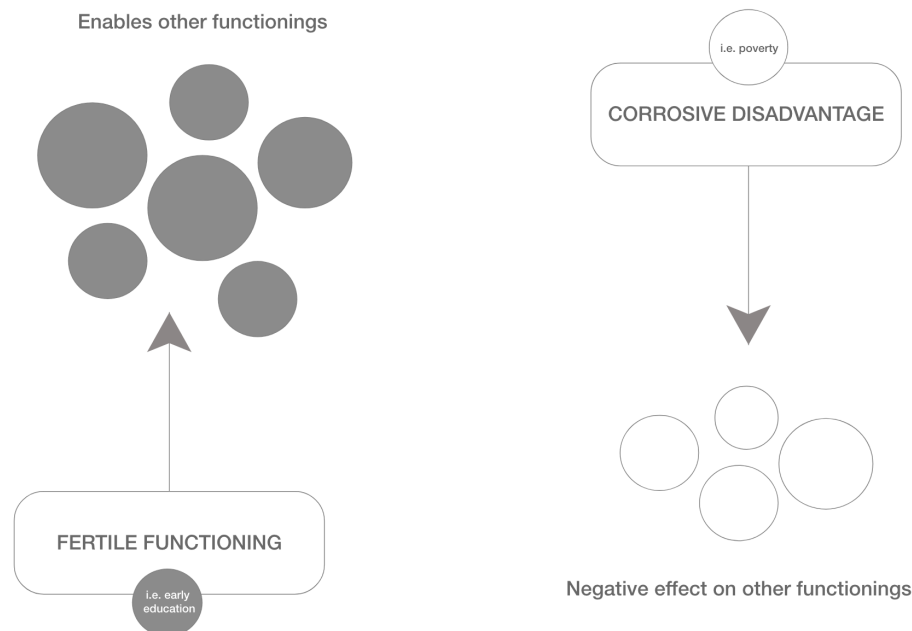
### *Functionings connected: corrosive disadvantage and fertile functioning*

Wolff and de-Shalit bring another important contribution to the CA literature, by addressing the issues of *corrosive disadvantage* and *fertile functioning*. They are presented in a certain antithesis, to suggest the interdependence of functionings: the disadvantage in attaining one functioning can have negative effects on another functioning – reflecting corrosive disadvantage; alternatively, “doing well” in one functioning can positively impact another functioning – this is what they call fertile functioning (Wolff & de-Shalit, 2007, pp. 133-134). The authors use this connection between functionings to offer a mechanism to de-cluster disadvantage. Figure 4 below illustrates the mechanisms identified in fertile functioning and its enabling potential for other functionings, as well as the reverse mechanism of corrosive disadvantage, which negatively impacts connected functionings.

They also bring significant insights on some functionings which are strongly connected with others. For example, affiliation is seen as “the most fertile functioning” as it significantly impacts multiple areas of life and their associated

functionings, and it sometime is seen as a *lifeline* in many disadvantaged communities (Wolff & de-Shalit, 2007, pp. 139-140). Similarly, being educated, especially early education, is highly fertile as it enables other functionings such as attaining a job, having more control over the living environment, attaining a higher health, etc. (Wolff & de-Shalit, 2007, pp. 142-143). Also, the skills needed to “work the system”, especially in systems with more lax rules, can be essential in attaining other functioning by increasing autonomy. For example, knowing how to get medical care when needed, having parenting skills, securing children with a good school, managing a bank account, or even obtaining financial help such as loans, are seen as an essential group of so-called “soft skills”. Nonetheless, being poor and having a low autonomy over one’s life, can significantly impact other functionings (Wolff & de-Shalit, 2007, pp. 146-147).

**Figure 4 - Mechanisms of fertile functioning and corrosive disadvantage as described by Wolff and De-Shalit**



The acknowledgement of the fact that functionings can influence each other, is a significant contribution to our understanding of the way inequalities work. However, this interdependence should be interpreted with caution, as the authors warn about two essential aspects, regarding the interconnectedness of

functionings. Firstly, the same functioning (its absence or presence, to be more exact) does not always have the potential for both corrosive disadvantage as well as fertile functioning; sometimes it is only relevant for one of them. The example put forward by the authors is the one of physical integrity: while its absence can lead to corrosive disadvantage, by limiting the attainment of other functionings, its presence does not necessarily imply fertile functioning. Secondly, the effects of corrosive disadvantage cannot be mitigated by supplying (or reversing) the effects of the initial deprivation of functionings. In other words, once the corrosive effects of one functioning deprivation have taken effect on a second functioning, by acting upon the initial functioning does not necessarily improve the second one. Again, the example given by Wolff and de-Shalit is highly illustrative, distinguishing between “causation in” and “causation out”: if parental abuse leads to a drug addiction in an adolescent, the mere end of the abuse (and its substitution with affection) will not suffice to reverse the drug addiction as well (Wolff & de-Shalit, 2007, pp. 133-134).

These two attributes of functioning interconnectedness add another layer of complexity in understanding the dynamics between capabilities and functionings, across different life situations. However, they are extremely important in the development of interventions because they offer a comprehensive framework which has the potential to adequately tackle health inequalities. Failing to acknowledge their dynamics can lead to overly simplistic initiatives to reduce inequalities, which may have limited impact.

## Health Capability and the Capability to Be Healthy

Stemming from an economics and human development paradigm, throughout the years CA has also gained more popularity and it is being employed more often in public health. Even though health and well-being are central to CA, until recently, there was a lack of conceptualization of *health* capability. Ruger (2009) defines health capability as “the ability of individuals to achieve certain health functionings and the freedom to achieve those functionings” (Ruger,

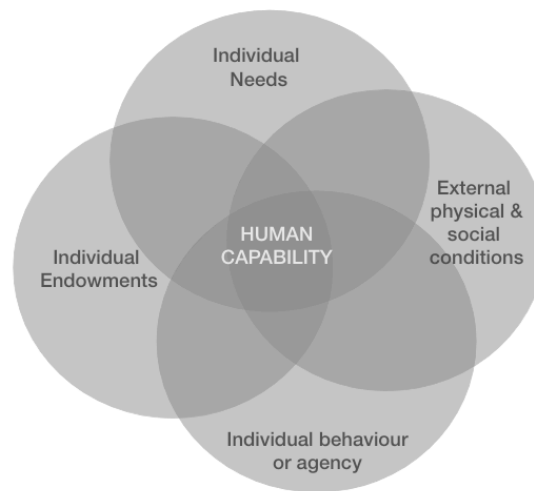
2009, p. 81). She argues that studying capabilities has significant moral importance in social justice theory and should be focal in health policy as they constitute abilities for good health, offer a context for discerning between achieving health outcomes through coercion vs. voluntary action, a context for understanding choice by taking into account options, and incorporate individual responsibility (Ruger, 2009, pp. 81-82).

Venkatapuram's book *Health Justice: An Argument from the Capabilities Approach* opens a very structured discussion on health as understood through a CA lens. As the author describes it, the book (at least partly) stemmed as a response to the often paternalistic and even coercive powers of health institutions, which sometimes abuse their authority "in the name of public health" (Venkatapuram, 2011, p. 27). He goes beyond health as a capability, and states that the capability to be healthy is a:

"meta-capability to achieve a cluster of central human capabilities and functionings, each at a threshold level that is commensurate with equal dignity worthy of the human being living in the contemporary world" (Venkatapuram, 2011, p. 113).

In his view, human capabilities are structured into a set of causal components: individual needs and endowment, physical and social context or conditions, and individual behaviour (or agency), where goods or resources are purely instrumental (Venkatapuram, 2011, p. 116). As it can be observed in Figure 5 illustrating Venkatapuram's lens on capabilities, human capability can be viewed at the intersection of these factors which shape the genuine opportunities people have.

Figure 5 - Causal factors which shape human capability as described by Venkatapuram



Venkatapuram argues for a reshaping of health research and health policy, to incorporate capabilities. He reasons that the mere presence of commodities in the lives of individuals does not automatically imply that they can use those goods as effectively as others, for attaining their goals:

“Focusing on ‘things’ obscures what we really care about as well as hinders recognizing the possible inequalities in what people are actually able to be and do in their lives” (Venkatapuram, 2011, p. 116).

He also argues that the distribution and causation of basic capabilities and functionings should be incorporated in traditional epidemiology; health policy should be also concerned about the promotion and protection of capabilities, at a sufficient level to attain functionings; any health intervention should account for diversity and acknowledge that individuals might need an array of different resources in order to attain a functioning (Venkatapuram, 2011, p. 68).

Kinghorn (2015) also discusses the place of health in the broader capability set, and more specifically addressing the dilemma on the operationalisation of health as a capability, or as an important foundation for achieving other capabilities (or even both). Although his discussion focuses on healthcare resources prioritisation, and distinguishing which approach would lead to more equitable outcomes when faced with scarce resources, he provides insights on

the advantages of using health as an end point, versus well-being as an end point and view health as a determinant. When health is considered a capability in itself (thus an end point), he discusses the advantage of providing the flexibility of deciding *how* to promote health in terms of feasibility, costs, or even technology. However, using well-being as an end point, could offer flexibility in deciding which aspects around health should be invested in, depending on the context. For this latter situation, he discusses the circumstances of individuals experiencing chronic pain as well as the one of individuals living with disabilities, for which “the physical, legal and cultural environments of the two patients become more relevant as conversion factors enabling or denying a good life in the broadest sense” (Kingham, 2015). Although the situation is complex, he argues for the operationalisation of health as both an end as well as a means, and that the development of any measurement instruments should have a participatory approach.

### *Capabilities approach application in public health*

There currently is an increased adoption of CA in the health field. Kinghorn (2015) has analysed in more depth the different CA interpretations adopted in a healthcare context and discussed the implications of its further development. He isolated two different motivations for the increasing use of CA in health: providing an alternative to existing approaches in resource allocation which have had a focus on *utilitarian health maximization*, and the provision of a more holistic measure of health which includes mortality, morbidity as well as health agency (Kingham, 2015). A review of the application of CA in health identified a set of 19 studies which used it as a guiding framework to improve physical activity, empower patients in health-related decision-making, assess multidimensional poverty in healthcare settings, as well as to assess health and social care interventions (Mitchell, Roberts, Barton, & Coast, 2017). The authors concluded that there was a preference towards mixed-methods studies, with designs differing in the definition of capability sets: some studies

started with an expert-definition set, then validated with participants, whereas others had a bottom-up approach, exploring capability sets with participants through initial qualitative interviews (Mitchell, Roberts, Barton, & Coast, 2017).

There is also increased attention to CA in guidelines and policies. For example, the UK's National Institute for Health and Care Excellence (NICE) has published in the 2014 guidelines the recommendation to include capability measures to economically evaluate "non-health interventions". Following their definition, non-health refers to broader interventions which do not focus exclusively on health (such as social care interventions), which need more holistic outcomes to be measured (National Institute for Health and Care Excellence, 2014). Another example is the 2016 Lancet Commission on adolescent health and wellbeing, which recognises the importance of adolescents as a critical stage in which "the social environment shapes the capabilities an individual takes forward into adult life", building the foundation for future wellbeing and health. They refer to these capabilities as being dependent on the resources that youth acquire (physical, emotional, cognitive, social, and economic) which determine their own trajectories as well as of their future generations (Patton, et al., 2016). They also acknowledge disparities between countries and the powerful impact of being born in "multi-burden countries", where adolescents are exposed to a disproportionately high range of health risks and disadvantage; as a result, extra effort needs to be made in order to meet the needs of adolescents in these settings and reduce barriers in health and wellbeing (Patton, et al., 2016). This approach is similar to the *corrosive disadvantage* concept discussed in the previous sections, where the disadvantage in attaining one functioning acts as a barrier in attaining another critical functioning, leading to a clustering of disadvantage (Wolff & de-Shalit, 2007). Due to the critical nature of capabilities, the Commission centres their recommendations on achieving human potential, with a focus on adolescent's "opportunities to achieve developmentally-important goals (i.e., access to education, opportunities for civic engagement) in the context of their emerging physical, emotional, and cognitive abilities" (Patton, et al., 2016).



## *Measuring health capability*

The issue of measuring capabilities leads to an important discussion regarding whether observed functionings (as proxies for capabilities) should be the focus, or self-reported capabilities (Kinghorn, 2015). Although self-reported functionings have been used to infer capabilities, they are limited to the sense that they do not account for the fact that individuals might have wanted to achieve different functionings, but the context did not allow them (thus not fully accounting for limited agency) (Kinghorn, 2015). But the concern on whether respondents can interpret questions referring to capabilities (such as things they feel are able to do) has limited this approach. However, the potential is there as demonstrated by work of researchers such as Al-Janabi et al (2013) who demonstrated that even though some participants reported an increased cognitive load when responding to capability questions, they were able to operate with them (Al-Janabi, 2013). Thus, some authors conclude that self-reported capability is no more problematic than self-reported health, if respondents do not systematically interpret the phrasing differently, from what it was intended (Kinghorn, 2015).

A recent systematic review of health capability measurement at a population level, identified 51 articles reporting the development of capability measures, out of which four measured capabilities qualitatively, one used a mixed-methods approach with a mix of interviews and a questionnaire, and the rest focused on quantitative measures exclusively (Till, Abu-Omar, Ferschl, Reimers, & Gelius, 2021). The authors identified 11 distinct quantitative instruments, some of which derived from the same original instrument: ICECAP<sup>3</sup> (with its variations of ICECAP-O, -A, -SCM, -FC), OCAP<sup>4</sup> (with its variation OCAP-18

---

<sup>3</sup> ICECAP-O: ICEpop Capability Measure for Older People; ICECAP-A: ICEpop Capability Measure for Adults; ICECAP-SCM: ICEpop Capability Measure for Supportive Care; ICECAP-FC: ICEpop Capability and Functioning Measure.

<sup>4</sup> OCAP: Oxford Capability Questionnaire; OCAP-18: Oxford Capability Questionnaire-18 items; OXCAP-MH: Oxford Capability Questionnaire for Mental Health

and OXCAP-MH), CQ-CMH<sup>5</sup> (with an alternative ACQ-CMH), the Capability-based questionnaire – well-being in patients with chronic pain, and the CADA<sup>6</sup>. These instruments ranged from 18 items (OCAP-18) to 104 items (the CQ-CMH), and all used self-reported information (Till, Abu-Omar, Ferschl, Reimers, & Gelius, 2021). Some of the instruments identified assess overall capabilities to follow individual goals and attain life satisfaction, others focus on derivations of central capabilities, and only one instrument (CADA) focused exclusively on the capability for acting on specific behaviours such as diet and physical activity (Till, Abu-Omar, Ferschl, Reimers, & Gelius, 2021).

## Capabilities, Families and Gender Roles

Sen's critique of income-based measures also resides in the fact that income is not equally distributed within families as the needs of some family members might be prioritized over the needs of others (Foster & Sen, 1997, p. 211). Sen discusses that systematic disparities in the freedoms of men and women, which move beyond absolute resources, comprise household division of labour, education, received care or even differential liberties; he posits that "inequality inside the household is one of resource-*use* and of the *transformation* of the used resources into capability to function" (Sen, 1992, pp. 122-123). Iversen (2003) provides an in-depth discussion on intra-household inequality from a feminist perspective on the capability approach, stemming from the work of Sen and contributions brought by Robeyns. The author draws attention to the importance of exploring domestic power balances, which mediate the relationship between resources and capabilities (Iversen, 2003).

---

<sup>5</sup> CQ-CMH: Capability Questionnaire for Community Mental Health; ACQ-CMH: Achieved Capability Questionnaire for Community Mental Health

<sup>6</sup> CADA: Capability Assessment for Diet and Activity

Sen (1987) also discusses the concept of “cooperative conflicts” which brings different implications when looking at intra-household inequalities, compared to other types of inequalities, such as the ones emerging from class conflicts. According to Sen, cooperative conflict brings the dimension of “togetherness”, through which household members have significant benefits from cooperation, even when substantial conflict exists. This in turn impacts perception on personal interests in a family context, as well as perceptions over “contributions” of household members, especially when women are less engaged in “productive” activities outside of the home environment. He also discusses the well-being of women is often merged in the concept of family well-being in some cultures, which has significant implication on both perception as well as inequitable household division. He thus recommends that that women’s well-being should not be only assessed using metrics of happiness or experienced fulfilment, but rather from an agency perspective, with a focus on their *functionings* and *capability* to achieve them (Sen, 1987, pp. 42-25).

“Our actual agency role is often overshadowed by social rules and by conventional perceptions of legitimacy. In the case of gender divisions, these conventions often act as barriers to seeking a more equitable deal, and sometimes militate even against recognizing the spectacular lack of equity in the ruling arrangements.” (Sen, 1987, p. 45)

Robeys (2003) identified a list of capabilities for the conceptualisation of gender inequality in Western, post-industrialised societies: life and physical health, mental wellbeing, bodily integrity and safety, social relations, political empowerment, education and knowledge, domestic work and non-market care, paid work and other projects, shelter and environment, mobility, leisure activities, time-autonomy, respect and religion (Robeyns, 2003). Although this thesis does not focus on gender inequality per se, gender roles and women’s capabilities cannot be viewed independent of any existing gender inequalities in the studied society.

## The Capabilities Approach: Relevance for Tobacco Control

In public health, the focus generally lays on health outcomes (physical and/or mental health functionings) as end points for assessing inequalities and health justice. The current translations of CA in health, argues that each individual is entitled to the *capability* of being healthy, and interventions targeting determinants of health should instead be geared to address the determinants of health capability (Venkatapuram, 2011, p. 19). Similarly, Nussbaum argues that even though functionings are generally regarded as end points, policies which honour personal lifestyle choices should promote health capabilities instead of promoting health functioning (Nussbaum, 2011, p. 26).

CA emphasizes the need for societies to respect the right to self-definition and promote *opportunities* to its members which they, in turn, have the freedom to choose or not (Nussbaum, 2011, p. 18). Within the CA, personal responsibility is viewed in the constraints imposed by existing capabilities, as “what choices one makes depends on what choices one has” (Venkatapuram, 2011, p. 22). CA proponents critique interventions which do not promote choice and freedom, as they have a high potential of leading to feelings of powerlessness or even stigmatization among people (Wolff & de-Shalit, 2007, p. 13).

Studies focusing specifically on disadvantaged populations, suggest that structural factors are extremely important for intervention effectiveness in reducing child SHS exposure. A recent study recruiting women from a program designed to support disadvantaged mothers (The NHS First Steps), investigated qualitatively the differential effectiveness across groups. Findings suggested that the intervention increased awareness, salience of SHS risks and motivation to act, but it failed to address the complexities of the social and environmental constraints (such sharing the home with other smokers) (O'Donnell, et al., 2020). Intervention effectiveness is also associated with the readiness to change and self-perceived ability to protect children. A recent study which offered motivational interviewing and financial incentives to

mothers recruited from NICU while attended emergency services, suggested that the intervention measured a reduction in infants' urine cotinine levels at post-discharge follow-up, but only for the group reporting high baseline readiness and ability to protect the infant (Stotts, et al., 2020). Similar findings on low-income parents have been found in paediatrics-setting recruited participants. They suggested that parental self-efficacy on protecting children from SHS mediated the relationship between intervention and effect, measured via 12-month follow-up child urinary cotinine levels (Collins, Lepore, Winickoff, & Sosnowski, 2020).

### *Freedom to choose and well-being*

On discussing whether freedom can conflict with well-being, Sen distinguished between *agency freedom* and *well-being freedom*. This aspect is extremely relevant in the context of this thesis, as according to Sen, "a person's choice is not necessarily only guided by the pursuit of his or her well-being" (Sen, 1992, p. 61). This is particularly interesting in the context of addictive behaviours, such as tobacco smoking, as there is an extensive debate whether addiction-driven choices can be viewed as a full expression of agency and/or it impairs autonomy (Levy, 2006). In their work, Ruger & Zhang (2019), bring a different angle, by discussing addiction as "capabilities failure". They argue that people with increased capabilities "have built-in protective neurobiological mechanisms that counteract risk for addiction" (Ruger & Zhang, 2019). From this perspective, increasing capabilities and ensuring that individuals have a flourishing life, would protect them from addiction. In this sense, they have put forward the Addiction Prevention Capability Set which addresses an extensive range of internal and external factors, alongside their neurobiological effects, which can help combat the causes of addiction (Ruger & Zhang, 2019).

Another aspect of freedom in relation to tobacco control relates to policy initiatives. From this perspective, global public health efforts have aimed to reduce agency freedom when it comes to issues such as smoking bans and taxation, with the scope of maximising health. Breton & Sherlaw (2011) argued

that we can discuss a smoking capability, as it is an activity which brings value/benefits to smokers. Thus, reframing tobacco control policies from the current functionings-oriented perspective (i.e. “to live a smoke free-life”) to a capability-inspired one can be considered; this approach would also integrate the dimension of freedom (i.e. “to be able to live a smoke-free life if one wishes to”) (Breton & Sherlaw, 2011). However, even if public policies are not formulated as such, the capability approach has addressed this concern from other viewpoints. An important aspect of CA is that freedom involves both *opportunity* as well as *process*. According to Ruger, public policy should thus be concerned with the opportunities which people have (to achieve valued outcomes) but also make public participation and deliberation a constitutive part of policy formulation (Ruger, 2009, p. 54).

### *Unintended consequences through a capability lens*

Wolff and de-Shalit discuss addressing disadvantage while respecting people, drawing attention to the fact that some attempts in improving one functioning can contain hidden costs for other functionings (Wolff & de-Shalit, 2007, pp. 167-186). They touch upon what in the literature is also known as the *unintended consequences* of public policies or interventions and argue that there is a real danger around the fact that “the attempt to fix one problem can create fresh problems of its own” (Wolff & de-Shalit, 2007, p. 168). This discussion is extremely relevant to the current research, as unintended consequences of interventions have been documented around tobacco control. There is an increasing concern in the literature about the unintended consequences of public health interventions, and especially about their potential in increasing health inequalities. As mentioned in the previous sub-chapter, certain tobacco control intervention mechanisms, such as media campaigns and workplace smoking bans, were found to be associated with an increase in socioeconomic inequalities, whereas structural interventions at the workplace, tobacco pricing as well as provision of resources are documented

to decrease inequalities in smoking (Lorenc, Petticrew, Welch, & Tugwell, 2013).

With a reference to public policy, Wolff and de-Shalit argue that indeed government action can have “hidden costs” for the people they are addressed to, as well as connected populations indirectly. As a result, they posit policymakers should “act with a clearer sense of their goals and the impacts they will have” (Wolff & de-Shalit, 2007, p. 169). They also highlight multiple sources or contexts in which unintended consequences could occur. They discuss how addressing or intervening on one disadvantage, could negatively impact other functionings, as relevant capabilities are undermined (such as the one of affiliation). Alternatively, policies can sometimes lead to social division, which negatively impacts social solidarity, which in turn has the potential to reduce capabilities. In addition, certain intervention actions can be intrusive, oppressing, stigmatising or even carry humiliation, leading to unintended marginalization of vulnerable populations (Wolff & de-Shalit, 2007, pp. 171-172). Their recommendation from a CA approach, is an increased focus on *enhancing the status* of people (mechanisms targeted at improving their opportunities), and in some contexts combined with *targeted resource enhancements* (resources with a specific destination) and *personal enhancements* (education, psychological support, medical interventions, etc); their combination have the potential to create contexts in which individual autonomy can be respected while supporting flourishing capabilities (Wolff & de-Shalit, 2007, pp. 174-180).

## **Bridging Structure and Agency: Capabilities, Capitals, and Their Interplays**

Most of the tobacco inequality interventions (especially at population level) have focused on understanding social patterning and disparities by focusing on actual resources (whether it's income or education) and on class. However,

Sen's approach posits that the focus should be oriented towards whether people can do things they value doing, together with the means and the context to do so. In this sense, CA is concerned about the issue of resources, but acknowledges the limitations on focusing exclusively on them.

"The capability-based approach resists an overconcentration on means (such as income and primary goods) that can be found in some theories of justice [...] The capability approach can help to identify the possibility that two persons have very different substantial opportunities even when they have exactly the same set of means" (Sen, 2005)

This conversion of resources into capabilities was brought into discussion in Sen's early work. He discusses the limitations that severely deprived individuals might have in *converting* primary goods (such as income or resources) into capabilities. He also continues his argument saying that the absolute measure of resources, in their broadest definition, cannot fully represent the capabilities one has (Sen, 1992, p. 82). Venkatapuram also discussed the so-called "conversion skills" which constitute individual ability to transform income or other resources, as well as the physical and social conditions into functionings (Venkatapuram, 2011, p. 121). However, the practical implications of implementing such an approach are not extensively discussed by the authors. As a result, the theory would benefit from being further elaborated, and Bourdieu's Capitals theoretical framework might prove helpful in this sense. Its specific focus on the interplay of capitals (or resources, in a very loose sense) is what makes this approach extremely relevant to be associated with CA. It has the potential to provide the tools needed to practically investigate and intervene upon the interconnectedness of capabilities, to mitigate health inequalities.

Weber's conceptualization of lifestyle shifts the paradigm from health behaviours and risk behaviours to a broader understanding of how individual make choices. He focuses on their active role in responding to the challenges (opportunities and demands) of everyday life, which are determined by material resources and group norms (Abel, 1991; Abel & Frohlich, 2012). Furthermore, he proposes a framework which focuses on the interaction between life chances (structural conditions) and life conduct (agency defined as reactive or



proactive behaviours) (Abel & Frohlich, 2012). Bourdieu takes the discussion further by focusing on the link between structural resources (social, economic, and cultural capital), class habitus and individual choice, and exploring the extent to which individuals have control over their lifestyle (Abel, 2007). In his conceptualization of the three types of capital, Bourdieu acknowledges that none of the three can fully account for social inequalities, but rather their interaction determines the way inequalities are produced and reproduced (Abel & Frohlich, 2012). These interactions are defined in terms of *conversion*, *accumulation*, and *transmission* (Bourdieu, 1986), to which Abel and Frohlich (2012) add *conditionality*. The latter describes the inter-determination of the three types of capital and their acquisition; the authors argue that agency requires capital, but there are consistent inequalities in the ability and chances of capital acquisition to determine health advantages (Abel & Frohlich, 2012).

Wolff and de-Shalit also encourage a closer focus on what a person has, and how they can make use of that respective resource, towards achieving a flourishing life. They specify internal resources (skills, talents), external resources (income, and wealth) and less tangible resources, such as social support one has, as well as the context in which they can employ their resources (the *social and material structure*). They thus posit that the elements of structure can be as important as internal or external resources, in attaining opportunities for secure functionings, and their dynamics are also critical:

“The overall formula comes to this: the interaction of your internal resources and your external resources with the social and material structure within which you find yourself, determines your genuine opportunities for secure functionings, creating for you paths of varying cost and difficulty. In short, your resources are what you have to play with; the structure provides the rule of the game” (Wolff & de-Shalit, 2007, p. 173).

Wolff and de-Shalit also argue that through an analysis focusing on these different levels of capabilities, adequate areas of intervention can be identified in the space of internal or external resources or the one defined by social structure. While the former address interventions which are meant to support

individuals attain their full potential by enhancing their resources, the latter type of interventions would change the constraints that social structure exercises on individuals. It would thus allow them to attain functionings by means of the resources they already have (Wolff & de-Shalit, 2007, p. 173).

## Conclusions to Part Two

The capability approach (CA), as a broad evaluative space, has gained more popularity in public health research. By distancing itself from purely resource-focused approaches, CA puts at its core individuals and their values, and their ability to experience a flourishing life. Instead of focusing exclusively on functionings (achievements), it encourages a focus on capabilities (*practically possible opportunities*) to achieve desired outcomes. CA does not completely ignore resources, but focuses more on how they enable capabilities, with a strong focus on *conversion* factors, or in other words, how the resources can be mobilised towards achieving relevant capabilities. As the framework is individual-centric, it also offers a fertile ground for accounting for intra-household disparities, which are considered critical in decisions concerning homes.

Studying tobacco control, and more specifically children's exposure to SHS, through a CA lens, could have the potential to bring more insight to understand the mechanisms which contribute to health disparities. The social patterning of children's exposure to SHS has been traditionally explored through other theories of health inequalities, but with limited success. On the other hand, although CA is mature from a theoretical and philosophical perspective, it still lacks sufficient empirical evidence across a range of health topics, including children's SHS exposure. As a result, within this thesis, CA was used as a guiding theoretical framework for the research conducted in Romania. For the purposes of my research, the capability to protect children from SHS exposure was the end point of interest, distancing itself from the main body of literature which focuses on health capability and functioning in general. The rationale for

this design was to understand if CA has the potential to provide relevant insights to improve current public health efforts. Following the framework of Abel & Frohlich (2012), capabilities were explored alongside capitals' theory, which was used to conceptualise resources and their dynamics. The research aimed to fill a gap in the literature to provide new avenues for investigating and reducing children's SHS exposure, through a capabilities lens. As presented in this chapter, the capability approach although significantly theorised, still lacks the empirical support to be effectively translated into practice. As a result, the current research aimed to offer empirical support for the approach of smoking behaviour through a capability lens and provide novel insights on its application. The following chapter describes the methods and methodology used in my research.

## **CHAPTER THREE: Methodology and Methods**

This chapter describes the methodological considerations of the research. In the first sections I describe the study purpose and associated research questions, followed by the description of the mixed-methods study design and a section on the research paradigms which guided my research. The next sections describe the study setting and the population recruited for each of the two research phases, together with the recruitment strategy. I then discuss the data collected and their associated measures, for each of the phases, and describe in detail the data collection protocols. The two main methods of data analysis are then exposed, with thematic analysis used for the qualitative data and descriptive and inferential statistical analysis for the quantitative data. The chapter ends with a brief discussion on reflexivity and positionality. A summary of the key points is also provided at the end of the chapter.

## **Study Purpose and Research Questions**

This section describes the purpose of the study, as well as the research questions which have guided the process. The research was led by an overarching research question, which was formulated broadly to define the space of the research. This overarching research question was further operationalised into four sub-questions. Each of the questions are answered using qualitative data or quantitative inquiries, depending on their nature. A brief description of what was pursued which each of the research questions is included, and further elaborated in the Study Design section.

### **Purpose of Study**

The purpose of the research was to explore in-home smoking behaviour in households with young children in Romania, as experienced and reported by mothers of young children (36 months or younger). The research aimed to understand the complexities of in-home smoking behaviours, with a strong focus on capabilities among mothers, as potential explanatory mechanism for the decision of restricting in-home smoking. It aimed to uncover and map the dimensions of a potential set of capabilities relevant for smoke-free homes, understand their dynamics, and to ultimately explore if capabilities can be useful measures to understand the social patterning of smoking in homes with young children. Finally, it aimed to explore the relation between capabilities and actual resources women have access to, in the form of economic, social, and cultural capitals. The long-term scope of the study is to expand the current understanding of health inequities in smoking and to contribute to the development of effective intervention strategies, to reduce children's exposure to secondhand tobacco smoke. As empirical data on the application of the capability approach to smoking behaviour is scarce, the study's purpose was also to advance the application of the framework to health behaviours, with the

long-term aim of supporting the development of effective and equitable health intervention strategies.

## Research Questions

The study aimed to answer the overarching question: *How can the occurrence of in-home smoking be explained in households with young children in Romania, using a capability lens?* This overarching question led to the following, more specific questions, which guided the research process. Due to the exploratory nature of the research, these questions emerged and were refined throughout the phases of the study, as more knowledge was gained into the phenomenon. More specifically, the quantitative research questions were refined after the qualitative research phase of the study. The phases of the study are of both qualitative and quantitative nature, thus justifying the choice of a mixed-methods research design.

### ***Q1. How is maternal capability to provide smoke-free environments for children described by study participants?***

Capabilities are described in the literature as alternative combinations of functionings which are feasible for one to achieve. Health capability is generically defined at the intersection of health outcomes and health agency, including both health itself as well as individuals' ability to be healthy (Ruger, 2010). The scope of this research question was to guide the qualitative exploration of how (health) capability for smoke-free environments is described in women's narratives, and how that is reflected in achieved functionings. Additionally, capabilities focus on functionings which individuals (in this case mothers of young children) value and have reason to value; thus, within this research question I also aimed to understand how women describe the extent to which they value smoke-free environments for their children.

*Q2. How do women describe the capability for a smoke-free home, in relation to other capabilities?*

The capability for a smoke-free environment is tightly connected with other central capabilities of avoiding premature mortality or preventable morbidity, for both the mother as well as the child. Even though Sen's work offers a framework for understanding capabilities without discussing a specific list of capabilities, others have brought theoretical and empirical evidence for certain important capabilities. Nussbaum (2000) describes bodily health and integrity, senses, imagination and thought, affiliation, emotions, practical reasoning, control over one's environment as basic capabilities from a social justice perspective. Similarly, in her work on gender inequality, Robeyns (2003) discusses social relations, domestic work and nonmarket care, paid work and other projects, time autonomy, respect, leisure activities, mobility, bodily integrity, and safety as central capabilities (Robeyns, 2003). Within this research question, I was interested in qualitatively understanding how the capability for smoke-free environments conceptually connects with other capabilities and functionings, as described in women's narratives. Based on the results of the qualitative component, a decision was made on how to quantitatively explore capabilities in relation to in-home smoking.

*Q3. To what extent are capabilities associated with in-home smoking decisions?*

Extensive research has been conducted to understand the social patterning of smoking behaviour using resource-based approaches, where income, education, social class were used as statistical predictors of behaviours. This approach accounts for the structural determinants of health and health behaviours. However, by their nature, capabilities incorporate both structure as well as agency, as they are tightly connected to what people value or have reasons to value. As a result, through this research question, I aimed to quantitatively explore whether capabilities for smoke free homes are directly or indirectly associated with smoking decisions. This research question emerged

from the analysis of the qualitative data, where I identified that certain capabilities were mentioned by women in relation to their capability to restrict smoking in the home. I was thus interested in exploring quantitatively if capabilities are statistically associated with in-home smoking decisions, and if capabilities can be statistical predictors of in-home smoking decisions.

***Q4. What interactions can be uncovered between existing resources (capitals), other structural determinants, and capabilities for smoke-free environments for children?***

The capability approach moves away from resource-based theories, as it places resources as *means* to improve well-being; and the ability to *convert* them to meaningful capabilities is essential (Robeyns, 2003). Through this research question I am interested in quantitatively exploring the resources women have access to (or could access), to facilitate living in smoke-free environments. In the long term, it is essential to understand which diminished resources act as barriers in attaining capabilities, relevant to foster smoke-free environments. Exploring and mapping the skills women would need to attain (health knowledge, beliefs), as well as social and environmental conversion factors (social norms, social structures, interdependence, living environment structures), needed to turn *resources* into *capabilities* for smoke-free environments, is critical for developing tailored interventions, to reduce health inequalities. This research question has thus guided the quantitative exploration of relationships between structure and capabilities in attaining smoke-free homes for children. Within this question, I thus aimed to observe any statistical effects of capitals on in-home smoking decisions, as well as their statistical interaction with capability measures.



## Study Design

This section describes the study design defined for the current research, with a detailed description of the structure and sequential unfolding of the research phases included in the mixed-methods study. It also provides insights into the rationale for selecting this methodological approach, in the wider context of mixed-methods research. The section ends with a description of the research paradigms used to guide the research, in the wider context of paradigms used for mixed-methods research.

### Description of Study Design

According to the classification developed by Creswell and Plano Clark (2011), I have adopted a two-stage exploratory sequential mixed-methods study design, with a qualitative strand followed by a quantitative strand. The two strands were mixed<sup>7</sup> at data collection level as well as at an interpretation level. The data collection level mixing occurred as the development of my quantitative data collection instrument was informed on my qualitative findings. However, the purpose of the qualitative strand went beyond this goal, and it provided valuable insights in understanding the investigated problem in more depth. As a result, I have also mixed the two strands at an interpretation level, after data analysis was conducted for each of them. Findings from each strand are thus presented in independent chapters, and their interpretation presented in one discussions chapter.

The first phase of the study was a qualitative one, which aimed to understand the capability space related to in-home smoking decisions, as they emerged from the narratives of mothers of young children. This exploratory stage also focused on understanding structural determinants, life course determinants and

---

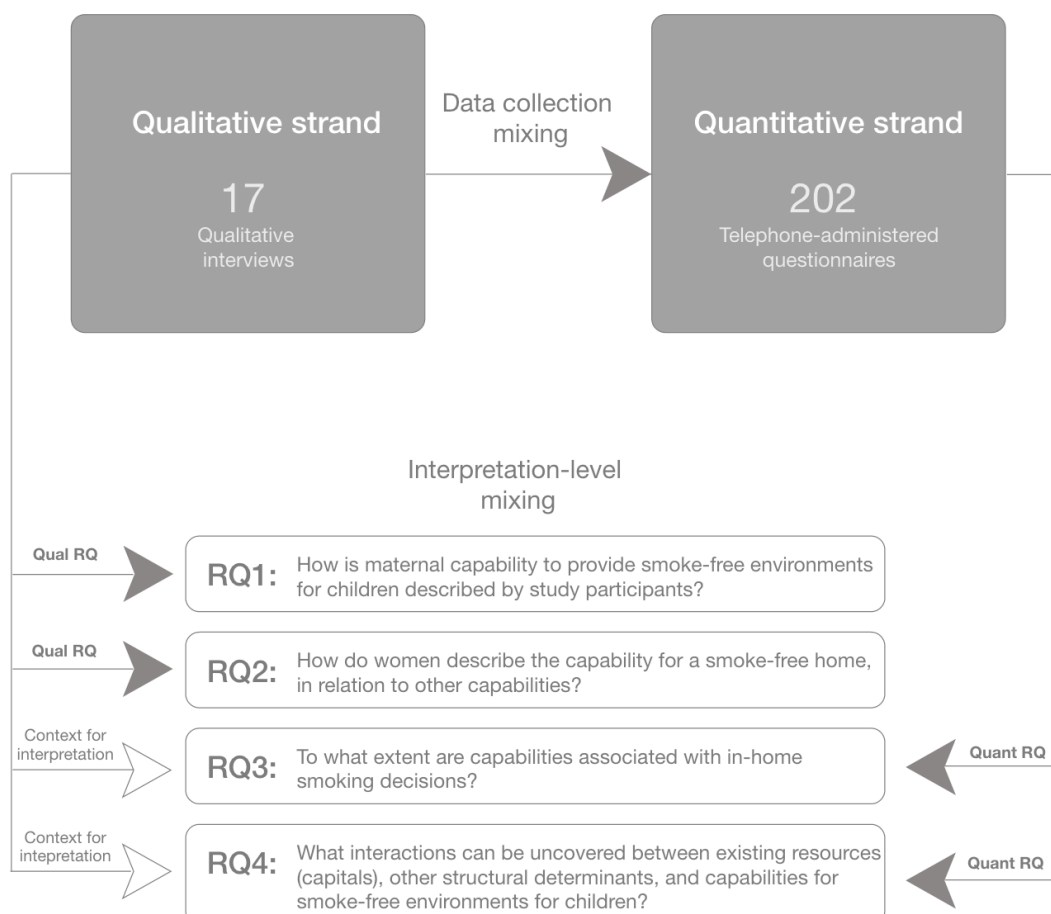
<sup>7</sup> Mixing of strands refers to the point and scope of combining or integrating multiple research strands, with multiple possible points of interface being described in the literature: mixing during interpretation, during data analysis, during data collection, and mixing at the level of design (Creswell & Plano Clark, 2011).

life events discussed by women. It also aimed to explore and map the dimensions of social, cultural, and economic capitals in relation to smoking behaviour, and elicit narratives around functionings and capabilities. The expected outcome of this research was a conceptualisation of the dimensions of the concept of capabilities, in relation to smoke-free homes, within the study population. Data were collected through face-to-face interviews and analysed independently from the second strand of the research. The results of this phase also informed the development of a quantitative data collection instrument (a questionnaire), administered in phase two. The second phase of the research was a cross-sectional, quantitative research, which aimed to describe the main covariates of in-home smoking, explore the relationship between proximal and distal determinants of children's exposure with a focus on capabilities. Data were collected through telephone-administered questionnaires and relied on self-reported measures of in-home smoking, as reported by mothers. Data for this strand were also analysed independently, but the analysis was informed by the findings of the qualitative strand.

Creswell and Plano Clark discuss the philosophical assumptions of exploratory designs and posit that there is often a need to give priority (importance of role in addressing the research problem) to the qualitative strand, due to the nature of the research problem, and the QUAL-QUANT sequence of methods (Creswell & Plano Clark, 2011, p. 87). I would argue that for the purposes of this research, the qualitative and quantitative research methods were considered to have equal priority. My research was guided by two research questions which were qualitative in nature, and two which were quantitative, and all of them contributed to a more comprehensive understanding of smoking in homes with young children in Romania. Although some constructs were explored and measured in both strands, they also brought unique contributions to addressing the complex research problem being investigated. The multi-faceted problem being investigated, as well as the novel approach brought by the under-specified theoretical framework used, required to investigate the research problem with both qualitative as well as quantitative

methodologies. The figure below visually summarises the two strands and their integration at data collection and interpretation level, as well as how they have contributed to answering the research questions of the study.

**Figure 6** Mixed-methods research design and data mixing strategy



The next section will discuss in more depth the justification for selecting a mixed-methods research design and will approach these points in more detail.

## Justification of Study Design

In the area of public health, the biomedical model of health and the focus on purely quantitative research to understand complex health phenomena, was gradually replaced by a more nuanced approach. This new approach emphasized the need to account for social determinants of health as well as

individual experiences. It led to an increasing use of qualitative methodologies, either as stand-alone studies or integrated in mixed-methods studies, under the label of the *new epidemiology* (Padgett, 2012, pp. 8-12). In the field of clinical research for the design, implementation and evaluation of behavioural interventions, the insights offered by qualitative research are increasingly being valued (Curry & Nunez-Smith, 2015, p. 41). And the field of health and medicine accounts for the highest number of mixed-methods studies published (Ivankova & Kawamura, 2010, p. 594).

Biomedicine and health research was historically dominated by the golden standard of randomized controlled trials; however, the increasing complexity of public health issues (including population aging and the rise of non-communicable diseases) heightened the need for understanding individual experiences and the full context in which they occur (Andrew & Halcomb, 2009, p. 24). As a result, the uptake of mixed-methods organically occurred in the health field, where applied research is extremely important, and the complexity of problems surpass monodisciplinary and single-method approaches.

Drawing from her experience in educational effectiveness research, Sammons (2010) argues that the integration of qualitative and quantitative components within a research study can “foster mutual illumination” and ultimately lead to “new synergistic understandings” (Sammons, 2010, p. 699). These synergistic understandings are, in the author’s view, characterized by strong interplays between different interpretations given to findings, which improve the process of gaining knowledge. But moving beyond the actual mix of methods, the main philosophical challenges of a mixed-methods research design reside in its combination of qualitative (constructivist) and quantitative (positivist/post-positivist) traditions, often in an alternative paradigm. The choice of research paradigms is discussed in more detail in the next section.

As the research topic of my PhD focuses on a complex health behaviour (in-home cigarette smoking), in a socio-cultural environment with limited empirical

evidence on the topic (Romania) and using an underspecified theoretical framework (capability theory), a mixed-methods approach was considered appropriate. Creswell and Plano Clark encourage researchers to be explicit about the reasons for mixing methods (Creswell & Plano Clark, 2011, pp. 61-63). In my case, the primary rationale for using a mixed-methods approach was rooted in the need to have a comprehensive understanding of the investigated phenomenon and aimed to offset the limitations of purely qualitative or quantitative approaches. I also designed the study to use the results of the qualitative strand to inform the development of the instrument for my quantitative strand, to address the lack of prior data available in the literature. My research questions were also of qualitative and quantitative nature, thus requiring a mixed-methods approach.

Ultimately, as discussed in the previous chapter, there is a philosophical need to use a democratic process of identifying relevant capabilities, as described by scholars of the capability approach (Robeyns, 2003). As my research drew heavily on this school of thought, investigating purely quantitatively the issue of capabilities for smoke-free homes would have not sufficed. My study thus aimed to involve participants in co-creating meaning related to capabilities, through the interviews conducted in my qualitative strand.

## **Research Paradigm**

This section explains how critical realist and pragmatic paradigms guided my research, in the context of mixed-methods methodologies. Paradigms in social science research are seen as worldviews (ways of thinking about the world), epistemological stances (philosophical standpoints on the nature of knowledge and the process of producing knowledge), shared beliefs across scientific communities, or models of conducting research (Morgan D. L., 2007). From an ontological perspective, paradigms also draw on different understandings of the nature of reality and truth, which in turn impose constraints on

epistemological assumptions on the nature of knowledge itself (Morgan D. L., 2007).

Even though the pragmatic approach to mixed-methods research is the most employed, the literature identifies several distinct positions or stances on paradigms in mixed-methods research. These range from the *incommensurable* (purist) stance to the *single paradigm* stance - also known as the alternative paradigm (Tashakkori & Teddlie, 2010, pp. 13-15). Within the former, mixed-methods cannot be attained because all research must be conducted in the guiding principle of a single, traditional, paradigm; whereas the latter offers a philosophical underpinning for mixed-methods research, which supports iterative approaches to research.

According to Tashakkori (2010), some other conceptual stances, even if they do support the combination of research methods, they keep research paradigms separate. This is to enhance the benefits of their methodological strengths (*complementary strengths* stance) or to improve the process of knowledge gain by maximizing the opposing viewpoints and *tensions* which arise from associating them (*the dialectic* stance). Mixed-methods research designs which make use of traditional paradigms have also been developed (Creswell & Plano Clark, 2011) under the umbrella of *multiple methods* stance, in which the dominant methodology (qualitative or quantitative) dictates the paradigm in which the mixed-methods study is conducted. Tashakkori (2010) also describes stances in which the paradigm is seen as less relevant, especially in the field of applied sciences, where often paradigms are viewed as unimportant for practice (*a-paradigmatic* stance) or where their importance is superseded by the theoretical orientation of the study, which is viewed as more significant than the philosophical paradigm itself (the *substantive theory* stance) (Tashakkori & Teddlie, 2010, p. 15).

Alternatively, Biesta (2010) classifies the notion of paradigm overall as an “unhelpful concept” because it has become a “container concept” which gathers multiple assumptions or ideas which don’t always have to go together

(Biesta, 2010, pp. 98-99). The alternative proposed by the author is to build each philosophical foundation on smaller units, focus on epistemology, ontology, methodology separately and embrace the heterogeneity that occurs. This would tentatively lead to interaction and exchange among researchers and research communities, and minimize polarization and schisms (Biesta, 2010, p. 99).

Pragmatism fosters an action-oriented, problem-focused approach, which views knowledge both as constructed as well as emerging from interactions; it rejects the existence of an absolute truth in favour of *truth as a result of experience* (Greene & Hall, 2010, p. 131). Within pragmatism, actions, and the context in which they occur are intrinsically linked, they are highly dependent on beliefs and worldviews, and are linked to their own consequences; as such, there is a uniqueness to every situation (Morgan D. L., 2014). Morgan (2007) proposes a framework for understanding the pragmatic paradigm, across three key issues: connection of theory and data, relationship to research process, and inference from data. In this sense, while qualitative and quantitative approaches are characterized by inductive and deductive reasoning respectively, the pragmatic approach is defined by *abductive* reasoning (the process of moving back and forth between inductive and deductive strategies, creating points of connection in between approaches). Regarding the role of the researcher and its relation to the research process, pragmatism is defined by *intersubjectivity*, bridging the qualitative-quantitative dichotomy of subjective and objective approaches. According to Morgan, “in a pragmatic approach, there is no problem with asserting both that there is a single *real world* and that all individuals have their own unique interpretations of that world” (Morgan, 2007). Finally, pragmatic approaches focus on *transferability* in inference, bridging the context-dependent extreme of qualitative research with the generalizability extreme of quantitative research. In this sense, it is essential to investigate the potential factors which might affect the transfer of the gained knowledge to other contexts (Morgan, 2007). However, even though the pragmatic framework offers a set of assumptions which are extremely helpful in

guiding mixed-methods research, it has limits in terms of its ability to provide a comprehensive philosophical foundation for all mixed-methods research (Biesta, 2010, p. 114).

In addition to a pragmatic paradigm, my research was also guided by critical realism. Critical realism, as described by Maxwell and Mittapalli (2010), integrates the realist ontology of the existence of “the real world” which exists independent of our perception, with a constructivist epistemology, which acknowledges variations in individual perceptions of this world (Maxwell & Mittapalli, 2010, p. 146). According to the authors, critical realism treats both qualitative and quantitative perspectives equally in terms of usefulness. It bridges the two paradigms, and it benefits mixed-methods research on multiple levels. One of the main benefits discussed by Maxwell and Mittapalli (2010), is that it challenges the positivist view of causality. This positivist view is traditionally dealing with variables and the statistical correlations between them, and factors are held constant to observe the different values causal factors take (variance-based approach). Within critical realism, causality is interpreted as a *process* and focuses on the causal *mechanisms*, which are highly context-specific rather than the actual variables (process-based approach). In this sense, Maxwell and Mittapalli argue for a better integration of qualitative insights even in experimental designs, to enhance causal *explanations* and not only produce causal *descriptions*. To understand causal mechanisms, statistically controlling for context-derived factors does not suffice. The context is an equally important dimension which needs to be fully integrated (Shadish 2002 cited by Maxwell & Mittapalli, pp 155-156). This position of critical realism on causality supports mixed-methods research among others that are discussed by the authors, and it offers a philosophical foundation for its use. By rejecting simple linear causality approaches, critical realism assumes that all knowledge is “tentative and fallible”, and predictive power is limited due the complex mechanisms operating in a very dynamic social world (Oliver, 2012).



Critical realism also shares communalities with the pragmatic paradigm, by adhering to this ontological realism and having a pragmatic orientation towards methods (Maxwell & Mittapalli, 2010, pp. 152-153). As Morgan (2014) describes it, in the pragmatic approach, knowledge of the world is socially constructed: “even though there is a reality that exists apart from human experience, it can only be encountered through human experience” (Morgan D. , 2014, p. 39). In this context, my research has been guided by a pragmatic and a critical realism paradigm, to address the challenges of understanding a complex behaviour, in an understudied research population. I have adopted a mixed-methods research design, combining both qualitative and quantitative methods, to understand in-home smoking behaviour. The ultimate goal of my research is to identify mechanisms which could support smoke-free environments for children in Romania. Thus, even though the research is fundamental, it has an applied underlying scope which is best understood through these paradigms.

## Study Setting, Population and Sample

As described in the previous sections, the study followed a mixed-methods design, with one qualitative phase, followed by one quantitative phase. As a result, different populations and recruitment strategies were used for each of the phases, although targeting the same types of populational groups. This section describes the study setting, study population (for both qualitative and quantitative) and the sample (for the quantitative component), including a description on the recruitment strategy for each of the research phases.

### Study Setting

The study was conducted in Mureş County in Central Romania. The study site was selected based on available access for the research to be conducted, as well as population diversity. Mureş County is one of the 42 Romanian counties, it covers an area of about 6,700 km<sup>2</sup>, it represents nearly 2.8% of the overall Romanian territory as well as approximately 2.7% of the total population. According to the 2011 Census, the county's population is comprised of 550,846 individuals, equally distributed between urban and rural settings (rural – 51.6%, urban – 48.4%), and of which 51.1% are women (National Institute for Statistics Romania, 2011). Most of the urban population lives in the city of Targu Mures (population 134,290), a medium-sized academic centre and a reference medical centre in Central Romania; an additional 10 small urban communities are part of the county, with populations ranging from 33,281 to 5,166 inhabitants. In terms of ethnic diversity, the county's structure is mainly composed of Romanians (50.4%), Hungarians (36.5%) and Roma (8.5%) (National Institute for Statistics Romania, 2011).

Participant recruitment was conducted solely via primary care settings (General Practitioner Offices – GPs) for the qualitative strand in phase I. A combined strategy was used for the quantitative strand (phase II), through GP

settings and one clinical setting (one paediatrics unit). I had initially decided to enrol participants only from primary care settings, as they were expected to facilitate access to a population which is closer to the real structure of communities (as compared to hospital samples). At the same time, GPs also offer a clustering of eligible participants (reducing needed resources, as compared to community-based population studies). However, due a recruitment process which unfolded slower than anticipated from GP settings, an additional Paediatrics unit within a large academic hospital, situated in the main city of the county was included as a data collection site for the quantitative phase of the study. The hospital offers paediatric care for children from the entire region. However, the study limited participation to mothers who lived in Mures county, were attending outpatient care for their child or had the status of *day-admissions*. The latter refer to patients who were admitted for one day, usually for medical investigations which cannot be performed in ambulatory care. Mothers of children receiving regular in-patient care were purposively excluded as they were considered to be more vulnerable so subject to increased distress associated with their child's condition, and they were expected to be less similar than outpatient and day-admissions to the population receiving care in GP practice.

## Selection of Recruitment Sites

Primary care in Mures county was delivered (at the time of data collection) by 308 GPs (also known as *family doctors*), distributed throughout the territory, having a total number of 504,962 enrolled patients. Of these, 21,368 were children aged 0-3 years (*as of October 2013, when data collection was planned*). The GPs included in the study were purposively selected, based on a set of criteria to ensure needed variability in the sample: to include large-urban, small-urban, and rural GPs; and maximize existing resources by only including GPs that had at least 100 children under the age of 3 on their patient lists, in order to offer a big enough pool of participants to recruit from. After an

initial screening, this resulted in a total pool of 65 GPs eligible for recruitment (38 urban and 27 rural).

The next stage in GP selection was to ensure an adequate representation of the socio-economic gradient within the final sample, by inviting into the study GPs who attend to populations with different financial deprivation levels.

Patients were considered to be experiencing financial deprivation if they were in receipt of social aid. According to the County Health Insurance House, 3.8% (19,326 persons) of all adults enrolled with a GP in the county were recipients of social aid (*October 2013*). Furthermore, these deprived groups were not equally distributed across GP offices, as higher concentrations are registered among some GPs. In absolute figures, the number of persons benefiting from social aid ranged from 1 to 450, between different GPs.

**Table 2 - Summary of social aid concentration among primary care doctors (GPs) in Mures County (2013)**

| Quartile cut-off     | Concentration of patients receiving social aid (% of total) |
|----------------------|---|
| <i>minimum value</i> | <i>0.04%</i>  |
| 1 <sup>st</sup>      | 0.4%  |
| 2 <sup>nd</sup>      | 2.2%  |
| 3 <sup>rd</sup>      | 5.6%  |
| <i>maximum value</i> | <i>25.3%</i>  |

This type of aggregated data on the degree of deprivation of the population served by each GP was used in the sampling strategy, to select the final recruitment locations for the study. A percentage of financially deprived individuals enrolled for each GP in the county was calculated, and percentiles were computed to get a better understanding of the distribution within the entire sample of GPs. The minimum social aid concentration was 0.04% among some primary care doctors, and the highest concentration was of

25.3%. In this latter case, more than one quarter of the patients enrolled on the GP's list were recipients of social aid.

For the qualitative component of the study, one urban and one rural GP were selected as recruitment sites. From the total number of GPs enrolled in the quantitative component of the study (n=11), five GPs were from the large urban setting, three GPs were from small-urban settings and three GPs were from rural settings. The GPs were distributed across the deprivation quartiles as follows:

| Quartile cut-offs | Qualitative component<br>(n=2) | Quantitative component<br>(n=11) |
|-------------------|--------------------------------|----------------------------------|
| 1 <sup>st</sup>   | 1                              | 4                                |
| 2 <sup>nd</sup>   | 0                              | 4                                |
| 3 <sup>rd</sup>   | 1                              | 3                                |

Through this recruitment strategy, the study aimed to include a diverse population from a socioeconomic perspective. The first section in each of the findings chapters (chapters four and five) describe the characteristics of the recruited population, which was included in each of the two research phases.

## Study Population and Sample

The study population is defined as all mothers of children aged 0-3 years old, enrolled with a GP in Mureş County or attending care for their child at the Paediatrics unit included in the study. The 0-3 years age group was selected for several reasons. Firstly, there is evidence that children's exposure decreases with age, thus younger children are more exposed to SHS (Delpisheh, Kelly, & Brabin, 2006; Wipfli, et al., 2008). Secondly, in infancy and early childhood (up to the age of 3) children are at increased risk for acute respiratory health events attributable to SHS exposure (Strachan & Cook, 1997). Thirdly, in the Romanian educational system, the age of 3 is the age in

which children are enrolled into kindergarten, thus starting to spend less time at home (Romanian Ministry of Education and Research, 2011). As such, the age of 0-3 years was identified as being at high risk, and critical for understanding young children's SHS exposure in Romania.

I decided to include in this study only women (mothers) to get a comprehensive understanding of their experiences. I acknowledge the importance of involving and exploring the perspectives of all household members in exploring the breadth of in-home smoking, but the diversity of experiences would have required a far larger sample size. Due to the logistical constraints of the current PhD, I have selected mothers as main respondents, with the long-term aim of involving other family and household members in future research. Secondly, the focus of the research on capability theory and the need to recruit participants from socio-economically diverse contexts, limited the diversity I could have effectively studied, if other layers of complexity would have been added (type of relation and interaction with child, role in family, gender, and gender roles).

For the **qualitative component** of the study, a convenience sample of eligible participants was selected, and 17 women were enrolled via GPs working in one urban and one rural community. The convenience sample was used to ensure the recruitment of a wider diversity of socioeconomic backgrounds, in a resource-effective manner. Also, the purpose of this phase of the study did not aim for representativeness but rather diversity of women's accounts. The sampling scheme involved enrolling women from both rural as well as urban environments, different educational groups (high-school or less, and undergraduate degree or more) and age groups, as well as smokers, former smokers, and never-smokers. The advantages of convenience sampling in this case outweighed its limitations, as a sampling of the recruitment locations was initially conducted based on the research questions (and a-priori information on the settings). More specifically, the research questions required enrolling women from very diverse socio-economic backgrounds, thus the recruited

GPs were selected to facilitate that (following the process described in the previous section). In this way, the desired socio-economic mix was achieved a lot quicker and with fewer resources than using a random sample. In addition to that, the purpose of this research component was to explore women's narratives associated with in-home smoking to guide the subsequent quantitative component. It did not aim to provide generalizable results, but rather offer diverse experiences and associated narratives to inform and contextualize the next research stage.

Three main mechanisms were employed in order to increase transparency on sampling procedures particularly, and the qualitative research process overall. Firstly, a detailed profile of the achieved sample was included in this thesis (available in Chapter 4 – Qualitative Findings, Section 1: Description of Study Population). It describes in detail the participants of the study in terms of residence (urban/rural), age, number of children, education, smoking status, and in-home smoking practices. Secondly, a discussion on the limitations of the sample and recruitment process was also included in chapter 6 – Discussions, Section 4: Limitation and Challenges. They reflect upon the studies' exclusive focus on only one role in the home (that of mothers) without eliciting data from other household members, the underrepresentation (due to the recruitment process) of families which do not have access to the healthcare system, as well as the potential for reporting bias and its implications for the identification of smoking households.

Thirdly, in the process of data collection, theoretical saturation (the point where no new insights are uncovered) was carefully considered, with a focus on sampling adequacy. As Bowen describes it, "an appropriate sample is composed of participants who best represent or have knowledge of the research topic" (Bowen, 2008). Saturation was thus considered and reflected upon from the perspective of depth as well as breadth of information obtained, and the degree to which the identified themes have been adequately described and explained with the collected data. Upon reflection, the 17 interviews have

managed to capture a diversity of perspectives and topics (thus achieving breadth) as well as allowed diving deeper in their interpretation (thus achieving depth). This was considered as adequate for bringing enough insights to respond to my research questions, satisfying the methodological need of informing the subsequent quantitative strand, as well as to address the scope of a PhD research. Nonetheless, due to the highly contextual nature of in-home smoking and child SHS exposure, a larger-scope, stratified sample, could have increased theoretical saturation. It could have enabled me to bring more evidence to support some of the identified themes (thus increasing robustness) as well as to potentially allow me to uncover new themes, as derived from life experiences which were less present in my sample.

For the **quantitative component**, a total sample of 202 participants was enrolled into the study. None of the women who were recruited to the qualitative strand were invited specifically to participate in the quantitative strand. The sampling strategy was based on the time women accessed healthcare services in the included data collection sites. All women accessing services in the recruitment sites in the data-collection period and who met inclusion criteria, were considered eligible and invited to participate. Initially, recruitment occurred exclusively in GP settings. However, due to the low recruitment rates described in the previous section, the additional Paediatrics outpatient clinic was added, serving both urban as well as rural settings in the county. The full participant recruitment strategy is described in the *Data Collection* section of the thesis.



## **Data and Measures**

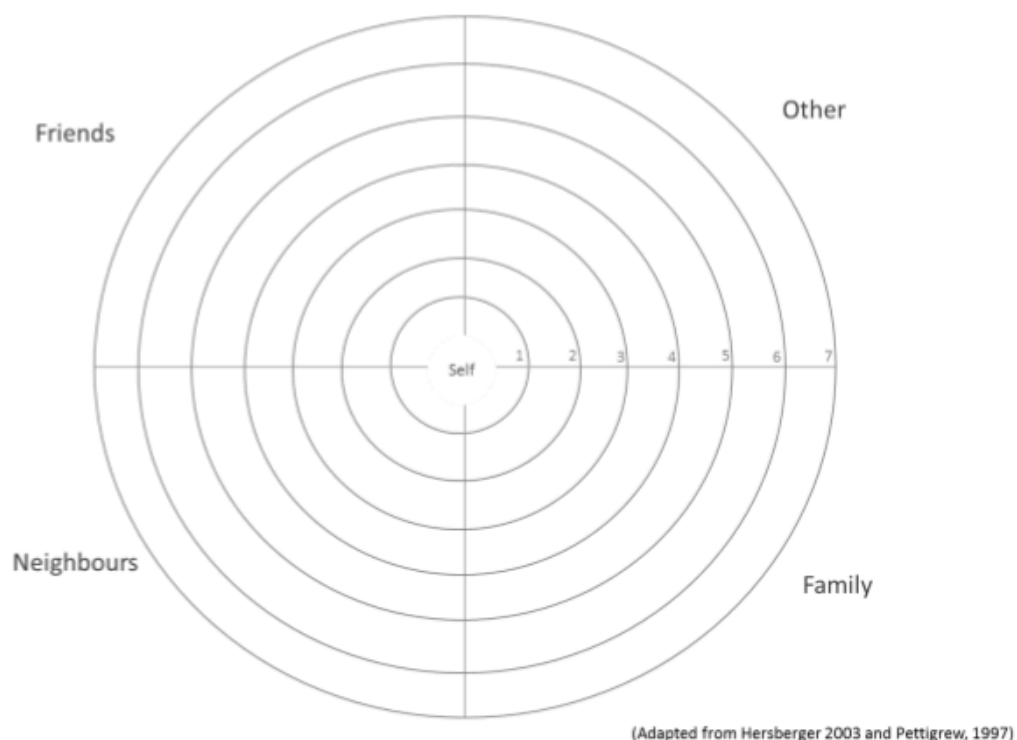
This section describes the main data and associated measures collected for each of the study phases. The main constructs and dimensions pursued in both strands of the study, were smoking in the home and children's SHS exposure, health status, parental socioeconomic status, living arrangements and household structure, economic capital, social capital, cultural capital for health, cultural capital acquisition (conversion of economic capital to cultural capital for health), capabilities and their dynamics with in-home smoking behaviour. Within the qualitative strand, life course deprivation and life course events in relation to smoking were also explored, as a support for exploring smoking behaviour in context and elicit narratives on the dynamics of capabilities. All measures used were self-reported, and no biochemical validation of in-home smoking or child exposure were used. The following sections describe the measures utilised in this research how they were constructed to reflect key constructs and dimensions.

## **Qualitative Data and Measures**

Within the qualitative strand, the semi-structured interview topic guide focused on two main dimensions, eliciting women's narratives around a) their social network (with reference to social support and community values in relation to smoking behaviour, smoking attitudes, and norms, smoking around children) and b) around life course development and life events in relation to smoking. The interview guide can be consulted in Appendix 6. The discussion was guided using two visual support charts, administered sequentially. Initially, an egocentric social network map was used to support women in visually representing their social group, and allowing them to talk about living arrangements, transfers of social support (instrumental, financial, emotional) as well as discuss the dispersion of smoking behaviour in the network. It consisted of seven concentric circles, with the middle one representing the self and the

outer ones representing different degrees of closeness, split into four quadrants (Hersberger, 2003). Each quadrant was marked to represent family members, friends, neighbours and other people and participants were instructed to place people in any of the quadrants, and on the lines depending on their degree of closeness using a nickname or initials. The rationale for using the egocentric social map was to stimulate discussions and offer participants a visual support for discussing smoking within the context of their social network.

**Figure 7 - Egocentric social mapping tool**



Throughout the mapping exercise, participants were also asked to point to the people they share their home with, the level of social support they offer and discuss the different types of support they normally receive. Instrumental support was conceptualized as help with practical routine activities, such as shopping or watching over children; informational support was defined as information and advice on topics such as child health and rearing; emotional support was measured asking respondents about people which offer “emotional support or reassurance when feeling overwhelmed or upset”;

financial support was also measured in terms of money, resources, or material goods. Additionally, credibility of different information sources was also explored, in relation to child health. Regarding smoking, women were asked to map smokers and former smokers on the map, as well as refer to any discussion they have had around smoking and smoking cessation with any of the people in the social network. Perspectives on community norms regarding smoking in general or passive smoking in particular were also explored.

A second measure used in the interviews was a life grid (Parry, Thomson, & Fowkes, 1999), used to explore life-course determinants of smoking and/or exposure to secondhand smoke (in the case of non-smokers), including quit attempts. Exploring women's past experiences also allowed discussions around the constraints they typically faced when making decisions around smoking in the home. The capability for fostering smoke-free environments was explored in this section of the interview, eliciting participant narratives regarding value for smoke-free homes as well as dynamics and tension with other capabilities.

Life grids are strong methods in collecting retrospective information and the method was used within this study as it had a high potential to facilitate a discussion on life course events associated with smoking behaviour. The instrument used was a table, with pre-defined headings based on the constructs which were to be explored, and space on the rows to fill in with the desired information by each participant. The constructs explored and mapped on a chronological lifeline were major life events, changes in the family, education and work history, home and living arrangements, health events (personal, child's or family) and ultimately smoking. Narratives around smoking uptake, smoking behaviour, restrictions in smoking and smoking cessation (including relapse), smoking in the home environment and rules around that were explored using the events listed as discussion topics.

### Figure 8 - Life grid interviewing tool

| Year | Age/ Events | Family | Work/Leisure | Housing | Health | Smoking |
|------|-------------|--------|--------------|---------|--------|---------|
|      |             |        |              |         |        |         |

(Adapted from Edwards, 2006; Parry 1999; Gallie 1988)

None of the graphical outputs obtained with these mapping tools were used directly in the data analysis, as their sole scope was to support and facilitate the discussions. They only provided visual anchors for participants and helped them verbalise their stories.

## Quantitative Data and Measures

Within this section I will describe the main data collected and the main constructs measured within the quantitative strand of the research. For the purposes of my quantitative research, data were collected using a questionnaire (the full questionnaire can be consulted in Appendix 7), administered by trained data collectors via telephone, containing both open-ended as well as closed questions. The questionnaire was structured into seven sections: (1) sociodemographics, (2) living arrangements, (3) health status and health information, (4) smoking behaviour, (5) smoking cessation attempts (not administered to never-smokers), (6) smoking in the home, and (7) emotional health, social support, and capabilities. The main constructs and their measurement are described in the following section.

### *Demographics, family and living arrangements*

All participants included in the quantitative strand were self-identified as mothers and caregivers of at least one child aged 36 months or younger (as part of the studies' eligibility criteria). The questionnaire measured respondent's ages (determined from self-reported date of birth) and languages spoken in the home (*Romanian/ Hungarian/ Romani/ German* as the most frequent ones in the studied geographical area, with the option of *Other* to be selected as well). As family dynamics and living arrangements are important determinants of socioeconomic context as well as children's SHS exposure, the questionnaire also collected data on the relationship status of the respondent (*marital/partnership status*), living arrangements (*through an audit of the people which lived with them in the home*), type of dwelling they lived in (*apartment/ house*) and its size (*sqm and number of rooms*), number of people living in the home, home ownership, and urbanity of home (*urban/rural*). Respondents were also invited to evaluate their satisfaction with the physical condition of their home (*extremely satisfied/ satisfied/ unsatisfied/ extremely unsatisfied*), as well as to report at what extent they feel satisfied with the adequacy of the home, for their current needs (*very suitable/ suitable/ unsuitable/ very unsuitable*). Finally, one measure of perceived control over the living environment was also used (*no control /very little control/ a lot of control/ full control*).

### *Health status and wellbeing*

A set of variables were collected on both the health status of the respondent, as well as the health of the children living in the home, as reported by the respondent. Self-assessed overall health status (*excellent/ good/ fair/ poor*), and overall quality of life (*very poor/poor/neither poor, nor good/good/very good*) were measured. One variable also measured if they have any conditions which limit or negatively affect their activities of daily living (*yes/ no*). The Patient Health Questionnaire-4 (PHQ4) was used to offer insights on emotional distress (brief screener for anxiety and depression). Responses to the four questions of the instrument were measured on a 4-point Likert scale, and data aggregated

into a summative score (ranging from 0 to 12). The summative score was used to group respondents into four operational categories, according to its scoring recommendations: none/normal (0-2), mild (3-5), moderate (6-8) and severe (9-12) (Kroenke, Spitzer, Williams, & Lowe, 2009).

Regarding child health, the questionnaire collected data on chronic or recurring health conditions commonly associated with SHS exposure, experienced by any child in the household (*asthma, chronic (or repeated) bronchitis, and/or repeated ear infections*). Two additional measures which focused on the youngest child in the household assessed the overall health status of the child, as evaluated by the respondent (*excellent/ good/ fair/ poor*). An additional measure of frequency of respiratory infections documented how often the youngest child had experienced them, in the past 6 months (*one time/ two times/ three or more times*).

### ***General Smoking Behaviour***

Respondent's smoking behaviour, as well as the smoking behaviour of people in the household and the social network was measured on multiple dimensions. Respondents' current and past smoking behaviour was assessed, including age of smoking uptake, frequency, and quantity of smoking and intention to quit smoking. Smoking behaviour (*yes/no*) of other people sharing the home was also documented as well as their relationship with the respondent. A measure of the total number of smokers in the home was also computed, which was used in the analyses. Finally, smoking in the social network of the respondent was measured using a global evaluation, asking respondents to rate what proportion of people, from all the persons who are present in their life, currently smoke (*all of them, almost all of them, a few of them, or none*).

### ***In-Home Smoking Behaviour***

For the purposes of the study, in-home smoking was defined for participants as smoking in any of the enclosed spaces of the home, *including kitchen, hallways, or bathrooms*. This rooms specification was included, as it derived from the qualitative data that sometimes women initially reported no smoking in

the home, but throughout the interview discussed smoking in these specific parts of the home. In addition, a seasonal differentiation across two distinct questions (operationalised and presented to respondents as *winter, or when it is cold* outside and *summer, or when it is warm outside*) was included as well, as they derived from the qualitative study as relevant for reporting smoking in the home. In-home smoking frequency was thus recorded as *daily, weekly, monthly, less often than monthly, or never* on these two variables.

Respondents who reported any amount of smoking for any season (cold season or warm season) were coded in the data as homes in which smoking occurred or was permitted.

### *In-Home Smoking Rules*

As part of understanding in-home smoking dynamics, participants also responded to questions about general rules about smoking in any of the closed spaces of the home (*smoking permitted, smoking generally not permitted but some exceptions exist, smoking completely forbidden/no rules around smoking*). As discussed previously, participants were also asked how frequent smoking occurred in any of the enclosed spaces of the home. The group in which smoking occurred, was included in the smoking-permitted category. For non-smoking homes, respondents were asked if anyone had ever smoked indoors in their home, even years before (Yes/No). If they responded Yes, the reasons for change of rules or behaviour were elicited using an open-ended question, which was coded by the data operator for quantitative analysis purposes (the response options were not read to participants). The categories for coding changes in in-home smoking were *pregnancy or the birth of a baby, health event in the family, family structure rearrangements, someone in the family quitting smoking or other*. Of particular interest was one group, were bans which were reported to occur due to the arrival of a baby in the home, either during pregnancy or post-partum.

These measures, together with the in-home smoking behaviour measures described above, allowed me to create the dependent nominal variable used in the analyses, with three categories:

- Non-smoking homes, defined as homes in which smoking did not currently occur, and in most cases did not occur in the past either. If smoking was permitted previously, homes were included in this category only if respondents did not mention the arrival of a baby as a reason for restricting smoking (other reasons reported were smoking cessation among family members, health issues with adults in the household, moving to a new home, etc).
- Ban-for-baby homes, defined as homes in which smoking did not currently occur, but had occurred in the past and had been ceased due to the arrival of a baby. I have included in this category homes in which a smoking ban was reported specifically by respondents due to pregnancy or the arrival of a baby in the household.
- Smoking homes, defined as homes in which smoking occurred, to varying extents. These could have included smoker household members or non-smoking household members who allowed visiting persons to smoke.

### *Capabilities*

To describe capabilities, Nussbaum encourages the use of the question “What is this person able to do and be?” and defines capabilities as interconnected opportunities which individuals may act upon (Nussbaum M. C., 2011, p. 20). For the measure of capabilities, I have used 10 items (measured on a 4-point Likert scale) developed based on Nussbaum’s conceptualisation and the findings of my qualitative research strand. The items aimed to measure different aspects of capabilities which could be linked to in-home smoking behaviour, as identified in the literature, and interpreted from women’s narratives in my qualitative research. Women were asked to rate how much they feel they are able to: express themselves freely in the home they live in; influence how



people behave in the home; make structural changes in the home; decide how to live their own life; feel free to raise their own children as they would like to; influence decisions within the home; influence how money is spent in the home; live a healthy happy life themselves; provide a healthy environment for their children to grow in. These initial 9 items reflect more general capabilities, which however could be associated with women's agency to restrict smoking in the home. Alongside these, a more specific capability for restricting smoking for guests (or visitors) in the home was measured, due to its presence in the qualitative data from the first phase of the study.

### *Economic Capital*

The financial resources women have access to was measured using a set of latent and observed variables. Family net income was measured on a 6-point ordinal question, constructed based on minimum and average household incomes defined by the Romanian National Institute for Statistics. Housing tenure was measured through two questions; respondents initially reported if they (or other members of their family) own the home they live in, and if not, they were asked if they were renting; respondents also had an open/ended section where they could have reported any other type of living arrangements if they were not renting nor owning the home. Financial negative changes in the family over the past 12 months were measured through a dichotomous question, and was defined as "a reduction in wages, being fired or laid off or suffering a financial loss" for anyone in the family. Additionally, a construct of financial hardship was measured through a 3-item scale (difficulties in paying bills, having money left at the end of the month and cutting back expenses to make ends meet). These were augmented with a measure of concerns about financial aspects for their family, measured through one question (with responses marking *not at all worried*, *slightly worried*, *very worried*, and *extremely worried*).

### *Social Capital*

Social Capital was defined as the resources women could mobilize through their social networks, with references to child rearing. It was measured through a 6-item frequency scale, with items on emotional support, instrumental support, and financial support, as well as a global social support appraisal item. Scale items were rated on a 4-point Likert scale to mark how often women received different types of support when they needed it (from *Always* to *Never*).

### *Cultural Capital for Health*

Cultural capital was measured using indicators of highest completed education. Thus, participants' highest level of attained education as well as partner's highest level of attained education were measured (if the respondent reported living with a partner), allowing the computation of the construct of household highest education. The latter is considered extremely relevant in relation to in-home smoking behaviour (Schuster, Franke, & Pham, 2002). However, the highest level of household education did not include the education of other members of the family if respondents lived with their extended family. Cultural capital for health was measured using as indicators attitudes and knowledge relevant for health (in my case, smoking behaviour). Knowledge on the effects of active smoking (four items on the effects of smoking on diseases in general, on pregnancy health, cancers, heart attacks and strokes) and the effects of passive smoking (on adult health and on child health) were also measured. Respondents were thus asked to rate the set of questions which were formulated starting with "From what you know or believe..." eliciting knowledge or attitudes. Sources for health information seeking were also measured using an open-ended question. The data operator coded the responses on a list which was not read to the respondent but allowed a structuring of the responses for different family members, friends or co-workers, physicians (GP, paediatrician or other), books, magazines, internet (websites or forums/blogs), TV or radio.

### *Cultural Capital Transmission and Conversion*

As a proxy for capital dynamics or interplays, transmission was conceptualized as the transfer of cultural capital for health (information or skills) via social networks. Within the study, it was conceptualized and measured using three manifest variables rating the frequency (*never, once or twice, a few times* and *a lot of times* in the last 12 months) of transfer of cultural capital in the form of: 1) receiving as a gift or borrowing a book, brochure or magazine on child health or child rearing from someone around them, 2) receiving useful information on child health or child rearing from someone around them, 3) learning something new which they could put into practice, regarding child health or child rearing from someone around them. These three variables were used as reflections of the latent variable cultural capital transmission.

As a second indicator for capital interplays, conversion, was defined as conversion of economic capital into cultural capital for health, through the acquisition of information or skills. Two manifest variables were used to measure this construct on the same frequency scale (from *never* to *a lot of times* in the last 12 months): 1) buying a book or a magazine with information on child health and child rearing and 2) using the internet to learn something new which they could apply regarding child health and child rearing. The internet was appraised as a commodity which needs financial investment; thus, it was classified as mechanism of economic capital conversion, to obtain information or skills.

## Data Collection

This section describes the data collection protocols used for both phases of the research. As described previously, the qualitative phase and the quantitative phase of the mixed-methods study were implemented sequentially. In the initial qualitative phase, I have collected data between July – August 2014 and the subsequent quantitative phase was implemented between December 2014 and February 2016. Before data collection, the study instruments were piloted with two Romanian native speakers each, who were mothers (both smokers and non-smokers). Minor phrasing changes were brought to the final instruments, as well as a reorganisation of the order of some questions in the questionnaire, based on the received feedback.

### Qualitative phase data collection protocol

Within phase 1, study participants were enrolled over a period of 2 months. Two GPs serving one urban and one rural community in Mures county were approached and asked to act as enrolment settings. GPs were purposively selected using the procedure described in the *Study Setting, Population and Sample* section of this chapter. Eligible women (enrolled in their practice and caring for at least one child aged 3 years or younger) were approached by the trained physicians, offered a Participant Information Leaflet, and asked permission to give the research team their contact information. Contact information was collected via a Consent for Contact document which was filled in and signed by eligible women interested in participating). A total number of 28 Consent for Contact documents were retrieved from the two settings, and a total number of 17 interviews were conducted with recruited participants.

I contacted participants via the telephone number provided and invited them to participate. Any questions they had about the study were clarified, and a meeting was scheduled. Interviews took place in participants' homes, a private

room in the municipal hospital or a private room within the rural GP office (for the women in the rural group). Interview locations were decided together with the participants and based on the existing infrastructure, with the purpose of creating a safe environment for participants and accommodating their needs. When contacted, they were offered the option of an institutional location (such as a private room in the county hospital for the urban participants or the GP office for the rural participants) or their own homes, depending on their preference. Only the participant was present during the interviews, except for five cases in which their children were also present.

After attaining written informed consent, interviews were conducted and lasted between 30 minutes to one hour. All interviews were audio recorded, with the written permission of the participant, and subsequently transcribed verbatim and anonymized before aggregated for analysis. After each interview, field notes were recorded by hand and an electronic log developed in a timely manner with information on the location, time, duration, and conditions of each interview, as well as some brief sociodemographic information about the respondent (age, occupation, education, smoking status, number of children, living arrangements, partner smoking status and home smoking rules). The field log also documented other observations based on the interview and the interaction. Field logs contained data which were used during data analysis to provide context for the conditions of the interview when analysing transcripts (such as contextualising interruptions). Each participant received a pseudonym which was used in transcription as well as in the field notes. Electronic transcripts were subsequently imported into Nvivo 10 for analysis.

## **Quantitative phase data collection protocol**

Within the quantitative strand, a 2-step sampling strategy was employed for general practice offices (see *Study Setting, Population and Sample*), through which 11 GPs were enrolled in the study, with the addition of one paediatrics unit. Similar to the qualitative strand, the first contact with physicians was

conducted via telephone, and a subsequent meeting was scheduled. Within this meeting, the study protocol was discussed as well as the enrolment methodology. GPs also kept a printed copy of the study protocol, for future reference.

GPs (or office nurses, depending on the context) were trained to screen for eligible women (mothers of children 36 months or younger, attending vaccinations, ill or well-child visits), offer eligible mothers the participant information sheet and ask them permission to offer the research team contact information for them (telephone number) for a subsequent telephone interview. Contact information was documented using a consent for contact form, similar to the qualitative component of the study.

A protocol of retrieving consent for contact (weekly or bi-weekly telephone-scheduled meetings) was established with each GP. After retrieving the contact data, I logged them in a secure, password-protected electronic spreadsheet and archived the paper documents in a secure location (locked cabinet). Eligible women were then contacted for a telephone-administered structured interview. If the woman was not available at the time of the call, the telephone interview was rescheduled for a date that was convenient for the participant. For the quantitative component of the study a total 324 consents for contact forms were retrieved from GPs, and 138 from the Paediatrics unit. From the total of 462 potential participants, 202 were reached and included in the study, resulting in an overall 56.3% inclusion rate. The main reasons for not including all the women in the study were the inability to reach them via telephone (after 3 attempts, the woman was logged as a refusal) as well as refusals when contacted.

After undergoing ethics procedures, explaining the study procedure, and obtaining verbal consent, the questionnaire was administered via telephone. Data were entered at the time of the interview directly into an electronic version of the structured interview (electronic questionnaire) using a secure, online platform – Qualtrics, 2014. After data collection, the questionnaire information

was extracted from the online dataset and imported into SPSS 26 for analysis, and kept in a secure, password-protected location.

For this component of the study design, two trained data operators administered the questionnaires (via telephone). They were trained and monitored by me (the PhD candidate) and supervised by my attendance at randomly selected interviews. At the end of the data collection process, all participants in the quantitative component were sent a thank-you note via post, if they had agreed to receive it at the end of the telephone meeting. As recognition for the time they devoted to participating in the survey, they were also sent a symbolic gift with the thank-you note (a digital baby thermometer).

## Data Analysis

This section describes in detail the data analysis process for each of the study phases. The data analysis was sequential, with an initial analysis of qualitative data (using thematic analysis), and a subsequent analysis of the quantitative data (using statistical analysis). The qualitative findings had a significant impact on the quantitative data analysis, as it supported the process of 1) conceptualizing and operationalizing the main constructs in the quantitatively tested model and 2) of mapping the relations in the model to be explored.

### Thematic Analysis

For the first phase of the research (the qualitative strand) a thematic analysis of the interview transcripts was conducted, with verbatim transcripts imported into Nvivo for data analysis. Thematic analysis is widely employed in social sciences and supports the identification and analysis of patterns (or themes) within the collected data, with the aim of identifying related concepts embedded in the data set (Braun & Clarke, 2006). It looks for themes both as patterns in socially constructed narration, as well as meanings within the whole dataset (Braun & Clarke, 2006). Thematic analysis was selected due to its flexibility to be employed in a study guided by pragmatic and critical realist paradigms. Secondly, it was assessed as better fit to respond to study aims in identifying commonalities and differences across narratives for a better conceptualisation of capabilities, to inform the subsequent quantitative phase of the study. Finally, as the study's nature was exploratory but also drew heavily on capability theory, thematic analysis supported the analysis by accommodating an inductive-deductive approach to coding.

The process, as defined by Braun and Clarke, the following sequence of steps was used: (1) understanding and becoming familiar with the data – transcription, (re)reading, documentation of initial ideas; (2) generating initial



codes and systematically coding data; (3) searching themes - pulling together similar codes into themes and collecting all relevant data for the respective theme; (4) reviewing themes and generating a conceptual map; (5) naming and defining themes; (6) reporting on the findings (Braun & Clarke, 2006).

I used a mix of inductive and deductive coding strategies, which aimed to answer the research questions of the study. The main inductive coding categories focused on capitals or resources available (cultural, economic, social, health capital), conversion factors (individual and socio-environmental) and smoke-free capability (including value for smoke-free homes). The main deductive codes focused on capability tensions (the dynamics between the capability to maintain the home smoke-free and other capabilities) and strategies in the reconciliation of tensions (active and passive coping strategies). These latter groups of codes were derived from analysing women's narratives and were coded and subsequently analysed to describe how participants describe the dynamics between different types of capabilities.

After coding, a process of reading and re-reading the coded narratives rendered 11 themes. These were described and supported using quotes from interviews and grouped into five main topics: capability and functioning for smoke-free homes, changes in in-home smoking, control over the living environment, the social space of smoke-free homes and the role of guests, and ultimately the topic of reconciling tensions between capabilities. During the process of coding the data and defining the codebook, a sample of the transcripts were read with supervisors and coding strategy discussed and verified.

## **Statistical Analysis**

For the second phase (the quantitative strand), data from the telephone-administered surveys were imported into SPSS 26 for statistical analysis. Descriptive statistics were used to assess sample structure as well as the means and distribution of the main variables of interest. Depending on the type

of data (nominal or ordinal), chi-square tests for associations or Kendall's rank correlation coefficients were employed to reject the null hypothesis.

Independent samples t-tests and analyses of variance (ANOVA) were used to measure differences between groups (such as urban/rural, smokers/non-smokers, living in extended family or not, low/high SES) of selected continuous variables.

Principal Component Analysis (PCA) was used to explore the latent variables in the data set (such as capabilities, social capital, economic capital) as well as the robustness of the constructs. PCA allowed me to identify a small set of principal components which were constructed from the measured variables and assess the ability of the constructs to predict (via loadings) the measured variables (Fabrigar & Wegener, 2012, p. 32). For scale measures, Cronbach's alpha was also used to assess the internal consistency of the scales.

Cronbach's alpha allowed me to measure how closely correlated the items were in a scale (values ranging from 0 to 1), with values of 0.7 or higher considered to be acceptable (Bland, 2015, p. 341).

Finally, to assess the relationship between my outcome variable and a set of predictors, multinomial logistic regression was used. The statistical method was selected based on the nature of the dependent variable (3-category nominal variable). Multinomial logistic regression estimates for a subject the probability that it will be in each of the outcome categories, given the values of the predictor variables (Bland, 2015, p. 244). In this specific case, the method allowed me to identify the probability of subjects being allocated to the smoking category compared to the non-smoking category, smoking category compared to ban for baby category, or non-smoking category compared to ban for baby category, given the predictor variables.

## **Ethical Aspects**

Procedural and practice ethics are discussed within this section. It covers the process of attaining all ethical approvals and permissions to conduct the research, as well as a description of the procedures which were undertaken to protect human subjects participating in this research. It also presents all the associated documents used to ensure an ethical protocol and research process.

### **Procedural Ethics**

Before the start of data collection, adequate ethical approvals were sought for the study design, associated research procedures and data collection instruments. As the research design followed an iterative, two-stage strategy, ethical approvals were obtained in multiple phases. Also, because data collection was conducted in Romania, both the University of Warwick as well as local ethical permissions were obtained for each phase of the study.

The current research initially received the approval of the University of Warwick Biomedical and Scientific Research Ethics Committee (BSREC) through protocol REGO-2014-681 (which obtained full approval on 15.05.2014) and subsequent amendments AM01 (approved on 10.11.2015) and AM02 (approved on 15.04.2015). The initial protocol approved the overall study design, and the procedures and study instruments for the initial, qualitative phase (phase I). AM01 approved the procedures and data collection instruments for phase II of the study design, the quantitative component. AM02 approved the enrolment of the additional paediatrics unit in the quantitative component of the study, in addition to the GP settings which were recruiting participants up to that point. The documents are attached in Appendix 1.

The current research was also supported financially by Babes-Bolyai University Cluj-Napoca, through an internal grant for young researchers (GTC-

34066/01.11.2013). I had applied for this grant as an employee of the University, where I worked as a research assistant within the Center for Health Policy and Public Health (now the Cluj School of Public Health). As a result, the internal Ethical Committee from Babes-Bolyai University also gave its approval for the study protocol and documents used in phases I and II of the study, through an internal automated process (based on the funding of the grant proposal).

In addition, as the GP practices are not subordinated to a larger entity with ethics responsibilities, I have asked for the County Medical College to acknowledge the development of the study, after reviewing the associated documentation. This was obtained in May 2014. In addition, with the inclusion of the second recruitment site, the Mures County Hospital in Romania also gave its permission to conduct the quantitative component of the study in their Pediatrics unit, after I had attained support from the head of the unit (approval 8851/29.04.2015). With the permission from the hospital, I also applied to the ethics board of the University of Medicine and Pharmacy, Targu Mures. The hospital is an academic hospital affiliated with the University, and all research undertaken in the hospital must be approved by this committee. I obtained a favourable decision from this body (decision 68/27.05.2015), allowing me to initiate data collection in the Paediatrics clinic. Documents are attached in Appendix 2.

## **Study Documents**

To ensure the implementation of the study's ethical procedures, a set of study documents were devised (Participant Information Leaflets, Consent for Contact Forms, and Informed Consent Forms). These documents ensured that procedures were explained to participants, they understood the study and its implications, were aware of its voluntary nature, understood their rights as research participants and had enough information to make an informed decision regarding their participation.

### *Participant Information Leaflet*

Two participant information leaflets were devised for the purposes of this study, each corresponding to a phase within the study. They both shared a similar structure and similar information, the only aspect distinguishing them being the section on study procedures (which was adapted to each phase). All participants in phases I and II received a Participant Information Sheet (paper copy) when they were invited to participate in the study, within their GP's practice or when attending the Paediatrics Clinic enrolled in the study. The Participant Information Leaflets explained the study purpose and associated procedures, risks and benefits, the voluntary nature of their participation, their rights as study participants and clarified issues around confidentiality and data security (the Participant Information Leaflets, one for each research phase can be found in Appendix 3 of the thesis).

### *Consent for Contact Form*

All eligible persons who were interested in participating provided their consent to be contacted by the research team (through a Consent for Contact Form). Consent for Contact was documented for phases I and II in the waiting room of the GP practice or the Paediatrics clinic, after reading the Participant Information Leaflet. Each of them contained a set of statements used to confirm participants have read the provided information and consent to the procedure of being contacted, the participant's name, telephone number, date of signing and signature. In addition, the form used for the qualitative phase also contained three additional background questions, which were used in the recruitment process: participant age, smoking status, and highest level of attained education. The Consent for Contact Forms can be found in Appendix 4.

### *Informed Consent Form (written/verbal)*

All study participants provided informed consent for participation, either written or verbally, depending on the study phase. For phase I of the study (which entailed face-to-face interviews) written informed consent was obtained from all

study participants. For phase II of the study (telephone-administered questionnaires) verbal informed consent was obtained. In this latter case, the data collector read a script which contained all the main ethical concerns of the study and certified that the participant understood the study, its implications and was willing to participate. The Informed Consent Forms can be found in Appendix 5.

## Human Subjects' Protection Procedures

Study procedures aimed to maximize the protection of human subjects participating in the research. These procedures were approved by relevant ethical committees and have been implemented keeping in mind the following principles: voluntary nature of participation, informed consent, risks, burdens and benefits, privacy, and confidentiality.

### *Voluntary participation*

The participation in all components of the study was strictly voluntary and participants had the freedom to withdraw at any time, without giving any reason. As participants' initial recruitment was conducted in a medical unit (GP practice or Paediatrics unit) there were some concerns regarding participants feeling compelled to participate. In this sense, the voluntary nature of the study was clearly explained in a Participant Information Sheet, which all participants received, as well as reiterated before data collection. In addition, no data were collected in the medical unit (except contact information) to minimize any potential feeling of coercion regarding participation. Data were collected by me (qualitative components) and two trained data collectors (quantitative component), neither of whom were affiliated with the medical units of recruitment. Also, at the subsequent contact for interview or questionnaire administration, participants were given the opportunity to withdraw, before administering the informed consent. They were informed that their refusal to

participate would not affect any rights they were entitled to, nor that their participation offered them any direct benefits.

### *Risks, burdens, and benefits*

The present study did not involve any major risks to the participants. The study used only self-reported information and participants were informed that they had the option of not responding to any questions which they felt uncomfortable giving an answer to. The anticipated burden was approximately 50 minutes for attending a face-to-face interview (phase I) or responding to a telephone questionnaire (phase II). To reduce the burden of participation, the times and locations for the face-to-face interview were mutually agreed upon, and flexibility shown from the researcher's side in accommodating participant preferences. In addition, for the telephone interview, women were also informed of the option of pausing and resuming the interview later, if they desired to do so. For the face-to-face interviews, women were also informed that they could stop or pause the discussion at any time. This was actually requested during some interviews where women had their children with them, or where they needed to take a telephone call. Participants were also informed that there are no direct benefits from their participation in the research study. However, the information they provided is important for understanding smoking behaviour in homes with young children, and ultimately developing interventions in the future. As recognition for the time they offered to participate in the survey or the interview, they were also offered a symbolic gift with a thank-you note (a digital baby thermometer).

### *Privacy and confidentiality*

The privacy of participants was respected throughout the entire study. Qualitative interviews were administered in private rooms, and no one else except me and the participant were present (with the exception of a few cases in which the women requested their children to be present, for logistical reasons). Any interruptions which might have occurred (such as the participant's telephone ringing or someone entering the room) were dealt

through an interruption of the interview (including pausing the recording), until the interview was resumed, with the participant's consent. There were a few situations in phase I of the study, in which the interviews in a rural setting were conducted in a private room of the GP practice. Participants were offered this option, in order to minimise privacy concerns when conducting interviews in their homes, if they were living in spaces shared with multiple family members. Also, the GP practice was accessible from a distance perspective, and was a familiar location. During three interviews conducted in these settings, the nurse interrupted the interview to get something from the room where the interviews took place. Interviews were resumed after the person left the room. Telephone-administered questionnaires were conducted in a private room at the Center for Health Policy and Public Health, Babes-Bolyai University Cluj-Napoca, using a hand-held telephone. In this way, I ensured that the responses of participants could not be heard by third parties.

Regarding data confidentiality, all hard-copy documents were transported with care when this was necessary, in envelopes or opaque folders. For example, I applied this strategy in the situation when transporting Consent for Contact Forms from medical units to the Center for Health Policy and Public Health, at Babes-Bolyai University, where they were stored. All hard-copy documents were stored in locked cabinets. All identifiable information (such as consent for contact) was kept separate from study documents (questionnaires, interview transcripts, audio-recordings). All electronic documents were stored on password-protected computers. Data collected in phase II (telephone administered questionnaires) were entered directly in an online, secured platform (Qualtrics), thus no hard-copy questionnaires were used, reducing the risk of a confidentiality breach. Interviews in phase I were audio-recorded with the permission of the participants. Audio files were stored on a password-protected computer and transcribed for data analysis. Transcriptions were anonymized, and all participants received a pseudonym to be used in data analysis (no use of real names, institutions or locations was made).



## Reflexivity and Positionality

As part of the research process, exercises of reflexivity were conducted at different stages. This section discusses both reflexivity as well as positionality, as emerging from my understanding and experience of conducting this research.

In its most basic form, reflexivity is “the project of examining how the researcher and intersubjective elements impact on and transform research” (Finlay & Gough, 2003, p. 4). Inspired by the debates on reflexivity and positionality in research (Pillow, 2003), I understand reflexivity as an active process of being critically conscious of my self-location, position, and personal interests, throughout all the stages of the research, with the scope of increasing transparency in the process of knowledge construction, as well as reducing distortion in the results.

Although subjectivity is an unavoidable part of research (Maso, 2003, p. 80), the process of articulating my values, emotions, experiences, meanings, prejudice, related to the research topic, was a difficult task. I contemplated on my position as a researcher interviewing mothers regarding tobacco use, and as a young, female, former smoker, living in the Romanian society. This process was guided by the desire of creating meaningful insights rather than linear justifications of my interpretations of the world.

### *My smoking narrative*

As a former smoker, the choice of focusing on smoking behaviour from an academic research perspective was not arbitrary. Being faced with the difficulties of smoking cessation, observing the smoking epidemic and its impact, and previously working on maternal and child health, I decided to focus my attention on smoking during and around pregnancy, as well as children’s exposure to secondhand tobacco smoke. I was aware that I would be seen as an outsider by study participants, a researcher associated with the university.

But my personal experience of being a former female smoker living in Romania, allowed me to engage with study participants with more empathy, which helped me relate to some participants more as an insider than an outsider. Even though I had not experienced pregnancy and childbearing myself, my close age to study participants helped the discussions and the dynamic. In one particular interview, I was asked by one of the participants if I had ever smoked. I disclosed that I used to smoke but I had quit 6 years prior. The respondent felt I could relate to her narrative more closely, using terms such as “then you probably know how it is to...”. In addition, this position as a former smoker also contributed to approaching the issue with less prejudice regarding the behaviour, and with a more nuanced understanding of the context in which it occurred. Throughout the data collection and analysis process, I was also reflective of different social circumstances and contexts that some of the participants were experiencing. As a result, during data analysis, I actively aimed to give voice to all study participants and present their narratives as they were reported. In this stage, I tried to leave my personal experience aside and focus equally on the experience of all study participants. However, being aware of my positionality, I constantly discussed the results of my analysis with supervisors to ensure that the analysis is consistent with the narratives.

*Between a rock and a hard place: when individual freedoms clash with children's rights*

During my previous work in public health, I was heavily exposed to a health promotion paradigm which had traditionally put a strong emphasis on education. Exploring the social determinants of health further, allowed me to explore health behaviours considering the structural aspects of their occurrence. However, in the context of children's exposure to secondhand tobacco smoke, I had been put in the position of navigating the areas around individual freedoms which conflict with the health and wellbeing of vulnerable populations, such as children. During the interviews, I was faced with this ethical dilemma of women who smoked around their children, but my role as a

researcher did not allow me to intervene specifically in those cases. Whenever I was asked for information, I would provide them at the end of the interviews and would refer women to discuss aspects of smoking cessation with their practitioner. However, sometimes it was difficult to navigate my role as a researcher - trying to understand smoking behaviour and contribute to the body of knowledge towards more systemic, inclusive, and sustainable interventions to reduce children's exposure -, and the one of a public health practitioner focused on behaviour change. This influenced my research through the interest I gave to giving voice to the struggles of smoker mothers, who discussed the difficulties of reconciling their own smoking behaviour with their value for providing smoke-free environments for their children.

### *The road much travelled: stigmatizing smokers*

New public health interventions have the potential of initially increasing health inequalities by their limited reach of socio-economically vulnerable groups (Victora, Vaughan, Barros, Silva, & Tomasi, 2000). As such, my approach to smoking cessation aimed to reduce the stigma which affects smokers and more specifically smoker mothers, and to strive to maximize individual capability for smoking reduction. I became interested in the mechanisms which would allow health promotion programs to move from behaviour change focused on the individual, to more systemic approaches which would focus on fostering healthy living environments for all. From this perspective, my efforts focused on understanding the broader context of smoking, instead of strictly focusing on behavioural, individual-level aspects. This impacted on my research in the selection of my theoretical lens, that of capabilities and dynamics between different types of capitals. Capabilities theory was thus seen in my research as an alternative to traditional approaches to smoking cessation programs, which would bridge the gap between structure and agency, while still providing an easy-to-use conceptual framework to guide interventions.

### *Descending from the ivory tower: applied research*

My previous research mostly focused on applied research, as I used research as a tool to help inform, design, implement and evaluate public health interventions. This impacted on the current challenge of engaging in fundamental research, which would contribute to the theory of inequalities in smoking behaviour. This translated into my work through the choice of research paradigms and research methods, as I embarked on a mixed-methods research design, guided by pragmatism and critical realism. In addition, it impacted on my research questions, as they aimed to understand a complex social phenomenon but with the long-term goal of translating the evidence into interventions. As a result, the overarching questions of my research was how to offer a better framework for addressing the reduction of children's exposure to secondhand tobacco smoke, in a more inclusive manner.

## **Summary of Methods and Methodology**

The purpose of the research was to explore in-home smoking behaviour in households with young children, as experienced and reported by mothers of young children (ages 36 months or younger), living in urban and rural settings of one county in Central Romania. The research aimed to understand in-home smoking behaviours, with a strong focus on capabilities among mothers, to uncover and map the dimensions of a potential set of capabilities relevant for smoke-free homes. It also aimed to explore the relation between capabilities and actual resources women have access to, in the form of economic, social, and cultural capitals. The study ultimately set out to understand if capabilities can be useful measures for understanding the social patterning of smoking in homes with young children.

To respond to the study's research questions, I adopted a two-stage exploratory mixed-methods study design, guided by pragmatic and critical realist research paradigms. Before the start of data collection, adequate ethical approvals were sought for the study design, associated research procedures and data collection instruments. The first phase of the study was qualitative in nature, and 17 interviews were conducted, followed by a quantitative study phase, where 202 questionnaires were administered via telephone to participants. In both phases of the study, participants were enrolled via GP practices (with an additional Paediatrics outpatient clinic for the quantitative phase), which supported the dissemination of Participant Information Leaflets and the collection of Consent for Contact Forms from interested, eligible participants. Data were analysed using thematic analysis in the qualitative phase, and descriptive and inferential statistics in the quantitative phase. The main findings of the research are presented in the following two chapters.

## **CHAPTER FOUR: Qualitative Findings**

This chapter describes the findings of the qualitative phase of the research study, as a first stage in the mixed-methods design. The research aimed to understand how study participants describe the capability for providing smoke-free environments for their children, as well as how these capabilities related to other capabilities described in the literature. As discussed in the methods section, data were collected through 17 qualitative interviews with mothers of children aged 0-36 months, recruited from sociodemographic diverse settings, via their GP. Data were analysed using thematic analysis, employing a mix of inductive and deductive coding strategies. The main topics interpreted from women's narratives, which are described in detail in this chapter, are the definition of the capability for maintaining smoke-free homes, describing capabilities in the context of changes in in-home smoking rules, the issue of control over living environment, the social space of smoke-free homes, and ultimately the tensions between the capability for smoke-free homes and other capabilities.

## Description of Study Population

This section describes the study population enrolled for the qualitative phase of the study, in terms of their sociodemographics, living context, as well as smoking status and home smoking rules. The description aims to offer context for the subsequent analysis. As described in the previous chapter, all participants were given pseudonyms (English names) which have no relation to their real identity. These pseudonyms will be used in the reporting of the data, throughout the chapter.

From the total women interviewed ( $n=17$ ), ten lived in rural settings and seven lived in urban settings. Two women had less than high-school education and more specifically secondary school education (in Romania, secondary school is considered grades 5-8), seven had graduated from high-school (grades 9-12) and eight had higher education (university degree or higher).

Participants' average age was 31 years old, with a minimum of 20 years of age, and a maximum of 40. Most participants enrolled in the qualitative research had reported having one or two children. Concerning living arrangements, ten participants lived with their immediate, nuclear family (including their partner and child or children) and seven women lived with extended families. Out of these seven women living with their extended families, six were living in rural settings.

Nine homes (five urban) were reported as having a total ban of smoking within indoor environments, whereas eight (two urban) reported that smoking was partially allowed (either occasionally, or permanently but with some restrictions). This latter group also discussed harm reduction strategies when smoking did occur in their homes. Table 3 below briefly describes the study population and their socioeconomic characteristics.

Table 3 – Qualitative study sample description

| Pseudonym* | Residence** | Age | Children | Education   | Smoking status | Home smoking |
|------------|-------------|-----|----------|-------------|----------------|--------------|
| Samantha   | U           | 30  | 1        | University  | Smoker         | No           |
| Doris      | U           | 30  | 1        | University  | Never smoker   | No           |
| Fiona      | U           | 32  | 2        | University  | Never smoker   | No           |
| Susan      | U           | 40  | 2        | University  | Ex-Smoker      | No           |
| Molly      | U           | 30  | 1        | High school | Smoker         | No           |
| Grace      | U           | 34  | 2        | University  | Ex-Smoker      | Yes          |
| June       | R           | 20  | 2        | High school | Smoker         | Yes          |
| Jasmine    | R           | 38  | 2        | Secondary   | Smoker         | Yes          |
| Nora       | R           | 32  | 2        | High school | Smoker         | No           |
| Amber      | R           | 28  | 1        | High school | Smoker         | Yes          |
| Olive      | R           | 34  | 1        | University  | Smoker         | No           |
| Kim        | R           | 27  | 2        | High school | Never smoker   | Yes          |
| Gloria     | R           | 37  | 2        | High school | Smoker         | No           |
| Hazel      | R           | 27  | 3        | University  | Never smoker   | Yes          |
| Lily       | R           | 28  | 2        | Secondary   | Ex-Smoker      | Yes          |
| Avril      | R           | 26  | 2        | High school | Smoker         | Yes          |
| Bridget    | U           | 32  | 1        | University  | Smoker         | Yes          |

**Note:** \*All pseudonyms are allocated and have no resemblance with the real names of the participants; \*\* U – Urban; R – Rural



## Main Findings

The findings of the qualitative research component are structured into four main topics. Section one defines capability and functioning for smoke-free homes as identified in women's narratives. It discusses the value for smoke-free homes, which was a central theme in women's discourses, regardless of their smoking status. It also presents the tensions identified between capability to smoke and capability to maintain a home smoke-free, as described by smokers.

The second topic addresses the topic of changes in in-home smoking, and analyses women's narratives around the transition process to enforcing smoking restrictions in the home. Three main themes are discussed within this section, which were generated from coding women's narratives: engaging in changing in-home smoking rules for the health of the children, favourable social interdependences for reducing in-home smoking, and harm reduction strategies.

Topic three, addresses the aspect of control over the living environment in connection with capability for smoke-free homes. Some women expressed increased control over the living environment, while others discussed less control in conjunction with living with the extended family. In this context, two main themes were constructed based on the analysis, which are discussed in this section: extended families that promote smoke-free homes, and extended families that hinder the capability for smoke-free homes.

Topic four addressed the social space of smoke-free homes, and the role of social norms in the interplays. Social norms around smoking as well as interactions with guests were expressed diversely in the group of respondents. Some women expressed great ease in telling smoker guests that smoking was not permitted in the home (so the fact that the person was a guest, or a family member, did not affect the outcome), whereas others faced significant

challenges in doing so. Two main themes were constructed based on the analysis of women's narratives, focusing on what was named the "guest status" and the social dynamics around that, including a series of unspoken interactions in relation to guests.

The final topic discusses some of the identified tensions between the capability to maintain a home smoke-free, and other capabilities. Within this analysis, identified tensions were coded in terms of source of capability tensions (i.e., tensions with social relations, tensions with time-autonomy, etc), but also in terms of strategies of reconciling tensions between capabilities. This latter aspect is discussed within this section, with a specific focus on passive coping strategies (i.e., distancing and avoidance), and active coping strategies (i.e., problem solving). Both were considered extremely relevant in understanding the process of restricting smoking in homes with young children.

**Table 4 - Summary of qualitative themes**

| Topics   | Themes  |
|--|---|
| Defining capability and functioning for smoke-free homes | Value for smoke-free homes  |
|  | Tensions between capability to smoke and capability to maintain a home smoke-free |
| Changes in in-home smoking                               | Change for the health of the children   |
|  | Favourable social interdependences for reducing in-home smoking                   |
|  | Harm reduction strategies   |
| Control over the living environment                      | Extended families that promote smoke-free homes                                   |
|  | Extended families that hinder the capability for smoke-free homes                 |
| The social space of smoke-free homes                     | The "guest status"  |
|  | The unspoken interactions   |

|                      |   |
|----------------------|---|
| Reconciling tensions | Distance and avoidance (passive coping) |
|                      | Problem solving (active coping)         |

## Capability & Functionings for Smoke-Free Homes

Women's capability and functioning for smoke-free homes were hard to disentangle, as they discussed their capability through the lens of their past experience in maintaining their home smoke free (thus functionings). Two main themes were generated from the data, in relation to the definition of capabilities for smoke-free homes: value for smoke-free homes (as value is central in defining capabilities) and (2) tensions between capability for smoke-free homes and capability to smoke. Capability for smoke-free homes is discussed in relation to women's smoking behaviour, as it is very illustrative of the barriers that women encounter in providing a smoke-free environment for their children.

### *Theme: Value for smoke-free homes*

Value for smoke free homes appeared in different forms from the interviews. A health-related value was identified in women's discourses, which connected with the need to protect children from tobacco smoke. This was coupled in some cases with the concern for adult health. A second value identified in some interviews was a moral one, with labels such as "being considerate" or "employing common sense" occurring in women's narratives. Finally, a third value of improving relationships with other family members also was articulated, especially by smoker mothers having non-smoker family members. In this latter group, some women who were smokers reported feeling compelled by family members not to smoke in general, and/or not to smoke in the home.

The health value of smoke-free environments was discussed by women, with a strong focus on child health. Most women referred to general health, without discussing specific health effects:

"[...] we used to smoke in the home, before I got pregnant, but we have clearly decided that there won't be any more smoking [...] it really is damaging for the

child; especially living in an environment with smoke, that's even worse" (Olive – rural, smoker, age 34, university education)

"You can realize that no one has a good opinion about smoking (laughs). Given the fact that there are so many diseases nowadays, with your lungs especially... so no one has a good opinion about it". (Molly – urban, smoker, age 30, high-school education)

Not smoking in the home was conferred a high moral value, in which those who respect it have or express "common sense" (in Romanian: *bun simt*) or are being considerate. One mother was referring to herself and her husband as being considerate (in Romanian: *simtiti*) about restricting smoking in the home. Others used the same language to describe their guests, who did not need to be told not to smoke, as they were considerate enough to smoke outside out of their own initiative.

"It was never difficult (to tell guests not to smoke) because I was never in the position to tell them... there was no need...having her (daughter)...a lot of the times they would ask if they may smoke, so I had no problems with any friends regarding this matter (...) we have friends with common sense" (Bridget – urban, smoker, age 32, university education)

"I think it's as simple as it gets. I have a child, neither of us smokes, I think it's very simple. I mean, one should know, if one has common sense. If you don't have common sense, then... but I have never been put in a situation in which... even if we have neighbours who are smokers coming over, or... I have never been put in the situation to have to say: well in this home you can't smoke." (Susan – urban, ex-smoker, age 40, university education).

The issue of "respect" also was also identified in the data, when discussing smoking within the home. When asked about the decision-making process in making the home smoke-free and the reasons behind this decision, one participant responded "[it was about showing] a little bit of respect for the children and others not smoking in the home" (Amber – rural, smoker, age 28, high-school education).

In some instances, this value was also used as an argument in negotiating smoking restrictions. For example, one woman used the affirmation "what would other people say" when convincing her husband who used to smoke anywhere in the house, of the importance of confining smoking to some areas of the home.

“I have told my husband - he used to watch TV before going to bed and smoked. (I told him) what’s the point of smoking in bed if you can smoke outside? And now, when he wants to go to bed, he smokes in the kitchen or outside and then he goes to sleep. And that’s that. (...) when I got pregnant, I told him that anyway, when he (the baby) is born, you can’t just smoke anywhere... the baby will come home and he’ll be close to us, in the other room, so you can’t just smoke anywhere. We will have people coming over and what will they say about this? That’s how I managed to tell him to stop smoking” (Hazel – rural, non-smoker, age 27, university education)

In one particular discourse, one woman discussed smoking around children from a normative perspective, referring to it as something that is not normal. While she refers to smoking outside the home in this case, the normative discourse was considered insightful and thus included in the analysis:

“I don’t really interact with mothers who smoke because I don’t find it normal that one would light up a cigarette in the park, or anywhere around your child. Or you might have the child in the buggy, and you would smoke. I don’t find that normal. The truth is I don’t relate to mothers who smoke, if I think about it” (Fiona – urban, non-smoker, age 32, university education)

The social value of quitting smoking or restricting smoking in the home, was also identified in relation to reducing conflicts between smoker mothers and non-smoking partners or family members. The social tensions women described, sometimes led to not disclosing their smoking behaviour, and an intent to confine it. When asked about who she talks to about smoking in the home, a woman living with her partner (both smokers) in her grandmother’s home (who was a non-smoker) discussed the conflicts associated with their smoking behaviour:

“Grandma talks [more about not smoking], ‘cause we smoke up her walls and everything [...] and then my husband [saying] not to smoke in the home because the old woman will start screaming (laughs). And so, we have to smoke outside, but it usually lasts a day or two... and then we start on cigarettes in the house again [...] last winter, my grandma was mad with us for about a week and kept kicking us out. And then, in the end, she said: come on inside the kitchen and smoke, ‘cause you are cold in the morning outside, with your coffee and your cigarette in your hand” (Avril - rural, smoker, age 26, high-school education)

In this case, the perceived value for smoke-free environments did not stem from a health perspective, but rather from a social perspective. The potential conflicts

which could arise from smoking inside the home were addressed through restricting smoking in the home, even if for short periods of time. The tensions between smoking and the capability for maintaining social relations is further discussed in the following theme.

*Theme: Tensions between capability for smoke-free homes and capability to smoke*

An important tension interpreted from women's discourses is between the capability to maintain homes smoke-free and the capability to smoke. Of the participants, three women had quit smoking (were former smokers) and ten women were smokers. In this latter group, smoking was valued by some women as a mechanism to cope with stress, an activity which offered relief in their lives or even a strategy of female empowerment. Thus, some women who smoked, valued the benefits of smoking, as well as the benefits of having smoke-free homes. In this context, these women experienced conflicts in between these capabilities, as they occurred in antithesis (smoking and not smoking).

Women talked about the stress-relief benefits they experienced from cigarette smoking. In one case, a woman discusses the choice of smoking in relieving stress, in comparison to other strategies such as medication. She used to be a heavy smoker, had quit, but now she occasionally smoked as a way to relieve life-related stress (with sources both in her family interactions as well as her work).

"If I feel the need, I do it (smoking), maybe before going to bed, because all day I am stressed. And the anger, you know... the older child this and that; I can't do my work as I used to. And the housekeeping too, everything in a rush, things like these. And the stress builds up and, in the evening, instead of using stress pills, because now I am still breastfeeding the youngest, and I don't want any harm to come to him, I choose to light up a cigarette. And I smoke it, and then I sleep well all through the night, and I am calm, you know? (laughs) It's just like a medicine" (Jasmine - rural, smoker, age 38, secondary school education)

One woman also talked about the perceived benefits of smoking as a female empowerment strategy, or as a behaviour that was hers to own. At the time of the interview, she had quit smoking, but narrated how she delayed smoking cessation to compensate for her reduced activities for herself. She paralleled her husband's time out with his friends for a drink, with her time having a coffee and a cigarette.

"I didn't want to quit because of him (husband). I didn't do anything. I didn't drink beer, to say so. He would drink a beer, maybe go out... I didn't go out anywhere with my friends. But at least I had this: smoking (laughs). I see things differently now; you can make do without – go out and meet a friend and have a cup of coffee" (Grace – urban, ex-smoker, age 34, university education)

Smoker mothers who also discussed the addictive nature to tobacco smoke, struggled to balance the role of motherhood with the desire to smoke. In one case which distanced itself from the main narrative, a woman discussed the internal struggles she faced, from the perspective of the addictive nature of tobacco smoking. Identifying herself as highly addicted, she expressed her general anxiety around not having cigarettes.

"The truth is that you feel it.... These cigarettes do something to you inside... you can't go to bed knowing that you don't have a cigarette in the morning. You can't go to bed so relaxed. Because you know you will wake up and clearly, in the morning you have your coffee and cigarette [...] You are always concerned not to miss them (cigarettes). And if you don't have them, that's a big problem and a big drama, and it feels like you don't have anything. That's how I feel, at least. Clearly addicted (laughs)" (Amber – rural, smoker, age 28, high school education)

She also expressed great conflict in relation to smoking and caring for her child. These inner tensions were putting indirect pressure to quit smoking, through increased tensions on social relations. Thus, tensions between smoking and smoke-free environments were intensified by tensions on social relations. These were conducive to a smoke-free home but generated increased distress and guilt for the woman.

"A lot of times it happens for the child to come up, and usually I have to hold him in my arms, while he drinks his milk in the morning, and he plays with my hair. But that is the time when I have my coffee too and I need a smoke. And a lot of the times, I feel this embarrassment towards the ones around me;

especially now, that I am holding him in my arms, but I would also like to drink a coffee and smoke a cigarette... and then... *At least now, abstain yourself*, my husband tells me. Or if I am at my parent's home, they would say: *Leave it, you'll have time to smoke afterwards, now just hold the child and feed him the milk*" (Amber – rural, smoker, age 28, high school education)

Quitting smoking and delaying smoking relapse until children were older, was also articulated in interviews, as a way to navigate these conflicting roles of being a smoker and being a mother. In one particular case, a pregnant woman who also had a young child, discussed her cessation process after the birth of her first child, and her subsequent relapse. During the current pregnancy, she occasionally smoked, but planned to quit. However, she also expressed an intent to relapse, once the child is older.

"[...] this is why I had stopped smoking after having her (daughter)... she was too little to smell me... that smell... and I am sure it's going to be the same in this case (current pregnancy) ... but regarding starting smoking again.... I might because I like it (laughs). I will start smoking again, but (later) on" (Samantha – urban, occasional smoker, age 30, university education)

Alternatively, women described strategies to reconcile these tensions by smoking in areas in which they can still supervise the child as well as reduce the impact of tobacco smoke exposure – such as smoking in the bathroom. One respondent discussed different strategies she employed to minimize the harm of tobacco smoke, while still feeling confident that she can supervise her child:

"In the second apartment we had, we have transformed... my husband made out of the middle room's balcony, a closed space with glass doors; and we said that would be the smoking room (...) but because she (daughter) was very young, I had to leave the room (to smoke) and I couldn't leave her unsupervised, she was so tiny, there was no way for me... I had to be around her to hear her crying and if I went out on the balcony, I couldn't hear her. So, I was stuck to the bathroom (for smoking) (...) I could supervise her better; by the time I came out of the balcony, because she was so small, I was afraid she might fall and all other things of this sort. It was cold if I left the door open, and so on." (Bridget – urban, smoker, age 32, university education)



## Changes in In-home Smoking

In-home smoking was explored through a lifecourse perspective lens, and events or changes in-home smoking were mapped. Within the sample of interviewed women, seven maintained their home smoke-free and in four of these, there was at least one smoker living in the household. The remaining ten homes allowed smoking in some form, even if it was occasional or in confined spaces within the home. In five of these ten homes in which smoking was permitted, the mother was a smoker, in six of them the partner was a smoker, and in three of them, another member of the family who shared the household was a smoker.

Three main typologies of homes were identified: homes in which smoking was never allowed (which was usually associated with non-smoking household members); homes in which smoking was previously allowed but at the time of the interview a total ban had been implemented; homes in which smoking was previously allowed and at the time of the interview some type of constraint on smoking was implemented (without a complete ban). In the latter group, women reported strategies of harm minimizing.

The women who described their home as always having been completely smoke-free, were a small group within the sample. These homes were also associated with non-smoking household members, a strong motivation (or value) for smoke-free homes, high reported control over the living environment and living in a nuclear family. Only one case from the non-smoking homes distanced itself from the rest – the woman was living with her husband's extended family and reported a low level of control over her living environment. Both herself and her partner were smokers but because she was living in her in-law's home (who did not accept smoking in the home) smoking was restricted in her living environment- this is discussed in more depth in a later section.

In these cases of non-smoking homes, the main aspect which women discussed throughout the interview was the management of smoking behaviour of people who came to visit (as main sources of exposure), and the issue of communicating smoke-free rules to them.

“It has always been like that (smoking not allowed) and besides, I am of the opinion that you should not smoke in your living environment because it gets impregnated in the walls, clothes and everything else and I don’t like it (...) the rules are made by us. If we respect them, and when we visit others, we respect theirs – we don’t smoke when we go to other people’s places either (laughs) – others should be understanding too. But as long as there is a child in a home, I have never met a person to say *You don’t smoke but I want to smoke nonetheless, because I am a guest*” (Doris – urban, non-smoker, age 30, university education)

“I assume everyone is aware of the fact that in your own home, you do whatever you want, but when you go visit you can’t; so, we never had embarrassing situations... nobody insisted: *I don’t want to go out, I shall smoke here*. It was never the case. I have told them: *In our home, there is no smoking, and everyone understood that perfectly*” (Fiona – urban, non-smoker, age 32, university education)

What is very interesting from a lifecourse perspective, is that both women quoted above valued non-smoking living environments but had very different life trajectories. In the first case, Doris grew up in a non-smoking environment (her own parents were non-smokers) and she reported the same behaviour being adopted in her home. In the second case, Fiona, grew up with a father who was a heavy smoker and she recalled strong discomforts associated with being heavily exposed to tobacco smoke while growing up. She later developed asthma and faced severe respiratory reactions. During the interview, she even confessed that she partly attributes her health condition to her father’s smoking, and she has a high value for smoke-free homes.

The second typology of homes were the ones in which smoking used to be allowed or was still allowed at the time of the interview, but with some restrictions. In these cases, women’s discourses rendered three main themes, which describe the transition process. They discussed incurring change due to concerns related to the health of the children, as well as particular social interdependences favourable for reducing smoking in the home (such as a reduction of the number of smokers in the home). I could also identify in participants’ narratives a theme around harm reduction strategies. These are discussed in the following sections.

### ***Theme: Incurring change for the health of the children***

In addition to traditionally non-smoking homes, women also described homes which migrated from an environment in which smoking was permitted, to one in which it is not allowed at all, without exceptions. In some of these cases, the people living in the dwelling were smokers themselves, and decided to smoke outdoors. And in some of these cases, the decision coincided with a pregnancy or a birth of a baby:

“My partner and I discussed this (when she became pregnant). We used to smoke in the home, before I got pregnant, and we clearly decided that there will be no more smoking in the home.” (Olive – rural, smoker, age 34, university education).

Another typology of homes identified through the interviews were homes in which smoking was previously allowed (to varying degrees) and at the time of the interview, it was being restricted to some areas of the home. These were most often the kitchen, but in some cases the living room and bathrooms were being used as spaces for smoking. Within this group, I have also included women who initially described their homes as non-smoking, and throughout the interview described certain exceptions to the rules (events in which smoking was permitted).

“Up to the moment we had children, he (*husband*) smoked in the entire house. Since I gave birth to the children, he only smokes in the kitchen. So further than that (*the kitchen*) he doesn’t take his cigarettes. We even talked about him taking them out altogether, but he couldn’t do it up to this point (*smiles*)” (Hazel – rural, non-smoker, age 27, university education)

In one case which distanced itself from the main discourse, a participant described her belief that quitting smoking abruptly during pregnancy was unhealthy for the child. This was endorsed by her partner, whose mother used to work as a midwife. The woman reduced smoking during pregnancy and was a smoker at the time of the interview. Within this home, smoking was still permitted in certain areas, even after the child was born.

“He (*husband*) also supported that it wouldn’t be good (to quit). His mom worked in the delivery room, as a midwife, and she knew... and all the doctors would say it loud and clear that it’s not ok to quit smoking in the moment you find out you are pregnant. You can smoke, but less” (Bridget – urban, smoker, age 32, university education)

### *Theme: Social interdependence favourable for reducing in-home smoking*

Transitions in in-home smoking were also attributed by women to certain social interdependences, which were not specifically associated with children.

Disruptive events, such as health events in the family, or changes in the structure of the family, were also discussed as associated with changes in in-home smoking. The health events were most of the time associated with the adults in the family, and less regarding children. These referred to having restricted smoking or quitting smoking due to a health condition (or even not feeling well after smoking) – this in turn led to a reduction of second-hand smoke sources within the home. Changes in the structure of the family referred to smoker people moving out, or even dying, which again reduced the number of people who would smoke in the dwelling.

One such example was of a non-smoker woman who used to live with three smokers in the dwelling (her own father, her mother, and her partner). She reported that her own father's death changed dynamics within the family, leading to a reduction in in-home smoking. The event forced her mother to take on the family business (which made her spend less time at home), and her own husband to move abroad to work. As she was not a smoker herself, these structural changes led to less smoking in the home. This did not reduce the smoking in the home completely but limited the time in which smoking happened in the home.

“Since that year, we stopped smoking in the home because my mother started to work at the bar (family business), after my father passed away, and my husband started working abroad, and I was left with the girls. So, whenever they come home.... my husband comes home once every few months, for a week... and he simply doesn't smoke in the room; My mom comes home late in the evening, goes to sleep, in the morning she leaves – she doesn't have time for it... only whatever she smokes in the morning in the kitchen... other than that... (*shakes head*)” (Kim – rural, non-smoker, age 27, high school education)

In other cases, the decision to ban smoking was associated with other events and/or structural changes in the living environment. For example, in one case, a woman had quit smoking together with her husband. When they managed to quit, they also banned smoking inside the home. After a while, the husband became severely ill, could not work anymore, and the woman started smoking again. She had attributed the relapse to the stress of maintaining the financial resources of the family and coping with her husband's condition. However, her resuming smoking did not change the smoking rules in the home, so she continued to smoke outdoors, without exception.

“Before we used to smoke (*in the home*) ... we used to smoke when my husband still smoked. Ever since he stopped smoking, there is no more smoking allowed... whoever comes into our home, there is no smoking” (Gloria – rural, smoker, age 37, high-school education)

Similarly, within the homes in which total bans were implemented, a value for smoke-free environments was observed, and usually health related. Women in these groups discussed having a strong motivation to keep the homes smoke free as well as a high self-efficacy to implement such a ban. Increased control over the living environment was also a co-occurring theme within this group. The fact that the women were smokers themselves, and in some cases the only source of tobacco smoke in the dwelling, seemed to have supported their efforts to implement a complete smoking ban. In some cases, women reported partners being smokers as well, but also seemed to have supported their decision. In none of the cases within this group there were other smokers (members of the extended family) sharing the dwelling.

For other families, there appeared to be a mix of the two factors (the coming of the new baby also coincided with structural changes in the physical and social environment). For example, one woman reported having moved to a new home immediately before she had found out about her pregnancy, giving them the opportunity to use the new space as non-smoking (even though there were some exceptions to the smoking ban).

„We used to smoke (*indoors*) before, and we didn't really have a problem with it (...) we used to have the living room in which we used to smoke. We smoked there when we had someone over, or sometimes just the two of us (*with partner*) would also smoke there over a cup of coffee... but other than that, not really. We never used to smoke that much anyway, and we moved (*in a new home*) right before I found out I was pregnant; it was a coincidence. So, I don't know, I think we smoked two months in the (*new*) home. After that, not at all. I had quit too, and I didn't want to have anyone smoking” (Samantha – urban, occasional smoker, age 30, university education)

In these latter group of cases, a lower general value for non-smoking homes was observed, although a higher value of non-smoking around young children. For example, in the case of Samantha quoted above, she also referred to not being bothered by smoking in her home, and that she would even accommodate guests in the home to smoke (especially during winter) if their daughter was not very young. She also described having a high level of control over the environment she lived in. This is different from the situation of other women who had a high value of smoke free homes, but a lower level of control over the environment.

### *Theme: Harm reduction strategies*

Women who did not report banning smoking in the home, discussed different harm reduction strategies. These were ventilation of the living environment, smoking outdoors when weather permitted, restricting smoking to some areas of the home such as the bathroom or the kitchen, removing children from the smoking environment or smoking under the extraction fan in the kitchen.

Within the women's discourses, harm reduction strategies were in some cases dependent on the season. Women living in a house (and not an apartment building), discussed the seasonal character of their harm reduction strategies. More specifically, they would discuss smoking outside the home during summertime (or when the weather permitted it), and transitioning back to in-home smoking during wintertime:

“I smoke, can't say no – one-two cigarettes I smoke per day. But my husband smokes a lot. He smokes a pack. It's very good that he is not home... he is home only in the evening, and he smokes around the children... [...] In the kitchen (we smoke). In the kitchen. And given that in the wintertime, we are all

in the kitchen. During summertime we don't have any problems because we smoke out on the terrace. But as the cold sets in, (we move) in the home.” (Jasmine - rural, smoker, age 38, secondary school education)

This seasonality insight was used when conceptualising in-home smoking for the quantitative phase of the research, and in formulating the questions for the questionnaire. In this sense, participants were requested to report smoking in the home across seasons.

Other harm reduction strategies women discussed were restricting smoking to some areas of the home, smoking underneath the extraction fan in the kitchen, to reduce the environmental smoke, or other strategies involving ventilation of the space (such as opening windows), and most often, removing children from the smoking environment:

“We don't smoke in the home. Or at least when we smoke in the wintertime, we do it right under the extraction fan – with my head stuck in there (*laughs*) so that we don't... especially when we had the child (around).” (Samantha – urban, occasional smoker, age 30, university education)

“we have in the kitchen a corner couch with a little glass table, and that's where they smoke... and the window is right over the table, and I open it up [...] when she (daughter) was a baby, then you can tell, we didn't smoke around her because she was a baby... but usually I leave the girls in the room, they watch tv or they play, and in the kitchen people can smoke” (Kim – rural, non-smoker, age 27, high school education)

## Control Over the Living Environment and Capability for Smoke-Free Homes

Some women in this very heterogenous group of participants expressed significant ease in transitioning to a smoke-free environment, while expressing a high level of control over their living environment, and increased decision-making. This was usually the case of women living in nuclear families and who expressed high value for smoke-free homes.

“Everything depends on us. If I don't accept something in my own home, is my decision. And everyone else has to obey by it. I am of the opinion they I need to feel good in my own home. Whoever comes by, is just visiting. If they want

to, they adhere to the rules. If not, then they stop coming (laughs).” (Doris – urban, non-smoker, age 30, university education)

On the other hand, other women who expressed increased control over the living environment, but who expressed less value for smoke-free homes, and/or were smokers themselves and struggled with the addictive nature of tobacco, and/or lived with a smoker partner, expressed more difficulties in transitioning to smoke-free homes. One woman who was a smoker, described several changes she had gone through, including banning smoking in the home, and communicating the rules to guests. However, she described the process as an ongoing struggle.

“My perception has changed (since the birth of the child) and I would like to give them (cigarettes) up, but I find it very difficult. It is an addiction, that is how I see it... and I also I enjoy them very much (...) I try to avoid cigarette smoke as much as possible around the girl... I keep her away (...) ... but it’s such a struggle... I mean I see it as a struggle, because for me, smoking is something I cannot quit and on the other hand I want her to be well and not hurt her” (Olive – rural, smoker, age 34, university education)

Another woman discussed in more length the struggles she faces in maintaining the home smoke-free in the context of her husband’s smoking behaviour. As he was a smoker, she described a reduced personal capability in maintaining their home smoke-free.

“He (husband) can’t do it (quit smoking) ... he could, but he won’t even try it... He’s not very ambitious... I think that if you want to, you can control yourself a bit... If you are angry, you can calm yourself down... it’s not that cigarette that’s holding you (...) I can go ahead and say there is no smoking in the home starting tomorrow. But he’ll come back and smoke... he likes smoking too much” (Lily – rural, ex-smoker, age 28, secondary school)

Control over one’s life and living environment is an important capability referenced in the literature, associated with individual wellbeing. Thus, in relation to the capability to maintain homes smoke-free, it was expected to play an important role. However, this aspect of women’s lives was described in the data with different implications, depending on the context, especially for women living with their extended family. Thus, the role of extended families was identified as an important dimension in women’s homes, and two different



situations were identified: situations in which extended families promoted smoke-free home, and extended families which were less conducive to smoke-free environments. Due to the low level of control over the living environment which women expressed, the role of the extended family was identified as central. Both themes are discussed in the following sections.

*Theme: Extended families that promote smoke-free homes*

Women's narratives expressed diversity in terms of control over their living environment, with some women expressing a higher level of control (and decision-making in the family) and others expressing a limited level of control over the living environment. Low levels of control were discussed by women who lived with their extended family (with their in-laws or grandparents, who were the owners of the living environment). In some of these cases, these living arrangements were discussed by women as the primary reasons for having a smoke-free environment, even if the women were smokers. Thus, in these cases, women's reduced capability in terms of control, was presented as conducive to not smoking in the home.

For example, a woman who was a smoker and lived with a smoker partner, and her non-smoking in-laws, in their home, reported not smoking inside the home. She expressed a low level of control over the environment, and discussed that they never smoke in the home, as she knew that her in-laws did not like that:

"I know they don't like it (smoking inside the home), so I never insisted... I know they don't like it, so I don't do it. Knowing they don't like it, none of them like it, I haven't insisted to (smoke)" (Molly – urban, smoker, age 30, high-school education)

In another similar situation, a woman living with her partner (both smokers) and her non-smoking grandmother (in her grandmother's home) discussed the efforts her grandmother had put in to restrict smoking in the home.

"For as long as my grandfather was alive, smoking was allowed in the kitchen, like now. Then my grandma lived alone for 6 years, and we used to smoke only when we came to visit her, or if someone else who smoked came to visit. And in the past 4 years, since we moved in with her, there is smoking almost always

in the kitchen [...] in the other rooms no, because grandma would hit us in the head (laughs) because she doesn't like it" (Avril - rural, smoker, age 26, high-school education)

### *Theme: Extended families which hinder capability for smoke-free homes*

In other cases, reduced control over the living environment was presented as problematic in providing a smoke-free environment, for both smoker as well as non-smoker mothers. One particular case of a smoker woman who lived with her two children, her partner and her mother-in-law (both smokers) describes the daily struggles of trying to restrict smoking in the home they share, which was owned by the mother-in-law. In this specific case, the death of a member of the family actually triggered an uptake of smoking among other family members (her mother-in-law started smoking after her own husband died), increasing the sources to tobacco smoke as all three adult members of the dwelling were smokers.

In this case, the woman's attempts to ban smoking in the home, brought significant strains on social relations (particularly with the mother-in-law) and had limited effect (she did not manage to ban smoking in the home). The woman also described situations in which the mother-in-law used home ownership in a debate about restricting smoking in the home.

"I have said it, a lot of times: *get out with your cigarettes*. I have said it. And when he (son) was little, I used to go out to smoke. Didn't matter if it was winter, if I needed a cigarette, I would tell them: *here, watch the child for me, I'm going out for a smoke*. And I went out. And I told him (husband): *You should go outside too*. He would listen for the moment and then he would do it his way: *ok, you, but I have to go out in the cold to smoke a cigarette...* And I have told my mother-in-law too, that is not good for the child... (husband and mother-in-law impression): *Yes, yes, we'll go out*. Then after 10 minutes, they would be like: *What are we, crazy to go out and shiver in the cold?* Then I say: *Well, stop smoking then, if you're cold; stop smoking, because I won't let you do that here*. And then she (mother-in-law) goes: (sarcasm) *look at you making the rules in the home (...) in my own home, what have we become, you are telling me not to smoke*" (Jasmine – rural, smoker, age 38, secondary school education)

## The Social Space of Smoke-Free Homes: The Role of Social Norms

Banning smoking in the home for members of the family was in some cases described as being a different process compared to banning smoking for guests. Even though some women in my interview group expressed ease in communicating non-smoking rules to guests, in other cases, even in non-smoking homes, smoking still occurred when smoker guests came to visit. Two main themes were constructed from the analysis women's discourses, which describe a special status which guests have within certain social contexts, as well as set of dynamics which did not involve verbal communication. The latter theme was named the "unspoken interactions" and describe situations in which women relied on social norms to avoid conversations about smoking (or not smoking) in the home.

### *Theme: The guest status*

Social norms around interactions with guests (visitors) and hospitality were strongly expressed by women as a barrier in communicating smoking bans. Some women found it unacceptable to tell any guests not to smoke in their home. In one case, one respondent described feeling ashamed approaching this issue with guests: "[...] then it gets all smoky and I am ashamed to say anything" (Lily – rural, ex-smoker, age 28, secondary school). Other non-smoker women discussed how they navigated these social interactions, by avoiding telling guests not to smoke, but still finding harm minimizing strategies by restricting smoking to some areas of the home:

"I simply don't dare to say to anyone: don't smoke [...] they (guests) come and ask: *May I smoke?* (answer): *Yes, of course. Here in the kitchen, I can get you an ashtray, I am not bothered one bit... and if not, you can go on the balcony, because I have an apartment, and you can smoke at your ease.* What else can you say? (laughs)" (Kim – rural, non-smoker, age 27, high school education)

"No, no... you can't tell them (not to smoke), because even if they do come visit, they don't smoke that much. More than two cigarettes won't be smoked. So, they wouldn't let themselves. They have common sense. We even had

birthdays and so on, and no, there wasn't smoke that you could cut with a knife" (Grace – urban, ex-smoker, age 34, university education)

In some of these cases, partners were also smokers and did not contribute to supporting a smoke-free environment in these home (such as the case of Lily and Kim quoted above). In other cases, some women who felt they could not communicate smoking rules to guests, had the support of their partners in enforcing no-smoking rules.

"My husband would not let anyone smoke (inside the home). I would let guests smoke, but he wouldn't [...] I never tell them (guests). If they ask for an ashtray, I go get them one. And he (partner) would say: *No, no – out!*" (Nora – rural, smoker, age 32, high-school education)

The complexity of the dynamics was further expressed by women who differentiated between different types of guests. In some cases, there was a perceived limitation in communication associated with "my guests" and "their guests", referring to sides of the family. More specifically, women who had no difficulties in communicating smoking restrictions to their own friends and family, found it unacceptable to do the same with the partner's friends and family.

"How should I put it, for the ones (guests) from my side, the ones I knew, it wasn't difficult, and they knew there is no smoking inside the home... so I had no problems. For the ones I don't know that well, and they are from their (husband family's) side... they should tell them (laughs) [...] If I don't know them that well, I stay out of it [...] There were some exceptions (of indoor smoking) when we had persons more...you know (important)... and they did not have the courage to tell them not to smoke. They smoked in the kitchen, closed the door, and ventilated the room afterwards" (Molly – urban, smoker, age 30, high-school education)

"In the kitchen they can go ahead and smoke. Even if I am very embarrassed to tell them, to strangers or so... to the ones who are closer to me I tell them not to smoke" (June – rural, smoker, age 20, high-school education)

In one case, smoking rules were induced by the smoking preferences of the guests. Living with a smoker partner in a home in which smoking was partially restricted, one woman narrated the fact that her husband will smoke indoors if the guests wish to do so, or alternatively will smoke outdoors if they prefer that. When visited by smoker friends, she would say "He really smokes in the home

then (laughs) because he sits and chats and smokes all the time” (Hazel – rural, non-smoker, age 27, university education). When guests are non-smokers, she describes a different dynamic.

“He sometimes goes (outside) if he knows that someone who comes to visit does not like to have smoke blown on them, then we go outside.” (Hazel – rural, non-smoker, age 27, university education)

Interestingly, some of the women who accepted smoking in their homes from guests, found it unacceptable to visit non-smoker friends and smoke in their homes. Grace, ex-smoker, discussed how she respected the no-smoking rules in friends’ homes, but was open to accommodating smoking in her own home, even now after both her husband and she had quit smoking.

“When we went to visit them (friends), we wouldn’t smoke. It’s not like they imposed on you not to smoke, but out of respect for them, you would not light up a cigarette or smoke [...] They had told us (the home is smoke-free), but even if they wouldn’t have, we wouldn’t have dared, because we have a little respect as there was no smoking in their home, and they didn’t smoke themselves. If I was a smoker, and someone who comes into my home wants to smoke, just like now, if you would like to smoke, I would not have anything against it. You can smoke.” (Grace – urban, ex-smoker, age 34, university education)

### *Theme: The unspoken interactions*

Some women also referred to an unspoken game of politeness, in which the people who usually came to visit them were described as being very considerate, and they would never smoke without asking permission. This was coded with the minor theme of unspoken interaction, in which women described an interaction of expectations, in which rules are not communicated directly, but rather are left at the discretion of the guests to inquire about smoking rules.

In the case of Gloria, she describes non-smoking as a known fact within her home, to which guests conform without having the need to be requested to do so “It is known that there is no smoking in the house. So, they just go out for a cigarette” (Gloria – rural, smoker, age 37, high-school education).

When asked how difficult it is for her to tell guests not to smoke in her home, Grace discusses how non-smoking emerges naturally, from the respect and good sense of the guests. She emphasizes how they go to smoke in the kitchen or the balcony, out of their own initiative, and not smoke in the main rooms of the home. When asked in the interview how she would approach a guest who would not have the common sense she invoked, and would light up a cigarette in her home, she described a similar non-verbal way of navigating the situation.

“I would probably think twice who that person is, and I wouldn’t take note of it. I would send the children in their room or close the room doors and open the windows. Now, I am a woman with nerve, I would automatically open the window and slam the ashtray on the table, so he can come into his senses (laughs), if I don’t like that that person is smoking. Ok, if they ask permission and everything... that’s different... we have never had this issue to... they might ask permission and go by the window. But no, we have never had this type of guests with such nerve (laughs)” (Grace – urban, ex-smoker, age 34, university education)

## Reconciling Tensions Between Capabilities

I have discussed several capabilities which were in tension with either smoke-free capability, or capability for smoking. The strategies which women employed in managing these tensions were constructed in two themes. One type of coping involved strategies of distancing and avoidance. Another strategy for coping with potential tensions was problem solving, or active coping. This was usually identified among women who managed to restrict smoking in their homes and was described by strategies to mitigate the risk of smoking through finding alternative solutions.

### *Theme: Distance and avoidance (passive coping)*

Distancing and avoidance strategies were described by women in reconciling tensions between the capability for smoke-free homes and most frequently between the capability for social relations. In the case of non-smoking women,

some discussed the aspect of not being bothered by smoke in the home, distancing themselves from the effects of smoking.

“How could I tell them (not to smoke) (head-nod) [...] to guests no, in any case... I have told my husband to stop smoking, but he told me he cannot quit... but in the home... no... in the kitchen (if it happens) I am not bothered one bit. I leave the window open... or usually on the balcony” (Kim – rural, non-smoker, age 27, high school education)

In the case of smoker-mothers, the capability to smoke was also sometimes described as being in tension with social relations, with distancing or avoidance strategies being reported to be employed. One woman living with her non-smoker grandmother, discussed how she handled conflicts related to smoking in the home, which was strongly discouraged by the grandmother (who was also the owner of the dwelling).

“I go outside, behind the shed, when she (grandmother) starts to say anything, I smoke my cigarette, and when I come back, she can tell me anything. It comes in this way and goes out that way (points at ears). I don’t take her into account (laughs).” (Avril - rural, smoker, age 26, high-school education)

In a similar situation, a woman living in a nuclear family, but still living close to her own mother, who discouraged smoking, was hiding her smoking behaviour (including in-home smoking) from her mother. This was reported as a strategy to avoid any potential conflicts that may have arisen.

“My mother knows I used to smoke, that I have quit, but she doesn’t dare say anything. My husband keeps telling me why I keep hiding, that I should tell her and everything. But I know that it would hurt her too much... and I am trying to protect her. And I don’t want to have any discussions.” (Bridget – urban, smoker, age 32, university education)

Similarly, a young mother who lived with her own birth family, described avoiding talking about, or engaging in smoking behaviours, in the presence of her own parents.

“My mother doesn’t know (I am smoking). Well, she actually knows, but I don’t smoke in her presence. My dad knows, and I smoke when I am around him, but we don’t talk about it (...) my sister and I sometimes smoke in the home when my mother is out, or when she’s away with the children” (June– rural, smoker, age 20, high-school education)

Avoidance strategies were also identified in discourses around reconciling the capability to smoke and the capability for bodily health (in this case for the health of the child). A smoker mother described how she was actively looking for evidence that her smoking behaviour is not related to her child's respiratory conditions, in the strive to emotionally distance herself from the tensions she felt with her child's health. She had smoked during pregnancy, and continued smoking after the pregnancy, while her child had repeated episodes of bronchitis.

"I had smoked during pregnancy with him (child) and he was always predisposed to asthmatic bronchitis. So, he had repeated bronchitis. I don't want to believe it was because of that... but I do think cigarettes had something to do with it [...] I know it's not good for the child and I take on a certain guilt... especially now that I have been through an experience with a child... and I see him breathing more heavily... when I see others (mothers) who gave birth I ask them: *So, do you smoke? Have you smoked? Yes? And how is the child?* (answer) *He's fine, no concerns!* (laughs) So I calm down for a day or two [...] A doctor made a big mistake once (laughs), a paediatrician. I went to him just the same, with a (child's) bronchitis, I will never forget him. And I dared asking him: *Doctor, I smoked during pregnancy... could this have anything to do with this* (child's bronchitis)? (MD response) *Not at all. The child has this cold, whether it's inherited, or I don't know* (laughs). For a doctor to tell me that... clearly, I resent him for telling me that in a way, but it reassured me, I didn't take it on my shoulders that much" (Amber – rural, smoker, age 28, high school education)

### *Theme: Problem solving (active coping)*

Active coping was identified in several forms within women's discourses. The logistics of smoking, such as owning or using ashtrays was discussed by two women, as important in the way they reconciled potential tensions between smoke-free capability and the capability for social relations. One woman described not owning any ashtrays in the home, so if anyone would like to smoke, she has none to give them, so they are forced to smoke outdoors.

"I don't even own an ashtray, so clearly, if anyone asks for one, I don't have anything to give him. I think this is the most basic thing. If one wants to light up a cigarette, he can't dispose of his ash unless (they have an ashtray) ... at my place, it is simple, everyone goes outside (...) And people gradually got used to it. Nobody brought me an ashtray as a gift (laughs) so that means they have



learned (*laughs*) that we don't (allow smoking) ..." (Susan – urban, ex-smoker, age 40, university education).

In another case, a woman living in a non-smoking nuclear family, described buying an ashtray specifically for her smoker father (when he comes to visit) which she gave to him and asked him to smoke in the apartment building hallway, instead of in the home. This behaviour was described as emerging after their move into a new apartment, which coincided with the birth of their first child.

"After moving in (a new home), you know everyone comes to see the new house. After you have children, they come to see the children. I remember that we bought my dad an ashtray and put it in his hands, and he would go out in the apartment building hallway to smoke. When we had friends coming over, we knew which ones were smokers, and we would tell them: there is no smoking in our home; if you want to smoke, you can step out" (Fiona – urban, non-smoker, age 32, university education)

Other active coping strategies such as confrontational strategies were reported in isolated cases. In managing tensions between smoke-free homes and the capability for smoking in dwelling members, one woman describes confronting her mother to discourage her smoking.

"She (mother) smokes more now. Now that she works at the bar, so there is nothing much for her to do... all day long she lights up cigarettes. And I fight with her (*laughs*): *Stop lighting one! Not in front of me!* [...] She puts it out, and after I leave, she lights up another one" (Kim – rural, non-smoker, age 27, high school education)

Similar strategies were described by a woman who decided together with her husband to ban smoking in their home, upon the birth of their child. The main tension she described was the one between smoking and the capability for bodily health, which they had mitigated by banning smoking in the home.

"We were thinking that my own mother has asthma, and we were thinking... we were hoping that the child won't get it was well (...) we were living with my parents when I gave birth to my first child" (Nora – rural, smoker, age 32, high-school education)

In this latter case, Nora actively implemented a smoking ban within the home, together with her partner.

## Summary of Main Qualitative Findings

The qualitative component of the study design recruited women from diverse backgrounds, in terms of smoking status, living arrangements (rural/urban settings, nuclear/extended family living), home type (apartment/ house), education, age and lifecourse trajectories. Their discourses expressed a high diversity in terms of capability for smoke-free homes, value for smoke free homes, social interdependences associated with smoking inside the home. These guided the development of the subsequent quantitative component of the study design.

Understanding the way women conceptualize value for smoke-free homes, or restricting smoking, was central to the qualitative effort. The study identified not only health-associated values for restricting smoking around children, but a strong moral value was also described by women. In some cases, the latter played a role in decisions regarding smoking in the home. In addition, the dynamic process of changing in-home smoking behaviours, offered a clearer understanding that active efforts in restricting smoking are mostly discussed. However, in some cases, unintended changes in family or living structure affected smoking behaviour within the home.

The insights offered by this qualitative component regarding the control over the living environment, suggested that low control over the living environment is highly context-sensitive in terms of its effects on functionings. In the case of women who were living in environments in which the decision-makers in the home smoked or had a low value for smoke-free homes, low levels of control hindered implementing smoking bans. On the other hand, if women were living in an environment in which decision-makers in the home promoted a smoke-

free environment, even if the women did not express a high interest in restricting smoking, it appeared to be a protective factor.

Another important finding refers to the value conferred by women to harm minimizing strategies, which were employed in all the homes which did not report a complete smoke ban. Regardless of the environment in which women lived in, all described some type of harm reduction strategy, tailored to protect non-smoker dwelling members (especially children) from the harmful effects of tobacco smoke. The qualitative study also offered a deeper understanding of the inner struggles of smoker mothers to reconcile their smoker identities with the role of the mother.

The social context in which non-family members are seen, and engage in smoking behaviours, was also unpacked. The study identified women who had an increased confidence in communicating home rules to guests, others who found it unacceptable, and a third category of women who selectively communicated rules (they found it acceptable to do so for some categories of guests but not others). The status of the guest was thus identified as relevant in further pursuing in-home smoking behaviour in this socio-cultural environment.

Finally, the identified tensions between the capability for a smoke-free home and other capabilities (such as the one for social relations) offered a better context for understanding women's functionings within the structural determinants in which they occurred. The coping strategies women employed to reconcile these tensions (active or passive) were insightful in understanding women's agency in restricting smoking, as well as the constraints imposed on their agency.

In chapter six (the Discussions chapter), I will discuss in more depth these findings, in the context of the current literature.

## **Chapter Five: Quantitative Findings**

This chapter describes the findings of the quantitative phase of the research study, as the second stage in the mixed-methods design. The research aimed to understand what interactions can be statistically uncovered between capabilities for smoke-free environments for children, and existing resources (capitals) and other structural determinants. As described in detail in the Methods chapter, data were collected through 202 questionnaires, administered via telephone to mothers of children ages 0-36 months. Data were collected on sociodemographic variables, general smoking behaviour in the home and of the respondent, in-home smoking rules and their dynamics, capabilities, as well as resources in the form of economic, social, and cultural capital (including cultural capital for health). Capital conversions were also described, using specific indicators of capital transfer and acquisition. Data were analysed using descriptive and inferential statistics, and results are discussed in detail in the following sections.

## Sample Description

This section describes the final sample included in the study, as a result of the recruitment process. The final sample size was of 202 cases, recruited from GP practices serving large urban settings, small urban settings, peri-urban settings, rural settings and one paediatrics clinic serving both rural as well as urban settings. Households that were identified in the sample as peri-urban are households in villages and are therefore classed as rural. However, these villages differ from other rural settings as they are immediately adjacent to larger suburban areas and may therefore also be considered as suburbs of these larger suburban areas. Although this differentiation was used in selecting recruitment sites, due to the difficulty to conceptualise this for participants, the questionnaire only used two options: urban/rural.

The recruitment strategy led to a balanced sample (Table 5). Self-reported information from study participants showed that in the final sample, slightly half of the included participants lived in an urban setting. As regards living arrangements, less than half of respondents reported living in an apartment within an apartment building, slightly over half reported living in a house, and only 5 respondents reported living in an apartment within a house. Regarding home ownership, most respondents reported that either themselves or another member of the family owned the home they lived in, while less than 6% of respondents reporting living in a rented accommodation. Although the rate of home ownership is high, it is consistent with national available estimates, as Romania has the highest home ownership rate in the EU, which in 2016 reached 96% (Eurostat, 2017).

More than half of the women interviewed (53%) had one child living with them, more than one third (37.5%) had two children and less than one tenth (9.5%) reported three or more of their children living with them. All interviewed

participants had in their care at least one child who was aged 36 months or younger.

**Table 5 – Quantitative sample distribution by living context**

| Variable                             | % (n)      |
|--------------------------------------|------------|
| <b>Recruitment site</b>              |            |
| Large Urban GP                       | 29.7 (60)  |
| Small Urban GP                       | 9.9 (20)   |
| Peri-urban GP                        | 16.8 (34)  |
| Rural GP                             | 14.9 (30)  |
| Paediatrics Clinic                   | 28.7 (58)  |
| <b>Self-reported living location</b> |            |
| Urban                                | 54.5 (110) |
| Rural                                | 44.1 (89)  |
| Not responded                        | 1.4 (3)    |
| <b>Living arrangements</b>           |            |
| Apartment (in apt. building)         | 45.5 (92)  |
| Apartment (in house)                 | 2.5 (5)    |
| House                                | 52 (105)   |
| <b>Home ownership</b>                |            |
| Owner lived in home                  | 91.1 (186) |
| Rented accommodation                 | 5.9 (12)   |
| Other                                | 2 (4)      |

The final sample was also socio-economically heterogenous (Table 6). More than half of respondents reported highest family education (maternal or paternal) being university degree and more than one third reported having high-school education. For the 10 cases (5%) in which the respondent did not report living with a partner, their education was the only one considered for highest family education. One quarter of women reported working at the time of the interview, whereas the majority reported their partner was working at the same time. In terms of ethnic diversity, most respondents reported Romanian was spoken in the home, one quarter reported Hungarian (as a single language or in combination with other languages), and a small percentage reported that

Romani language or other languages were spoken in the home. Respondents' ages ranged between 18 and 42 years ( $M=30.1$ ,  $SD=4.83$ ).

**Table 6 – Quantitative sample distribution by education, employment and languages spoken in home**

|  | Maternal     | Partner    | Couple highest (family) |
|--|--------------|------------|-------------------------|
|  | % (n)        | % (n)      | % (n)                   |
| <b>Highest level of attained education</b> |              |            |                         |
| Less than high school                      | 15.1 (30)    | 15.4 (30)  | 12.1 (24)               |
| High school                                | 36.2 (72)    | 46.2 (90)  | 34.2 (68)               |
| University degree                          | 48.7 (97)    | 38.5 (75)  | 53.8 (107)              |
| <b>Employment status</b>                   |              |            |                         |
| Working                                    | 25.1 (50)    | 84.1 (164) |                         |
| Not working                                | 74.9 (149) * | 15.4 (30)  |                         |
| <b>Languages spoken in home**</b>          |              |            |                         |
| Romanian                                   | 85% (172)    |            |                         |
| Hungarian                                  | 23.6% (48)   |            |                         |
| Romani                                     | 2% (4)       |            |                         |
| Other languages                            | 1.5% (3)     |            |                         |

**Note.** \*Out of these women, 17.6% ( $n=26$ ) had never worked. The remaining percentage of women reporting not working is largely associated with maternity leave, which in Romania can be up to 24 months. \*\*Respondents could report more than one language being spoken in the home.

Within my sample, most respondents rated their own health status as either excellent or good, while a small number of them reported some limitations in activities of daily living. Regarding psychological distress, as measured through PHQ4, most women reported experiencing no distress or mild distress for the previous 2 weeks from the time of data collection (Table 7). One third of the sample (28.3%) self-evaluated their quality of life as very good, more than half (64.6%) described their quality of life as good, 5% reported it as neither good nor poor, while a very small proportion (2%) reported a low or very low quality of life.

Table 7 – Quantitative sample distribution by self-reported health status

| Variable  | % (n)      |
|---|------------|
| <b>Self-assessed overall health status (respondent)</b> |            |
| Excellent   | 30.2 (61)  |
| Good  | 66.3 (134) |
| Fair  | 3.0 (6)    |
| Poor  | 0.5 (1)    |
| <b>Limitations in ADLs* (respondent)</b>                |            |
| Yes   | 3.0 (6)    |
| No  | 97 (196)   |
| <b>Psychological distress – PHQ4 (respondent)</b>       |            |
| None  | 66.5 (133) |
| Mild  | 24.5 (49)  |
| Moderate  | 6.0 (12)   |
| Severe  | 3.0 (6)    |

**Note:** \*Activities of Daily Living – participants were asked to report if they have any health problems which condition, limit or make it difficult to engage in activities of daily living.

Concerning the health status of all the children in the home (Table 8), a small proportion of the sample reported caring for children which experienced asthma, chronic bronchitis, or repeated ear infections. Most respondents also rated the overall health status of their youngest child (if multiple children lived in the family) as excellent or good. In addition, one quarter of respondents reported that their youngest child had never experienced a respiratory health infection in the past 6 months, one fourth reported having experienced it once, and one fourth reported having experienced it two or more times.



**Table 8 – Quantitative sample distribution by caregiver-reported health status of children**

| Variable   | % (n)      |
|--|------------|
| <b>Child health conditions (any child in home)</b>                     |            |
| Asthma   | 2.0 (4)    |
| Chronic (or repeated) bronchitis                                       | 6.9 (14)   |
| Repeated ear infections  | 3.0 (6)    |
| <b>Overall child health status (youngest child)</b>                    |            |
| Excellent  | 60.9 (123) |
| Good   | 34.7 (70)  |
| Fair   | 4.5 (9)    |
| Poor   | 0          |
| <b>Respiratory health infections in past 6 months (youngest child)</b> |            |
| Never  | 24.8 (50)  |
| Once   | 38.1 (77)  |
| Twice  | 18.3 (37)  |
| Three or more times  | 18.3 (37)  |

## Smoking Behaviour in the Home

In terms of smoking behaviour, almost one half of respondents reported living with at least one smoker in the home. In less than one fifth of cases the participant self-identified as a smoker, and one third reported living with a smoker partner. From the interviewed women, almost two thirds reported living in non-smoker homes (never smoke or homes which a smoking ban was not related to the arrival of the baby), and one third was equally divided between participants who reported living in homes that have imposed bans with the arrival of the baby or in which smoking was permitted in some form (Table 9).

**Table 9 – Quantitative sample Distribution by Smoking Variables**

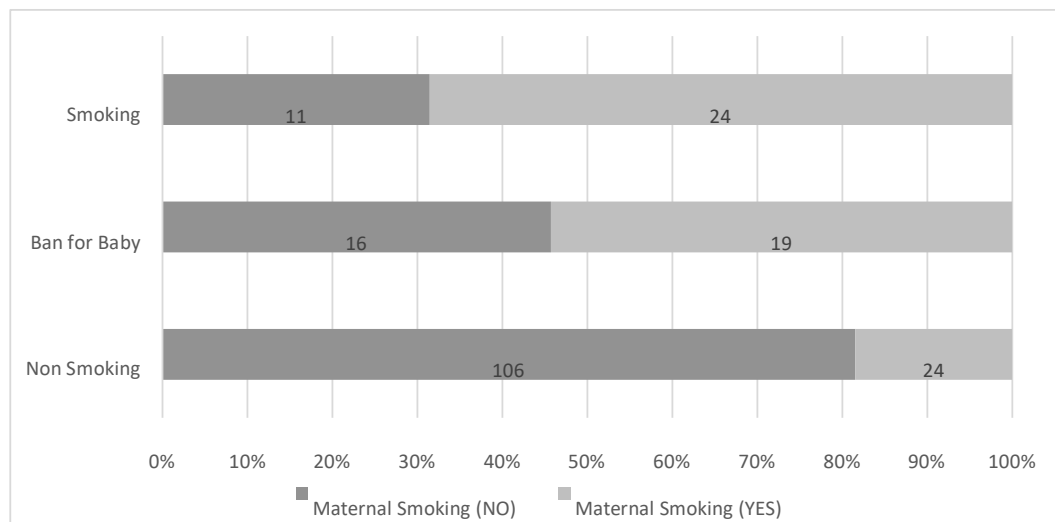
| Variable                             | % (n)      |
|--------------------------------------|------------|
| <b>Number of smokers in home</b>     |            |
| None                                 | 58.9 (119) |
| One                                  | 25.7 (52)  |
| Two                                  | 12.4 (25)  |
| Three or more                        | 3 (6)      |
| <b>Respondent smoking</b>            |            |
| Yes                                  | 18.4 (37)  |
| No                                   | 81.6 (164) |
| <b>Partner smoking</b>               |            |
| Yes                                  | 33.7 (68)  |
| No                                   | 66.3 (134) |
| <b>Home-Smoking Behaviour (Bans)</b> |            |
| Non-smoking                          | 65 (130)   |
| Ban-for-baby                         | 17.5 (35)  |
| Smoking                              | 17.5 (35)  |

Since conceptually, the transition from a smoking to a non-smoking home in the context of the arrival of a baby in the home was extremely relevant, the decision was made to focus on this variable as a dependent variable in the subsequent inferential analysis. A limitation of this approach is the relatively low

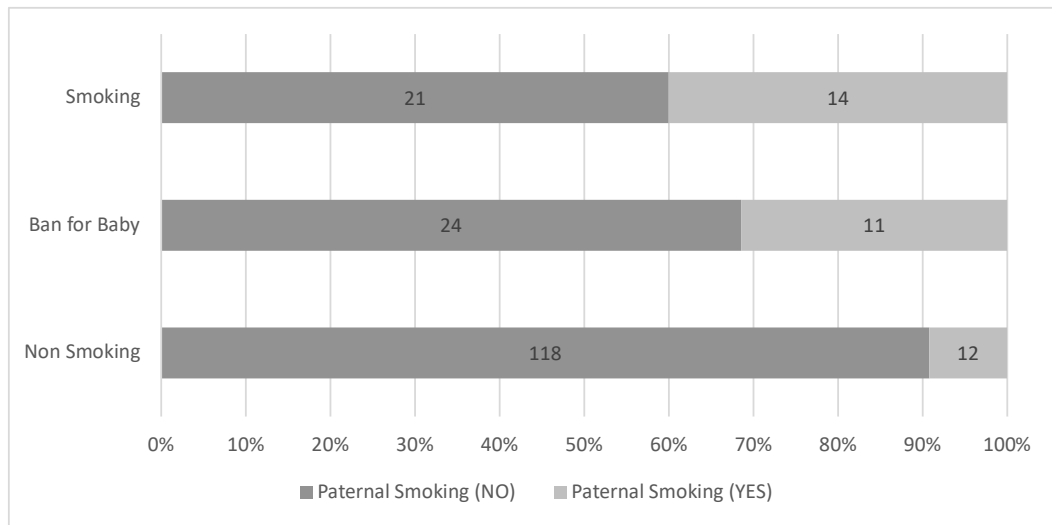
absolute count of the “ban-for-baby” (n=35) and “smoking” (n=35) categories, associated with the overall limited sample size. In this context, the observed variables were analysed in models with fewer variables, to prevent the small count inducing undue distortion.

Maternal and paternal smoking was observed in association with the three groups defined by the smoking behaviour in the home (non-smoking, ban-for-baby, and smoking). A Chi-Square test suggested a significant relationship between in-home smoking categories with both maternal smoking ( $\chi^2(2)=22.018$ ,  $p=.000$ ) as well as paternal smoking ( $\chi^2(2)=39.310$ ,  $p=.000$ ). The distribution of smoking across the groups is described in Figures 9 and 10 below. And as it can be observed, smoker respondents or partners were present in all three categories of homes (smoking, non-smoking and ban-for-baby), however with an increased prevalence in the smoking homes.

**Figure 9 - Crosstabulation between maternal smoking and in-home smoking behaviour groups (n=200)**



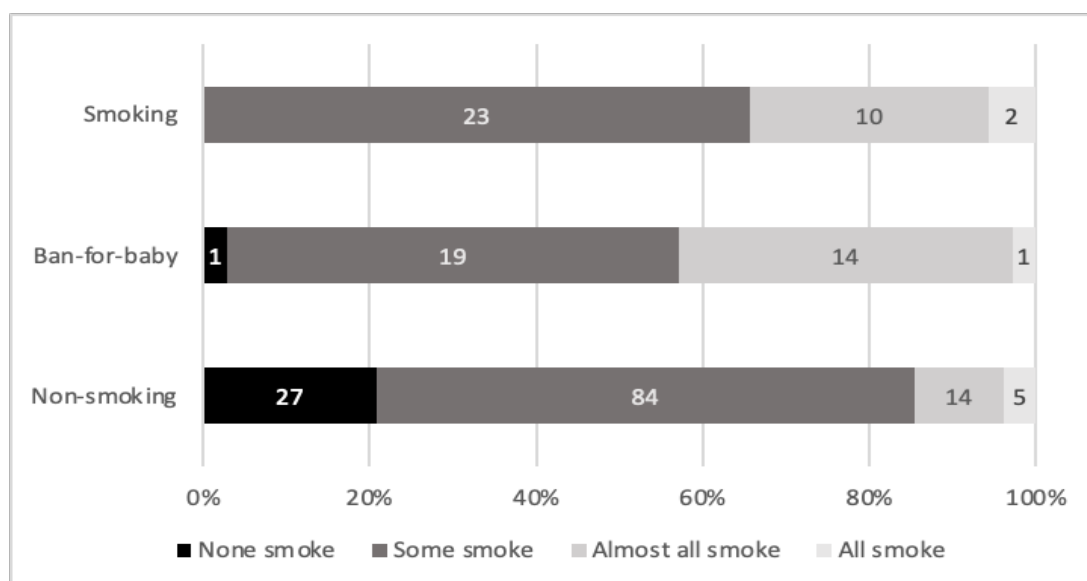
**Figure 10 - Crosstabulation between paternal smoking and in-home smoking behaviour groups (n=200)**



The other indicator of the number of smokers in the home used in the analysis was total of number of smokers sharing the house (this also included maternal and/or paternal smoking). As qualitative data suggested that other sources of exposure can occur especially for the case of women living with their extended family, this variable of total number of smokers was included. To measure the differences in the means of number of smokers across the three groups of home-smoking behaviours (non-smoking, ban-for-baby and smoking), a one-way ANOVA test was conducted. The test detected statistically significant differences in means between groups ANOVA ( $F(2, 18.920)=38.682, p=.000$ ). The mean number of smokers for the non-smoking group was .3 (SD=.6), for the ban-for-baby group was 1 (SD=.8) and for the smoking group was 1.3 (SD=.9).

In relation to smoking in the social group of the women included in the study, when asked about all the people present in their life, only 14.4% (n=29) reported that no one smokes, whereas 22.9% (n=46) reported that all or almost all of them smoke (Figure 11).

Figure 11 - Smoking in the social group (n=200)

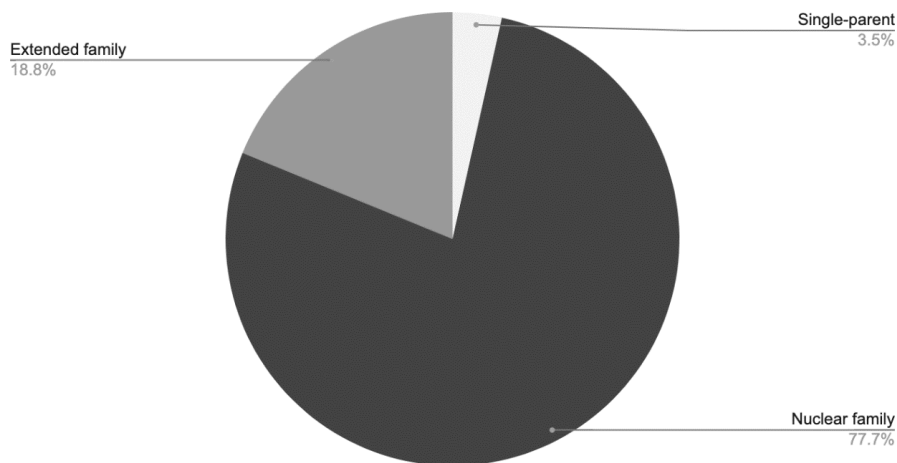


I have also looked at the association between self-reported prevalence of smoking in the social group and the variable of interest, defined by the in-home smoking rules. A Chi-Square test suggested a significant relationship between in-home smoking categories (non-smoking, ban-for-baby and smoking) with magnitude of smoking in the social group ( $\chi^2(6)=27.601$ ,  $p=.000$ ).

## Living Arrangements

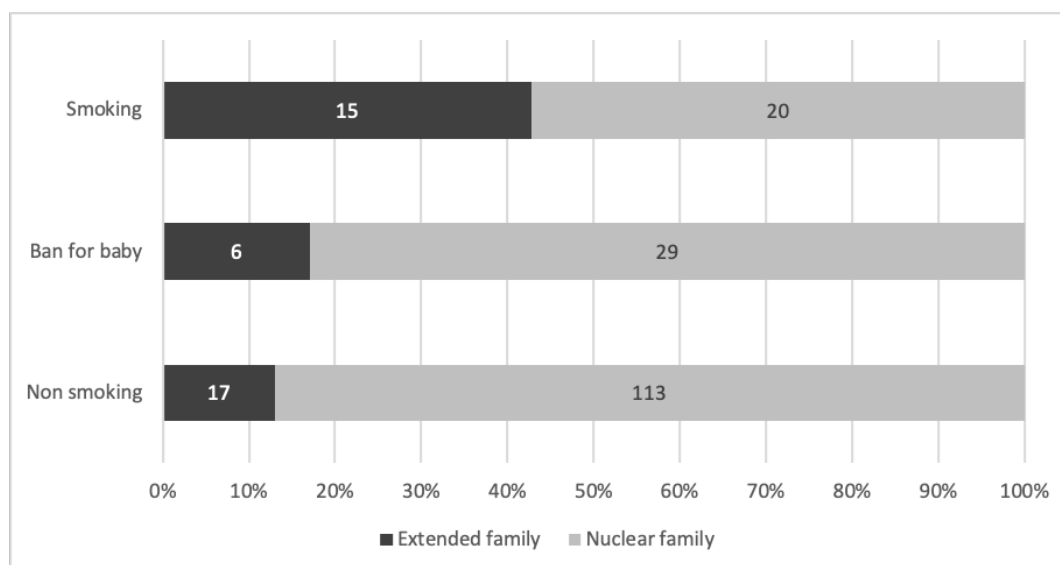
Within the sample, most of the women lived in a nuclear family, a small proportion (7 women) reported living only with their children in a single-parent family, while less than one fifth of the sample reported living with their extended family. The extended family was represented most often by their own parents, their partner's parents, and in some of these situations, other family members such as brothers or in-laws.

Figure 12 - Sample distribution by living arrangements (n=202)



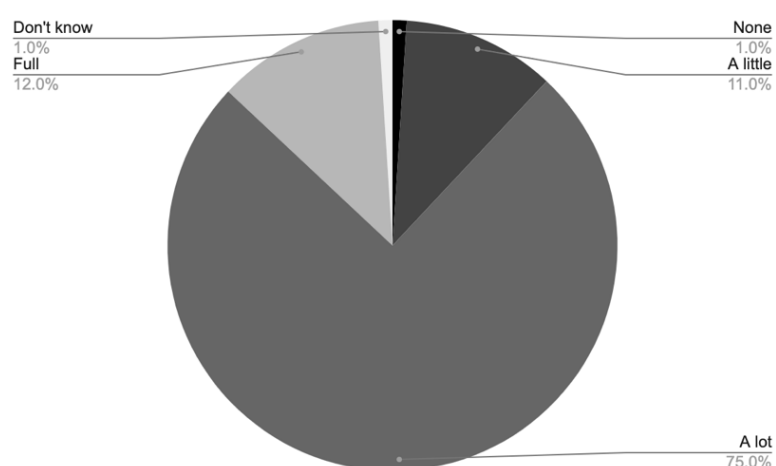
To measure the association between living arrangements and the three groups of home-smoking behaviours (non-smoking, ban-for-baby and smoking), a Chi-square analysis was conducted. As the number of women reporting to be living in a single-parent family was reduced, and I was interested in extended family vs. nuclear family, for this analysis I have included the single-parent families to the nuclear family group. The analysis suggested a significant relationship between in-home smoking groups with the variable focusing on living with an extended family ( $\chi^2(2)=15.986$ ,  $p=.000$ ). The figure below shows the distribution of type of living arrangement across the three in-home smoking groups.

**Figure 13 - Crosstabulation between in home smoking and living arrangements (n=200)**



When asked about their general perceived level of control over the living environment, most women reported they either have a lot or full control over their home. However, a small proportion reported having little or no control over their living environment.

**Figure 14 - Sample distribution by perceived level of control over living environment (n=200)**

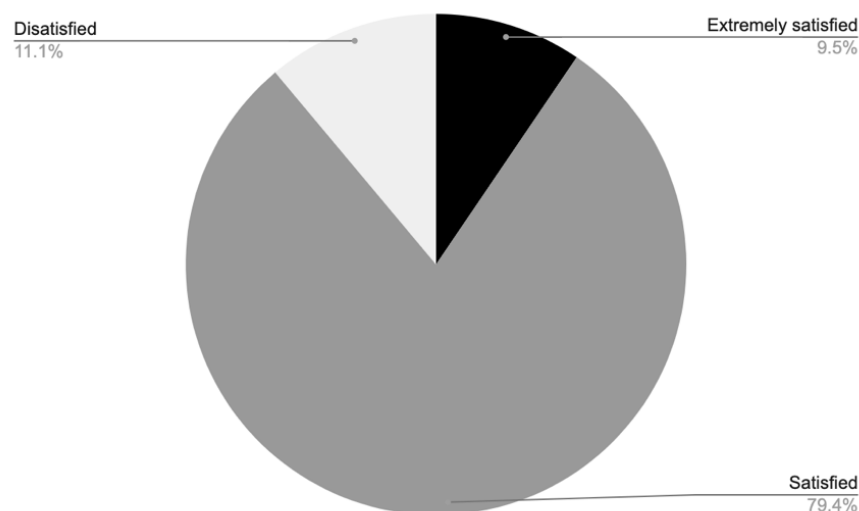


This distribution was significantly associated with living in an extended family ( $\chi^2(4)=19.320, p=.001$ ). However, no significant direct association was identified between perceived level of control and in-home smoking behaviour, as defined

by belonging to one of the three groups: smoking, non-smoking and ban-for-baby ( $\chi^2 (8)=8.772$ ,  $p=.362$ ). I have also run a similar analysis with a reduced number of groups, to account for low count, in which I have grouped no control and little control in one group, and a lot of control and full control in a second group. The results of the association were still not statistically significant ( $\chi^2 (2)=1.555$ ,  $p=.460$ ).

Regarding the perceived satisfaction with the home they live in, regarding its appearance or its physical state, most women reported they are either extremely satisfied or satisfied, whereas 22 respondents (11.1%) reported they are dissatisfied.

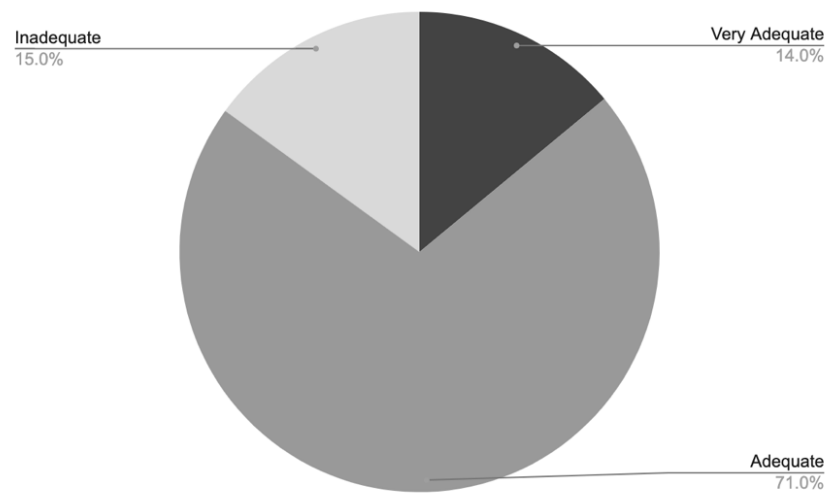
**Figure 15 - Sample distribution by degree of satisfaction with the physical state of current dwelling (n=199)**



When asked about the extent to which they feel that the home they live in is adequate for their current needs, again most women reported it was adequate or very adequate, whereas 30 women (15%) reported they felt it was inadequate. Figure 16 below describes the distribution by perceived level of home adequacy to current needs, within the sample.



**Figure 16 - Sample distribution by perceived level of home adequacy to current needs (n=200)**



A significant association was observed between satisfaction with physical state of the home and the adequacy to their current needs ( $\chi^2(4)=157.974$ ,  $p=.000$ ) within the sample. On the other hand, a non-significant relationship was identified for both satisfaction ( $\chi^2(4)=3.837$ ,  $p=.429$ ) as well as perceived adequacy ( $\chi^2(4)=7.685$ ,  $p=.104$ ) in relation to in-home smoking.

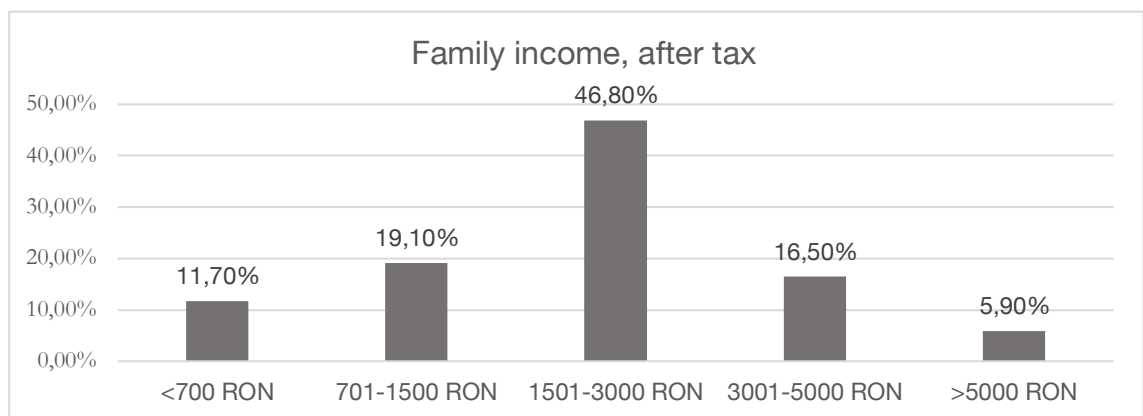
## Capitals

This section describes the analyses conducted on the variables and constructs which were used as proxies for economic, social, and cultural capitals (including cultural capital for health). Descriptive and dimension reduction statistics (for multivariate constructs) are provided to offer context for the subsequent analyses. The final section will briefly present the analyses exploring capital dynamics.

### Economic Capital (Income and Financial Strain)

Family income (after tax) was measured in RON (Romanian Leu), without the possibility to control for number of people supported by the respective income, as income was reported in ranges. The distribution of the income variable appeared to be relatively normally distributed within the sample, with a slight over-representation of the middle category (46.8%). However, 11.7% (n=22) and 5.9% (n=11) respectively were included in the extreme categories (Figure 17).

**Figure 17 - Distribution by family income, after tax (n=188)**



In addition to Income, Financial Strain was also measured within the sample. A Principal Component Analysis (PCA) was run on the 4 items of the Financial Strain Scale, to validate the construct and inform the use of a composite scale.

All the 4 items correlated at least .3 with at least one other item, and all correlations were statistically significant, suggesting good factorability (Table 10). Also, communalities were all above .4 (Table 10). Kaiser-Meyer-Olkin measure of sample adequacy was 0.762, and Bartlett's test of sphericity was significant ( $\chi^2(6) = 258.53, p < .000$ ). The PCA yielded one factor with an eigenvalue of 2.52, which explained 63.123% of the variance for the entire set of variables. The factor loadings were moderately-high on all the variables, ranging from .692 to .867 (Table 11). Finally, a Cronbach's Alpha test was conducted to assess the internal reliability of the scale, which suggested an acceptable to good reliability ( $\alpha = .799$ ). The computed financial strain scale rendered a minimum value of 4, a maximum value of 16 ( $M = 8.77$ ;  $SD = 2.66$ ).

**Table 10 - Correlation Matrix (Kendall's Tau-b) on Financial Strain items (n=197)**

|  | [1]     | [2]     | [3]    | [4] |
|--|---------|---------|--------|-----|
| [1] Difficulties in paying bills               | 1       |         |        |     |
| [2] Having money left at the end of the month  | -.466** | 1       |        |     |
| [3] Reduce spending to make ends meet          | .590**  | -.372** | 1      |     |
| [4] Worried about family's financial situation | .504**  | -.369** | .479** | 1   |

**Table 11 - Factor loadings and communalities based on a Principal Component Analysis for 4 items of the Financial Strain Scale (n=197)**

| Items                                      | Factor Loadings | Communalities |
|--|-----------------|---------------|
| Difficulties in paying bills               | .867            | .752          |
| Having money left at the end of the month  | -.692           | .479          |
| Reduce spending to make ends meet          | .815            | .664          |
| Worried about family's financial situation | .793            | .630          |

To measure the differences in both income and financial strain across the three groups of home-smoking behaviours (non-smoking, ban-for-baby and

smoking), a one-way ANOVA test was conducted. There were no statistically significant differences of income on in-home smoking, for the three types of in-home smoking rules as determined by one-way ANOVA ( $F(2,183)=.079$ ,  $p=.924$ ). On the other hand, there was a significant effect observed of financial strain on in-home smoking, for the three types of in-home smoking rules ( $F(2,192)=3.370$ ,  $p=.036$ ). In this latter case, the mean score for financial strain was 5.7 ( $SD=2.1$ ) for the non-smoking group, 5.6 ( $SD=1.61$ ) for the ban for baby group, and 6.7 ( $SD=2.0$ ) for the smoking group.

## Social Capital

The social capital items included in the questionnaire focused on 6 dimensions of support (items listed in Table 12). To explore if the items could be included in a scale, an initial correlation was conducted to observe how the items correlated with each other. A Kendall's Tau-b correlation suggested statistically significant relations between all items, with correlation coefficients ranging between .400 and .768 ( $p=.000$ ).

A Principal Component Analysis (PCA) was run on the 6 items of the Social Capital Scale, to inform the use of a composite scale. Kaiser-Meyer-Olkin measure of sample adequacy was 0.85, and Bartlett's test of sphericity was significant ( $\chi^2(15) = 721.054$ ,  $p < .000$ ). One factor with an eigenvalue of 4.01, which explained 66.826% of the variance was obtained. Communalities were all above 0.5 and factor loadings were moderately-high on all the variables, ranging from .744 to .889 (Table 13). The social capital scale was also found as highly reliable, as a result of Cronbach's Alpha ( $\alpha=.894$ ). As a result, a composite score was computed. The minimum value across the sample on the social capital scale was of 6, and the maximum was 24 ( $M=17.96$ ,  $SD=3.97$ ).

**Table 12 - Correlation Matrix – Social Capital Items (n=196)**

|   | [1]    | [2]    | [3]    | [4]    | [5]    | [6] |
|---|--------|--------|--------|--------|--------|-----|
| [1] Do you feel you generally receive enough support from your family and friends for yourself and your child/children?                               | 1      |        |        |        |        |     |
| [2] Do you feel you are generally able to talk to (or confide in) people around you, about things that you feel are important?                        | .768** | 1      |        |        |        |     |
| [3] Do you feel there are people around you to help with daily practical things, when needed? (such as looking over your child or help with shopping) | .567** | .595** | 1      |        |        |     |
| [4] Do you feel there are people around you to support you emotionally, when you feel upset or overwhelmed?   | .641** | .713** | .643** | 1      |        |     |
| [5] Do you feel there are people around you to support you financially when needed?   | .506** | .593** | .400** | .544** | 1      |     |
| [6] Do you feel there are people around you to support you with information or advice about child health or child rearing, when needed?               | .544** | .555** | .465** | .611** | .644** | 1   |

**Table 13 - Factor loadings and communalities based on a Principal Components Analysis for 6 items of the Social Capital Scale (n=196)**

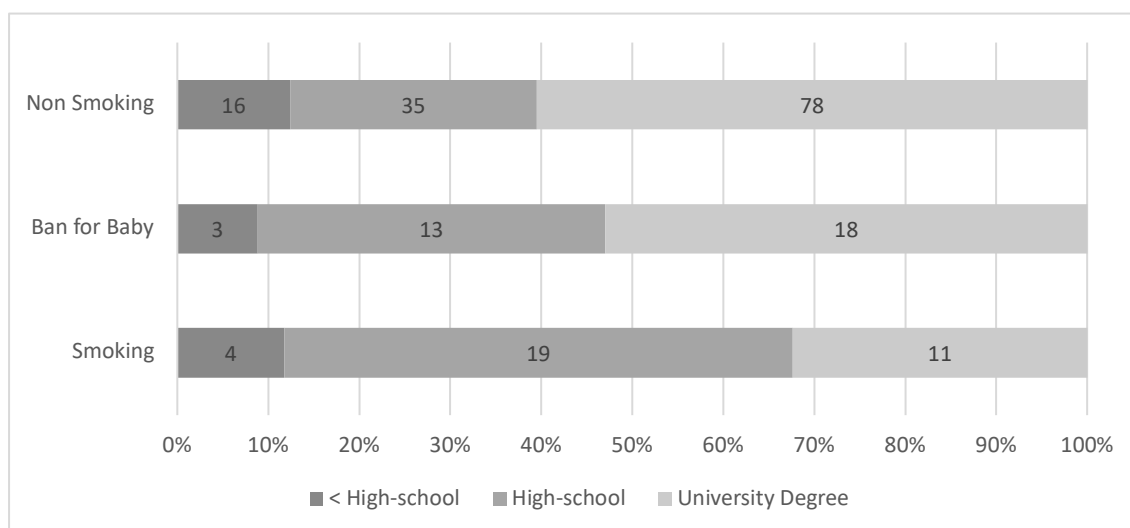
| Items   | Factor Loadings | Communalities |
|---|-----------------|---------------|
| Do you feel you generally receive enough support from your family and friends for yourself and your child/children?                               | 0.851           | 0.724         |
| Do you feel you are generally able to talk to (or confide in) people around you, about things that you feel are important?                        | 0.889           | 0.789         |
| Do you feel there are people around you to help with daily practical things, when needed? (such as looking over your child or help with shopping) | 0.764           | 0.584         |
| Do you feel there are people around you to support you emotionally, when you feel upset or overwhelmed?   | 0.851           | 0.725         |
| Do you feel there are people around you to support you financially when needed?   | 0.744           | 0.554         |
| Do you feel there are people around you to support you with information or advice about child health or child rearing, when needed?               | 0.796           | 0.633         |

Similar to economic capital, an ANOVA test was run in order to observe if there were any statistically significant differences of social capital across the three groups defined by our variable of interest (in-home smoking rules). Results suggested that there was not a significant difference across social capital scores across in-home smoking groups, for the three types of in-home smoking rules as determined by one-way ANOVA ( $F(2,192)=.019$ ,  $p=.981$ ). The means on the social capital scale were 17.9 (SD=4.1) for the non-smoking group, 18.1 (SD=3.8) for the ban-for-baby group, and 18.0 (SD=3.9) for the smoking group.

## Cultural Capital and Cultural Capital for Health

For measuring cultural capital, an indicator of highest family education was used, in relation to the nuclear family (woman and partner, or mother-only in the case of single-parent families). The highest education was measured using three categories, less than high-school (n=23), high-school (n=67), and university degree or above (n=107). In order to observe the association between highest family education and smoking behaviours in the home, a Chi-Square test was conducted, suggesting a significant association between in-home smoking categories (non-smoking, ban-for-baby and smoking) with the cultural capital item ( $\chi^2(4)=10.981$ ,  $p=.027$ ).

**Figure 18 - Crosstabulation between in-home smoking and highest family education (n=197)**



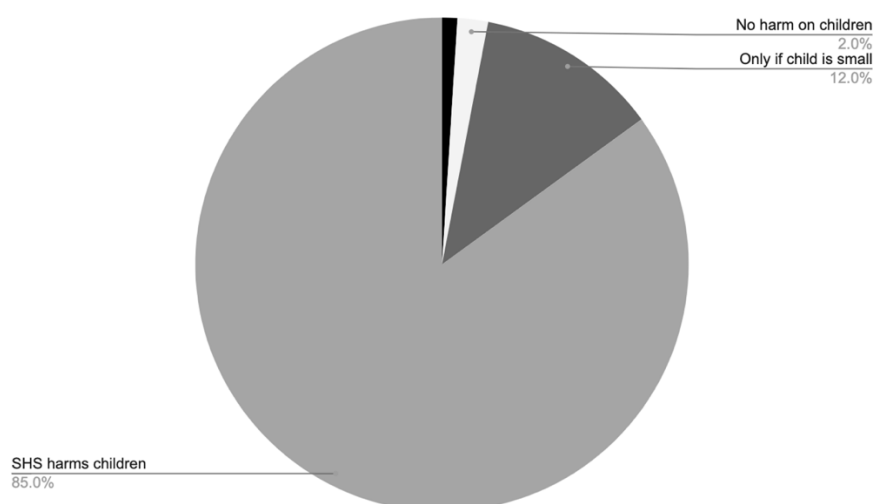
As it can be seen in the figure above, the non-smoking group was characterized by a higher proportion of university degree respondents, followed by the ban-for-baby group. The smoking group had the lowest proportion of university degree respondents, and the highest proportion of high-school education graduates, compared to the other two groups.

Cultural capital for health was explored in the context of smoking and exposure to second-hand tobacco smoke, using a set of questions which focused on respondent's knowledge and beliefs regarding smoking. Within the whole sample, most women agreed that smoking can cause stroke (92%), heart

attack (91.5%), pulmonary cancer (96.5%), as well as severe health conditions in general (97.5%). Regarding smoking during pregnancy, 96% (n=193) of respondents reported that they think smoking can affect the health of the unborn child, 3% (n=6) reported “no” for the same question and 1% (n=2) responded with “don’t know”.

In relation to secondhand tobacco smoke exposure, 93.4% (n=185) reported that it can affect the health of other non-smoking adults, 6.1% (n=12) reported that it cannot affect their health, whereas 0.5% (n=1) responded that they don’t know. When asked about children’s exposure to secondhand tobacco smoke, 84.6% (n=170) responded that exposure can harm a child, regardless of their age, 12.4% (n=25) responded that exposure can harm a child but only if he/she is very small, 2.5% (n=5) responded that it cannot harm the child and 0.5% (n=1) responded that they don’t know (Figure 19).

**Figure 19 – Sample distribution by knowledge on children's SHS exposure (n=201)**

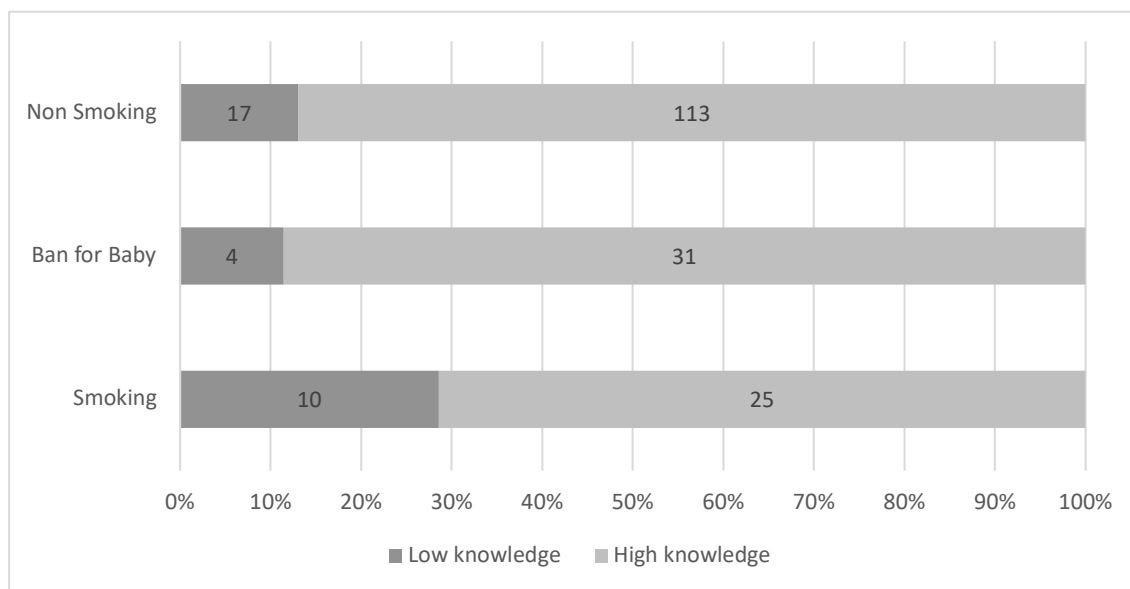


The answers to this battery of questions were recoded into dichotomous variables, with the answer “yes” being coded as increased capital (1) and “no”, “don’t know” being coded as lower capital (0). In the case of the question regarding children’s exposure to second-hand tobacco smoke, where the responses were coded on 4 categories, the category “yes, but only if the child is very small” was coded in the lower cultural capital for health group (so coded as 0). The purpose of recoding was to use them in the final regression models.



To measure the direct association between women's knowledge about children's exposure to SHS and the outcome variable of interest (smoking behaviour in the home) a Chi-square analysis was conducted.

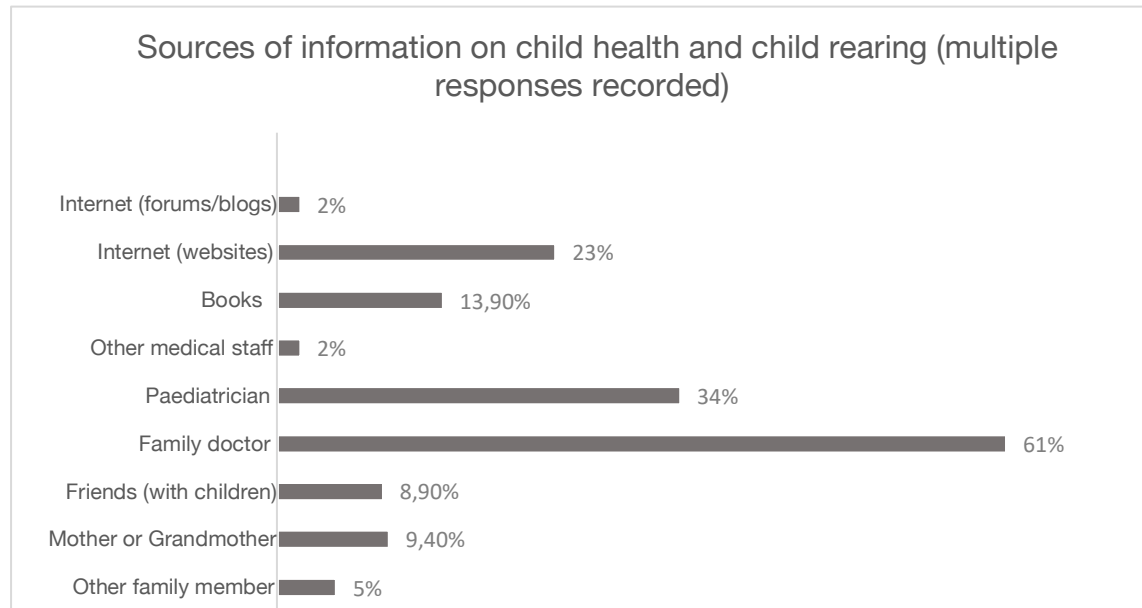
**Figure 20 - Crosstabulation between in-home smoking and SHS knowledge (n=200)**



The analysis suggested a non-significant relationship between in-home smoking categories (non-smoking, ban-for-baby and smoking) with the cultural capital for health item, focusing on children's exposure ( $\chi^2(2)=5.592$ ,  $p=.061$ ). However, even if the analysis did not reach statistical significance, it can be observed from the figure above that in the smoking group, a higher proportion of respondents did not fully recognize the risks of exposing children to SHS, compared to the other two groups.

With reference to sources of information on child health and child rearing, the most frequently reported sources were associated with medical staff - family doctor (60.9%,  $n=123$ ) and paediatrician (33.7%,  $n=68$ ). The third-most frequently reported source of information access was the Internet – websites (23.3%,  $n=47$ ) whereas the Internet – forums or blogs were reported as being significantly less used (2%,  $n=4$ ). Books were also reported by 13.9% ( $n=28$ ) of the respondents. In terms of family members, own partner was reported by 0% of the interviewed women, own mother or grandmother was reported by 9.4% ( $n=19$ ) and other family member by 5% of the sample ( $n=10$ ).

**Figure 21 - Sources of information on child health and child rearing (n=201)**



**Note:** Sources of information with  $\leq 1$  positive response were not included in the representation above (excluded sources of information: partner, neighbour, co-worker and TV/Radio, magazines, and friends without children).

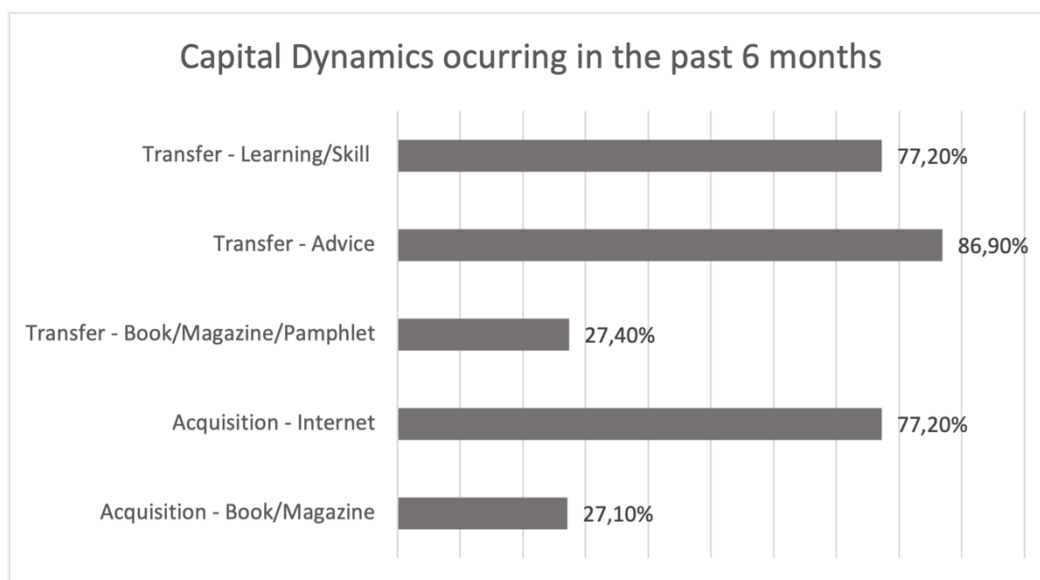
Figure 21 above describes all the sources reported by respondents, excluding four sources which rendered zero response from women (partner, neighbour, co-worker, and TV/Radio) and 2 additional responses which elicited only one positive response thus 0.5% of the entire sample (Magazines and friends without children).

## Capital Dynamics: Transfer and Acquisition of Cultural Capital

To explore capital dynamics in more depth, transfer of cultural capital (via the respondent's social network), as well as acquisition of cultural capital (converting economic capital into cultural capital) were briefly investigated (Figure 22). In terms of transfer of social capital from their social network, 27.4% (n=55) of respondents reported having received or borrowed a book, pamphlet or magazine on child health or child rearing, from someone in their network in the past 6 months. A higher percentage responded that they

received some form of advice (86.9%, n=173) or were supported to learn something new that they could put into practice (77.2%, n=152).

**Figure 22 - Capital dynamics: Transfer and Acquisition of Cultural Capital Items (n=200)**



Acquisition of cultural capital was measured via access to information on the internet and acquisition of books or magazines. Within the sample, 77.2% (n=152) reported learning something in the past 6 months via the internet that they could put into practice, on child health or child rearing. A smaller percentage (27.1%, n=54) reported having purchased a book or a magazine on child health and child rearing in the past 6 months.

A more in depth listwise analysis revealed that 20.4% (n=40) of respondents did not acquire cultural capital on any of the two items measured (internet or book), and 10.8% (n=21) did not engage in the transfer of cultural capital from any of the three measured dimensions (advice, skills, or book). As the measures used were not sensitive enough to offer a gradient of transfer of acquisition of cultural capital, the decision was made to use two dichotomous variables in further analyses for each of the two, coding “no acquisition” (0) and “some acquisition” (1), and “no transfer” (0) and “some transfer” (1) respectively.

In order to test the robustness of the capital dynamics variables, their relationship with the relevant capitals (social or economic) was measured. As a result, a Chi-square test between income and capital acquisition, an independent T-test between the financial strain scale and capital acquisition, and an independent T-test between social capital composite scale variable and capital transfer were performed. Results suggested a significant relationship between family income (measured on the 5 categories) with the dichotomous capital acquisition variable ( $\chi^2(8)=23.843$ ,  $p=.002$ ). For the financial strain scores, comparison of the “no acquisition” group ( $M=6.74$ ,  $SD=2.54$ ) to the “some acquisition” group ( $M=5.56$ ,  $SD=1.89$ ) demonstrated significantly higher financial strain scores  $t(189)=-3.11$ ,  $p=.002$ . Inversely, the “no transfer” group ( $M=15.85$ ,  $SD=5.42$ ) compared to the “some transfer” group ( $M=18.12$ ,  $SD=3.74$ ) demonstrated significantly lower social capital scores  $t(188)=2.43$ ,  $p=0.016$ . The results are consistent, as respondents need to have some form of economic capital to perform any acquisition of cultural capital, and similarly, they need to attain social capital for transfer of cultural capital on the network to occur.

In terms of in-home smoking outcomes, neither of the two measures (acquisition or transfer) were statistically associated with in-home smoking ( $\chi^2(2)=.882$ ,  $p=.643$ , respectively  $\chi^2(2)=.236$ ,  $p=.889$ ).

## Capabilities

This section describes the analyses conducted to structure and assess the capabilities measures as derived from my data. As discussed in the Data and Measures section in my Methods and Methodology chapter, 10 items were built based on the findings of my qualitative phase of the study, and the information available in the literature. I will describe the measures used as well as how they were operationalised in constructs.

### Description of Capability Measures

A descriptive analysis of capability measures was conducted, to describe the sample distribution across the 4 self-reported measures on each capability item (Strongly Agree, Agree, Disagree, Strongly Disagree) as well as to assess the magnitude of missing cases for each item. The maximum number of missing cases per item was 6 cases, thus no special handling of missing cases was conducted (they were excluded from the analysis). Due to the skewed distribution of the responses (and the low number of values for the last point of the scale which ranged between 1 and 9 cases across all items), the decision was made to combine the last category with the previous one, and to use in the analysis a 3-point scale.

A Kendall's tau-b correlation was run to determine the relation in between the 10 Capability items within our sample. All correlations were statistically significant at a .000 level (for the full correlation matrix refer to Table 12 below). The strongest correlations were observed between the capability to offer children a healthy environment to live in and capability for living a healthy, happy life in the home ( $\tau_b = .856, p=.000$ ), the capability to influence money spent in the home and the capability to influence decisions in the home ( $\tau_b = .790, p=.000$ ), and between the capability to decide how to live own life and the capability to decide how to raise own children ( $\tau_b = .788, p=.000$ ). The capability of restricting guests from smoking in the home was moderately

correlated with the capability of expressing freely in the home ( $\tau_b = .517$ ,  $p=.000$ ), and more weakly correlated, but still statistically significant, with all the other capabilities ( $\tau_b$  ranged from .192 to .370,  $p=.000$ ). The capability of influencing how people behave in the home was moderately correlated with multiple other capabilities, such as the capability to make structural changes in the home ( $\tau_b = .646$ ,  $p=.000$ ), the capability to decide on how to live own life ( $\tau_b = .601$ ,  $p=.000$ ), the capability to decide on how to raise own children ( $\tau_b = .609$ ,  $p=.000$ ), the capability to influence decisions in the home ( $\tau_b = .627$ ,  $p=.000$ ), the capability to influence how money is spent in the home ( $\tau_b = .618$ ,  $p=.000$ ), the capability to live a healthy, happy life ( $\tau_b = .513$ ,  $p=.000$ ), and the capability to express freely in the home ( $\tau_b = .501$ ,  $p=.000$ ).

**Table 14 - Correlation Matrix (Kendall's Tau-b) on Capability Items (n=188)**

|  | [1]    | [2]    | [3]    | [4]    | [5]    | [6]    | [7]    | [8]    | [9]    | [10] |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| [1] I am able to make structural changes in the home I live in, such as improvements or renovations, if I wanted to. | 1      |        |        |        |        |        |        |        |        |      |
| [2] I am able to influence how people behave in the home I live in.  | .646** | 1      |        |        |        |        |        |        |        |      |
| [3] I am free to decide how to live my life.   | .627** | .601** | 1      |        |        |        |        |        |        |      |
| [4] I am free to decide how to raise my children.  | .660** | .609** | .788** | 1      |        |        |        |        |        |      |
| [5] I am able to influence decisions taken in the home I live in.  | .554** | .627** | .612** | .531** | 1      |        |        |        |        |      |
| [6] I am able to influence how money is spent in the home I live in.   | .472** | .618** | .464** | .453** | .790** | 1      |        |        |        |      |
| [7] I am able to live a healthy and happy life in the home I live in.  | .490** | .513** | .657** | .578** | .594** | .553** | 1      |        |        |      |
| [8] I am able to offer my children a healthy environment to live in.   | .415** | .465** | .554** | .467** | .513** | .504** | .856** | 1      |        |      |
| [9] I don't feel I can express myself freely in the home I live in. <sup>rev</sup>                                   | .337** | .501** | .539** | .494** | .522** | .494** | .412** | .351** | 1      |      |
| [10] I cannot enforce guests not to smoke in the home I live in. <sup>rev</sup>                                      | .192** | .315** | .268** | .255** | .329** | .301** | .370** | .293** | .517** | 1    |

**Note.** \*\*significant at a <.000 level

A Principal Component Analysis (PCA) was run to identify the number of constructs and structure of this measure of capabilities. Initially, a factorability of the items was examined. I have observed that all the 10 items correlated at minimum of 0.5 with at least one other item, suggesting good factorability. Secondly, the Kaiser-Meyer-Olkin measure of sample adequacy was 0.842, above the commonly recommended value of 0.6, and Bartlett's test of sphericity was significant ( $\chi^2(45) = 1315.26$ ,  $p < .000$ ). Finally, the communalities were all above 0.5 (Table 15). The analysis yielded two factors with an Eigenvalue above 1, explaining a total of 66.556% of the variance. The first factor, with an Eigenvalue of 5.6, explained 56.255% of the variance for the entire set of variables. The factor loadings were moderately-high on all the variables, with the capability for imposing guests not to smoke in the home yielding the lowest factor loading of .518 (Table 13). This can potentially be explained by the fact that this capability was formulated very specific, and potentially could load differently on the construct. This assumption is supported by the second factor with an Eigenvalue of 1.03 (marginally above 1) which emerged in the analysis, explaining an additional 10.30% of the variance.

This second factor had relevant factor loadings on the restricting guests to smoke capability (.674) and an additional -.428 loading on the capability to make structural changes in the home. Two other items loaded above .3, capability to decide on how to raise kids (-.357) and capability to express freely in the home (.354). However, these three additional variables loaded better on the first component in the PCA, so the decision was made to keep them within the first construct. As a result, within this subsequent analysis, the decision was made to treat the capability items 1-9 as a composite scale and the specific capability of restricting guests from smoking in the home as an independent categorical variable. The 9-item scale also had an excellent internal reliability as measured via Cronbach's Alpha ( $\alpha = .913$ ). The computed general capability 9-item scale scores ranged from a minimum of 10 to a maximum of 27 ( $M = 23.3$ ,  $SD = 4$ ).



**Table 15 - Factor loadings and communalities based on a Principal Components Analysis for 10 items of the Capabilities Scale (n=188)**

| Items  | Factor Loadings |          | Communalities |
|--|-----------------|----------|---------------|
|  | Factor 1        | Factor 2 |               |
| I am able to make structural changes in the home I live in, such as improvements or renovations, if I wanted to. | 0.71            | -0.428   | 0.687         |
| I am able to influence how people behave in the home I live in.  | 0.793           |          | 0.630         |
| I am free to decide how to live my life.   | 0.829           |          | 0.766         |
| I am free to decide how to raise my children.  | 0.777           | -0.357   | 0.731         |
| I am able to influence decisions taken in the home I live in.  | 0.81            |          | 0.665         |
| I am able to influence how money is spent in the home I live in.   | 0.727           |          | 0.579         |
| I am able to live a healthy and happy life in the home I live in.  | 0.826           |          | 0.682         |
| I am able to offer my children a healthy environment to live in.   | 0.735           |          | 0.541         |
| I don't feel I can express myself freely in the home I live in. <sup>reversed</sup>                              | 0.725           | 0.354    | 0.652         |
| I cannot enforce guests not to smoke in the home I live in. <sup>reversed</sup>                                  | 0.518           | 0.674    | 0.723         |

**Note.** Factor loadings <.3 are suppressed

## Capability Items and Their Association with Smoking Behaviour in the Home

To measure the direct association between the 10 capability items and the outcome variable of interest (smoking behaviour in the home) a Chi-square analysis was conducted (Table 16). The analysis suggested a significant relationship between in-home smoking categories (non-smoking, ban-for-baby and smoking) with the capability to influence people's behaviour in the home ( $p=.005$ ), the capability to influence decisions in the home ( $p=.004$ ), the capability to influence money spent in the home ( $p=.002$ ), the capability to express freely in the home ( $p=.000$ ), the capability to live a healthy and happy life in the home ( $p=.035$ ), and the capability to restrict smoking for guests in the home ( $p=.000$ ). All other capability items did not yield a statistically significant association with in-home smoking.

**Table 16 - Association between capability measures and smoking behaviour in the home.**

|  | Non-Smoking | Ban for Baby | Smoking |                    |
|--|-------------|--------------|---------|--------------------|
| I am able to make structural changes in the home I live in, such as improvements or renovations, if I wanted to. |             |              |         |                    |
| Strongly Agree   | 86          | 22           | 17      | $\chi^2(4)=2.736$  |
| Agree  | 37          | 10           | 14      | $p=.603$           |
| Disagree + Strongly Disagree   | 6           | 2            | 2       | $n=196$            |
| I am able to influence how people behave in the home I live in.  |             |              |         |                    |
| Strongly Agree   | 77          | 21           | 11      | $\chi^2(4)=14.886$ |
| Agree  | 47          | 11           | 17      | $p=.005$           |
| Disagree + Strongly Disagree   | 4           | 2            | 6       | $n=196$            |
| I am free to decide how to live my life.   |             |              |         |                    |
| Strongly Agree   | 78          | 23           | 16      | $\chi^2(4)=3.872$  |
| Agree  | 48          | 9            | 17      | $p=.424$           |
| Disagree + Strongly Disagree   | 3           | 17           | 1       | $n=196$            |
| <i>Continued on next page</i>  |             |              |         |                    |
|  | Non-Smoking | Ban for Baby | Smoking |                    |

I am free to decide how to raise my children.

|                              |    |    |    |                   |
|------------------------------|----|----|----|-------------------|
| Strongly Agree               | 84 | 26 | 17 | $\chi^2(4)=5.717$ |
| Agree                        | 42 | 8  | 16 | $p=.221$          |
| Disagree + Strongly Disagree | 2  | 0  | 1  | $n=196$           |

I am able to influence decisions taken in the home I live in.

|                              |    |    |    |                    |
|------------------------------|----|----|----|--------------------|
| Strongly Agree               | 78 | 20 | 10 | $\chi^2(4)=15.582$ |
| Agree                        | 47 | 12 | 20 | $p=.004$           |
| Disagree + Strongly Disagree | 2  | 2  | 4  | $n=195$            |

I am able to influence how money is spent in the home I live in.

|                              |    |    |    |                    |
|------------------------------|----|----|----|--------------------|
| Strongly Agree               | 80 | 20 | 9  | $\chi^2(4)=17.270$ |
| Agree                        | 46 | 11 | 21 | $p=.002$           |
| Disagree + Strongly Disagree | 3  | 3  | 4  | $n=197$            |

I am able to live a healthy and happy life in the home I live in.

|                              |    |    |    |                    |
|------------------------------|----|----|----|--------------------|
| Strongly Agree               | 96 | 26 | 17 | $\chi^2(4)=10.323$ |
| Agree                        | 28 | 6  | 16 | $p=.035$           |
| Disagree + Strongly Disagree | 5  | 1  | 1  | $n=196$            |

I am able to offer my children a healthy environment to live in.

|                              |    |    |    |                   |
|------------------------------|----|----|----|-------------------|
| Strongly Agree               | 99 | 28 | 21 | $\chi^2(4)=5.106$ |
| Agree                        | 25 | 5  | 12 | $p=.227$          |
| Disagree + Strongly Disagree | 4  | 1  | 1  | $n=196$           |

I don't feel I can express myself freely in the home I live in.

|                        |    |    |    |                    |
|------------------------|----|----|----|--------------------|
| Strongly Agree + Agree | 12 | 3  | 14 | $\chi^2(4)=34.187$ |
| Disagree               | 21 | 4  | 11 | $p=.000$           |
| Strongly Disagree      | 95 | 27 | 9  | $n=196$            |

I cannot enforce guests not to smoke in the home I live in.

|                        |     |    |    |                     |
|------------------------|-----|----|----|---------------------|
| Strongly Agree + Agree | 2   | 1  | 23 | $\chi^2(4)=117.046$ |
| Disagree               | 6   | 1  | 5  | $p=.000$            |
| Strongly Disagree      | 121 | 31 | 6  | $n=196$             |

---

## Effect of Capabilities on In-Home Smoking

This section presents the results of the analyses which investigated the independent statistical effect observed between capabilities and in-home smoking. In the exploration on the effect of capabilities on in-home smoking, multinomial logistic regression analyses were conducted on the capabilities measures, in relation to the three categories of in-home smoking rules (non-smoking, ban-for-baby and smoking). The capability-related independent variables examined (in different models in order to avoid multicollinearity) were the 9-item Capabilities Score (CS) and the capability to restrict smoking for guests, as a distinct categorical measure.

### Direct Effect of Capabilities Score

Initially, a multinomial logistic regression model was performed to model the relationship between the predictors (CS and number of smokers in the home, while controlling for Respondent age) and membership in the three groups of smoking behaviours (non-smoking, ban-for-baby, and smoking). The predictor addition to a model which only contained the intercept significantly improved the fit between model and data,  $\chi^2(6) = 70.627$ ,  $p = .000$ , Nagelkerke  $R^2 = .38$ . Results also suggested that both CS and number of smokers in the home made significant unique contributions to the model (Table 17). The reference group used was the non-smoking group, and in the model each predictor had one parameter for predicting membership in the ban-for-baby group, and one for predicting membership to the smoking group.

**Table 17 - Multinomial Logistic Regression Model for General Capability Score: Predictors' Unique Contributions to the Multinomial Logistic Regression (n=184)**

| Predictor                 | Chi-square | df. | p    |
|---------------------------|------------|-----|------|
| General Capability Score  | 10.365     | 2   | .006 |
| Number of smokers in home | 52.842     | 2   | .000 |

**Note.** Model also controlling for respondent age.

Both predictors had statistically significant parameters in comparing the smoking group to the non-smoking group. The odds of falling in the smoking group compared to the non-smoking group significantly changes with both CS and number of smokers: for each unit decrease in the CS, the risk of falling into the smoking group multiplicatively increased by 1.20 (CI 1.06-1.36,  $p=.003$ ) and for each unit increase in the number of smokers in the home, the risk increased by 6.14 (CI 3.25-11.61). On the other hand, for the ban-for-baby group, the CS seems not to have any effect in relation to the non-smoking group ( $p=.789$ ); however for each unit increase in the number of smokers, the risk of falling in the ban-for-baby (compared to non-smoking) increased by an OR of 4.56 (CI 2.55-8.26,  $p=.000$ ) (Table 18).

To further observe the relationship between the ban-for-baby and smoking groups, the model was run again, with a change in the reference group, which was set for smoking (Table 19). In this way it could be observed that the risk for falling in the ban-for-baby group, compared to the smoking group, increased with 1.18 (CI 1.03-1.25,  $p=.014$ ) for every unit increase in the GCS. On the other hand, in this comparison, there was no significant contribution of the number of smokers in the home ( $p=.336$ ), in the risk of membership to the ban-for-baby group compared to the smoking group.

**Table 18 - Multinomial Logistic Regression Model for General Capability Score: Parameter estimates contrasting Non-Smoking Group versus Each of the Other Groups (n=184)**

| Predictor                 | Non-smoking vs. | B     | OR   | CI         | p    |
|---------------------------|-----------------|-------|------|------------|------|
| General Capability Score  | Ban-for-baby    | -.017 | .938 | .869-1.11  | .789 |
|                           | Smoking         | -.183 | .833 | .737-.942  | .003 |
| Number of smokers in home | Ban-for-baby    | 1.523 | 4.56 | 2.55-8.26  | .000 |
|                           | Smoking         | 1.816 | 6.14 | 3.25-11.61 | .000 |

**Note.** Model also controlling for respondent age.

**Table 19 - Multinomial Logistic Regression Model for General Capability Score: Parameter estimates contrasting Smoking Group versus Each of the Other Groups (n=184)**

| Predictor                 | Smoking vs.  | B      | OR   | CI        | p    |
|---------------------------|--------------|--------|------|-----------|------|
| General Capability Score  | Ban-for-baby | .166   | 1.18 | 1.03-1.25 | .014 |
|                           | Non-smoking  | .183   | 1.20 | 1.06-1.36 | .003 |
| Number of smokers in home | Ban-for-baby | -.293  | 0.75 | 0.41-1.36 | .336 |
|                           | Non-smoking  | -1.816 | 0.16 | 0.09-0.30 | .000 |

**Note.** Model also controlling for respondent age.

The interpretation of these results is that CS is an important predictor for group allocation between smoking and non-smoking groups on one hand and smoking and ban-for-baby groups on the other hand. However, it is not an important predictor for group allocation in between ban-for-baby and non-smoking groups. In this latter case, by looking at the conceptual definition of

our groups, the difference in ban-for-baby and non-smoking is attributed to the time of banning smoking (the outcome being the same) – so potentially other predictors could explain this relationship better. This interpretation is further supported by the behaviour of our second predictor analysed in the models. In this case, number of smokers was a significant predictor for group membership for smoking compared to non-smoking, and ban-for-baby compared to non-smoking. However, it was not a significant predictor for non-smoking compared to ban-for-baby. This could potentially be explained by the fact that there was no significant difference in between mean number of smokers in the home in the ban-for-baby ( $M=1$ ,  $SD=.14$ ) compared to the smoking group ( $M=1.34$ ,  $SD=.15$ );  $t(68)=-1.675$ ,  $p=.099$ .

## Direct Effect of Capability to Restrict Smoking for Guests

A second, similar, multinomial logistic regression model was conducted to explore the relationship between the predictors (in this case capability to restrict smoking for guests and number of smokers in the home, while controlling for respondent age) and membership to the same three groups of in-home smoking behaviours. In this model, the capability item (measured on a 3-point ordinal scale) was added as a categorical variable in the model. Regarding model fit, adding the predictors to the model which only contained the intercept significantly improved the fit between model and data,  $\chi^2(8)=129.718$ ,  $p=.000$ , Nagelkerke  $R^2=.59$ . Also, both predictors made significant unique contributions to the model (Table 20).

**Table 20 - Multinomial Logistic Regression Model for the Capability to Restrict Smoking for Guests: Predictors' Unique Contributions to the Model (n=192)**

| Predictor                                 | Chi-square | df | p    |
|---|------------|----|------|
| Capability to restrict smoking for guests | 70.693     | 4  | .000 |
| Number of smokers in home                 | 36.017     | 2  | .000 |

**Note.** Model also controlling for respondent age.

Very similar to the previous model that was conducted with the Capability Score as an independent variable, the capability to restrict smoking for guests was statistically significant in predicting group membership between non-smoking and smoking (although with very wide confidence intervals) (Table 21). The risk for falling in the Smoking group compared to the Non-smoking group increased by an OR of 142.63 (22.53-906.08,  $p=.000$ ), for participants who reported the lowest capability (category 1), in comparison to highest capability (category 3). The relationship was not maintained for the mid-level of self-reported capability (category 2), as the predictor was not statistically significant ( $p=.169$ ). Number of smokers remained a significant predictor in this model too, for both the smoking as well as the ban-for-baby groups ( $p=.000$ ).

**Table 21 - Multinomial Logistic Regression Model for the Capability to Restrict Smoking for Guests: Parameter estimates contrasting Non-Smoking Group versus Each of the Other Groups (n=192)**

| Predictor                                     | Non-smoking vs. | B      | OR   | CI         | $p$  |
|---|-----------------|--------|------|------------|------|
| Capability to restrict smoking for guests = 1 | Ban-for-baby    | -0.163 | .85  | .068-10.68 | .899 |
|   | Smoking         | -4.96  | .007 | .001-.045  | .000 |
| Capability to restrict smoking for guests = 2 | Ban-for-baby    | 0.028  | 1.03 | 0.04-28.73 | .987 |
|   | Smoking         | -1.528 | 0.22 | .03-1.91   | .169 |
| Capability to restrict smoking for guests = 3 | Ban-for-baby    |        |      | <i>ref</i> |      |
|   | Smoking         |        |      |            |      |
| Number of smokers in home                     | Ban-for-baby    | 1.415  | 4.12 | 2.35-7.22  | .000 |
|   | Smoking         | 1.606  | 4.98 | 2.19-11.35 | .000 |

**Note:** Model also controlling for respondent age.

When performing the same model with smoking as a reference group, similar to the previous model, the capability predictor was significant for both the non-smoking and the smoking groups (only for category 1) (Table 22). Consistent with the model for Capability Score model findings, number of smokers in the



home was not a significant predictor for ban-for-baby vs. smoking ( $p=.642$ ). Thus, the capability item focusing on restricting smoking for guests contributed to the model similarly as the Capability Score, although its categorical nature revealed higher ORs compared to the previous model (where the variable was continuous).

**Table 22 - Multinomial Logistic Regression Model for the Capability to Restrict Smoking for Guests: Parameter Estimates Smoking Group vs. Each of the Other Groups (n=192)**

| Predictor                                      | Smoking vs.  | B      | OR     | CI            | <i>p</i> |
|--|--------------|--------|--------|---------------|----------|
| Capability to restricts smoking for guests = 1 | Ban for Baby | 4.797  | 121.14 | 13.04-1125.64 | .000     |
|  | Non-smoking  | 4.96   | 142.63 | 22.53-906.08  | .000     |
| Capability to restricts smoking for guests = 2 | Ban for Baby | 1.556  | 4.73   | 0.22-102.01   | .321     |
|  | Non-smoking  | 1.528  | 4.61   | 0.52-40.64    | .169     |
| Capability to restricts smoking for guests = 3 | Ban for Baby |        |        | <i>ref</i>    |          |
|  | Non-smoking  |        |        |               |          |
| Number of smokers in home                      | Ban for Baby | -0.19  | .83    | 0.37-1.85     | .642     |
|  | Non-smoking  | -1.606 | 0.21   | 0.09-0.46     | .000     |

**Note:** Model also controlling for respondent age.

## Capabilities Interactions with Capitals

The final step of the data analysis was to measure any potential interaction effects in between the two capability measures and the economic, cultural, and social capital indicators. This section presents the findings of these analyses.

An initial multinomial regression model was built to explore the contribution of each type of capital to the risk of membership to any of the three smoking

groups (non-smoking, ban-for-baby, and smoking). Number of smokers in the home and maternal age were kept in the model, to which the social capital scale, financial strain scale and highest family education were added. In addition, a proxy for cultural capital for health was included in the model, through the dichotomous variable measuring women's knowledge on children's exposure to SHS. A significantly improved fit between the model and data was observed with the addition of the predictors to a model which only contained the intercept,  $\chi^2(14) = 74.477$ ,  $p = .000$ , Nagelkerke  $R^2 = .39$ . However, in terms of predictors, only number of smokers in home made a significant unique contribution to the overall model (Table 23).

**Table 23 - Multinomial Logistic Regression Model for the Capitals: Predictors' Unique Contributions to the Model (n=188)**

| Predictor                       | Chi-square | df | p    |
|---------------------------------|------------|----|------|
| Number of smokers in home       | 55.233     | 2  | .000 |
| Financial strain                | 2.487      | 2  | .288 |
| Social capital                  | 0.702      | 2  | .704 |
| Knowledge on SHS child exposure | 4.846      | 2  | .089 |
| Highest family education        | 6.005      | 4  | .199 |

**Note:** Model also controlling for respondent age.

None of the capitals predictors had statistically significant parameters in comparing the ban-for-baby group to the non-smoking group (Table 24). The only significant predictor observed was number of smokers in home. For each unit increase in number of smokers in home, the risk for falling in the ban-for-baby group rather than the non-smoking group multiplicatively increased by 4.22 (CI 2.40-7.42,  $p = .000$ ).

**Table 24 - Multinomial Logistic Regression Model for the Capitals: Parameter estimates contrasting Non-Smoking Group versus Each of the Other Groups (n=188)**

| Predictor  | Non-Smoking vs. | B     | OR   | CI         | <i>p</i>    |
|--|-----------------|-------|------|------------|-------------|
| Number of smokers in home                        | Ban-for-baby    | 1.441 | 4.22 | 2.40-7.42  | <b>.000</b> |
|  | Smoking         | 1.859 | 6.42 | 3.41-12.08 | <b>.000</b> |
| Financial strain                                 | Ban-for-baby    | -.061 | .94  | .74-1.21   | .632        |
|  | Smoking         | .159  | 1.17 | .90-1.52   | .234        |
| Social Capital                                   | Ban-for-baby    | .039  | 1.04 | .92-1.18   | .541        |
|  | Smoking         | .053  | 1.05 | .92-1.21   | .459        |
| Knowledge on children's SHS exposure = 0         | Ban-for-baby    | .07   | 1.07 | .03-3.84   | .915        |
|  | Smoking         | 1.282 | 3.60 | 1.11-11.69 | <b>.033</b> |
| Knowledge on children's SHS exposure = 1         | Ban-for-baby    |       | ref  |            |             |
|  | Smoking         |       |      |            |             |
| Highest family education = less than high-school | Ban-for-baby    | -.032 | .97  | .18-5.16   | .97         |
|  | Smoking         | -.014 | .99  | .17-5.71   | .988        |
| Highest family education = high-school           | Ban-for-baby    | .654  | 1.92 | .76-4.88   | .169        |
|  | Smoking         | 1.18  | 3.24 | 1.12-9.36  | <b>.03</b>  |
| Highest family education = university degree     | Ban-for-baby    |       | ref  |            |             |
|  | Smoking         |       |      |            |             |

**Note:** Model also controlling for respondent age.

In analysing the smoking group in relation to the non-smoking group, number of smokers in home, knowledge on children's SHS exposure as well as highest family education (high-school education) yielded significant parameters (Table 24). As a result, it was observed that the OR for number of smokers in the home was higher in this group, 6.42 (CI 3.41-12.08), compared to the ban-for-baby group. Also, not recognizing that children's exposure to SHS can have adverse health effects regardless of the child's age increased the risk for falling in the smoking group rather than the non-smoking group with an OR of 3.60 (CI 1.11-11.69,  $p=.03$ ). Finally, highest family education as high school,

compared to a university degree, increased the risk for membership in the smoking group by OR of 3.33 (CI 1.12-9.36,  $p=.03$ ).

The next steps in the analysis were to replicate the multinomial regression model to explore the predictive power of capitals indicators while controlling for the two capital measures, in relation to the risk of membership to any of the three smoking groups (non-smoking, ban-for-baby and smoking). As a result, two new models were run (Model 2 and Model 3), each controlling for one of the two capability measures (Table 23). They were not included in the model together to avoid the risk of multicollinearity.

In terms of predictors, I could observe some changes. If for Model 1, only number of smokers in the home made a significant unique contribution, in Model 2 the CS also had a significant contribution ( $p=.01$ ) and in Model 3 the capability to restrict smoking for guests and social capital were identified as bringing significant contributions to the model ( $p=.000$  and  $p=.003$ ).

**Table 25 - Predictors' Unique Contributions in the Multinomial Logistic Regressions**

| Model 2 ( <i>n</i> =179)                  |            |    |      |
|---|------------|----|------|
| Predictor                                 | Chi-square | df | p    |
| Number of smokers in home                 | 51.47      | 2  | .000 |
| Financial strain                          | 2.375      | 2  | .305 |
| Social Capital                            | 2.241      | 2  | .326 |
| Knowledge on SHS child exposure           | 3.532      | 2  | .171 |
| Highest family education                  | 7.128      | 4  | .129 |
| General Capability score                  | 9.225      | 2  | .01  |
| Model 3 ( <i>n</i> =184)                  |            |    |      |
| Predictor                                 | Chi-square | df | p    |
| Number of smokers in home                 | 34.804     | 2  | .000 |
| Financial strain                          | 2.968      | 2  | .227 |
| Social Capital                            | 11.477     | 2  | .003 |
| Knowledge on SHS child exposure           | 0.403      | 2  | .817 |
| Highest family education                  | 5.819      | 4  | .213 |
| Capability to restrict smoking for guests | 73.033     | 3  | .000 |

Table 26 shows parameter estimates comparatively, of the initial regression model (Model 1) discussed above, alongside with Model 2 (which controls for CS) and Model 3 (which controls for the capability to restrict smoking for guests). Results of the comparative analysis suggests that in all three models, number of smokers in the home is a significant predictor, for both the ban-for-baby as well as the smoking groups, in relation to the non-smoking group. The economic capital measure (financial strain) was not visibly influenced by the introduction of the CS variable (Model 2), nor the specific capability to restrict smoking for guests (Model 3).

However, I observed an interaction between the social capital measure and its predictive role in Model 3, which I had not initially observed in Model 1. More specifically, in Model 1, social capital was not a significant predictor of group membership. However, when the capability to restrict smoking for guests was included in the analysis (Model 3), social capital became a significant predictor with OR 1.59 (1.17-2.15),  $p=.003$  for the smoking group. In other words, the risk for falling in the smoking group compared to the non-smoking group increases with 1.59 with the progression of the social capital score, when the capability to restrict smoking for guests is kept constant. This relation was not observed in the ban-for-baby group, in relation to the non-smoking group. The model was also run with inversing the reference group to smoking, to observe the predictive power of the same variable in group allocation between smoker and ban-for-baby. Results were consistent with my previous findings, where allocation to the smoking group compared with non-smoking and ban-for-baby were determined by similar statistical predictors. The risk of falling into the smoking compared to the ban-for-baby group increases with 1.52 for every increase in the social capital score, when controlling for the capability to restrict smoking for guests (OR= .662, CI=.486-.901,  $p=.009$ ).

**Table 26 - Comparative Multinomial Logistic Regression Models for Capabilities, while Controlling for Capability Measures: Parameter estimates contrasting Non-Smoking Group versus Each of the Other Groups.**

| Predictor  | Non-Smoking vs. | Model 1                             | Model 2                             | Model 3                             |
|--|-----------------|-------------------------------------|-------------------------------------|-------------------------------------|
|  |                 | OR (CI), <i>p</i>                   | OR (CI), <i>p</i>                   | OR (CI), <i>p</i>                   |
| Number of smokers in home                        | Ban for Baby    | 4.22 (2.40-7.42)<br><i>p</i> =.000  | 4.40 (2.44-7.94)<br><i>p</i> =.000  | 4.47 (2.48-8.06)<br><i>p</i> =.000  |
|  | Smoking         | 6.42 (3.41-12.08)<br><i>p</i> =.000 | 6.80 (3.40-13.57)<br><i>p</i> =.000 | 5.22 (2.05-13.33)<br><i>p</i> =.001 |
| Financial strain                                 | Ban for Baby    | .94 (.74-1.21)<br><i>p</i> =.632    | .93 (.71-1.20)<br><i>p</i> =.559    | .94 (.72-1.22)<br><i>p</i> =.633    |
|  | Smoking         | 1.17 (.90-1.52)<br><i>p</i> =.234   | 1.18 (.88-1.58)<br><i>p</i> =.272   | 1.48 (.91-2.40)<br><i>p</i> =.118   |
| Social Capital                                   | Ban for Baby    | 1.04 (.92-1.18)<br><i>p</i> =.541   | 1.04 (.90-1.19)<br><i>p</i> =.610   | 1.05 (.9101.21)<br><i>p</i> =.504   |
|  | Smoking         | 1.05 (.92-1.21)<br><i>p</i> =.459   | 1.13 (.96-1.34)<br><i>p</i> =.143   | 1.59 (1.17-2.15)<br><i>p</i> =.003  |
| Knowledge on children's SHS exposure = 0         | Ban for Baby    | 1.07 (.03-3.84)<br><i>p</i> =.915   | 1.16 (.32-4.20)<br><i>p</i> =.825   | 1.45 (.39-5.38)<br><i>p</i> =.580   |
|  | Smoking         | 3.60 (1.11-11.69)<br><i>p</i> =.033 | 3.40 (.94-12.37)<br><i>p</i> =.063  | 1.57 (.21-11.80)<br><i>p</i> =.659  |
| Knowledge on children's SHS exposure = 1         | Ban for Baby    | <i>ref</i>                          | <i>ref</i>                          | <i>ref</i>                          |
|  | Smoking         |                                     |                                     |                                     |
| Highest family education = less than high-school | Ban for Baby    | .97 (.18-5.16)<br><i>p</i> =.970    | 1.33 (.22-7.94)<br><i>p</i> =.753   | .45 (.06-3.21)<br><i>p</i> =.427    |
|  | Smoking         | .99 (.17-5.71)<br><i>p</i> =.988    | .45 (.06-3.51)<br><i>p</i> =.447    | .77 (.07-8.20)<br><i>p</i> =.827    |
| Highest family education = high-school           | Ban for Baby    | 1.92 (.76-4.88)<br><i>p</i> =.169   | 2.29 (.85-8.93)<br><i>p</i> =.091   | 2.01 (.78-5.23)<br><i>p</i> =.151   |
|  | Smoking         | 3.24 (1.12-9.36)<br><i>p</i> =.030  | 2.76 (.85-8.93)<br><i>p</i> =.091   | 4.11 (.70-24.09)<br><i>p</i> =.117  |
| Highest family education = university degree     | Ban for Baby    | <i>ref</i>                          | <i>ref</i>                          | <i>ref</i>                          |
|  | Smoking         |                                     |                                     |                                     |

**Note:** Model 2 controlling for Capability Score; Model 3 controlling for capability to restrict smoking for guests; All models controlling for respondent age.

Further analyses into the relationship between these two variables (social capital and the capability measure) suggested that the group with the highest capability level in restricting smoking in the home for guests, also reported highest means on the social capital scale ( $M=18.3$ ,  $SD=3.9$ ), compared to the other two groups whose scores ranged between 16.7 (lowest capability) and 16.5 respectively. However, this difference was only borderline statistically significant, as tested with ANOVA ( $F(2,191)=2.877$ ,  $p=.059$ ). Additionally, as mentioned earlier in this chapter, social capital measures were also not significantly different across the three groups studied (smoking, non-smoking and ban-for-baby). I also further investigated whether the higher prevalence of smokers in the social group of the respondents in the smoking group, could explain why an increased social capital (when controlling for the capability to restrict smoking for guests) increases the risk for allocation to the smoking group, compared to the non-smoking group and the ban-for-baby group. Consequently, I ran Model 3 again, including a measure of smoking in the social group. However, introducing this variable in the model did not change the parameter estimates for social capital significantly (OR: 1.53, CI: 1.11-2.10,  $p=.010$ ). Thus, these results should further be assessed to investigate a mediation relationship of the capability to restrict smoking for guests, on the relationship between social capital and in-home smoking rules, and potentially on larger sample sizes.

In relation to cultural capital and cultural capital for health indicators (highest family education and knowledge on the effects of children's exposure to SHS), I observed a similar behaviour of the statistical predictors in Models 2 and 3, when the capabilities measures were introduced. In the absence of the capabilities measures (Model 1), the two variables were significant predictors of group allocation in smoking compared to non-smoking (SHS knowledge  $p=.033$ , highest family education  $p=.030$ ). However, both capitals measures lost their statistical significance in Model 2 and Model 3, suggesting an interaction between capabilities and cultural capital measures.

## Summary of Main Quantitative Findings

The data presented in this chapter suggested that almost one half of my respondents lived in a home with at least one smoker, but in less than one fifth of the cases, they were smokers themselves. The quantitative analysis allowed me to identify and explore three different approaches to in-home smoking, as reported by respondents in the sample. They were defined and used in the analysis via three groups, based on reported smoking behaviour in the enclosed spaces of the home (regardless of the source of the smoking – members of the home or external persons). As a result, I have mapped a non-smoking group (homes that ban smoking, but the ban was reported not to be associated with the arrival of a new baby in the home), a ban-for-baby group (homes identifying as non-smoking, with the decision being made in association with the arrival of a baby) and a smoking group (homes in which smoking was permitted). In my sample, two thirds of the respondents lived in the non-smoking home category, while one third were equally divided between the smoking and the ban-for-baby homes. Differences between these groups were considered essential in understanding the structural determinants of banning smoking in homes with young children, as a result they were pursued in further analyses.

When exploring structural determinants in the form of capitals (economic, social, and cultural), no significant differences were observed across the groups, and the capitals did not seem to contribute significantly to the risk of falling in either of the three groups analysed. Some contribution was observed in the risk of falling in the smoking group compared to the non-smoking groups, with increased odds for staying in the smoking group attributed to low knowledge of the SHS effect on children, and lower family education (high-



school highest family education compared to university degree). However, this effect was lost when controlling for capabilities in the same models, suggesting some interactions in between capabilities and capitals.

When examining structural determinants in the form of capabilities, these seemed to be associated with home smoking, and were more influential statistical predictors of risk for falling in the smoking group, compared to non-smoking and ban-for-baby. In terms of the comparative risk of falling into the ban-for-baby group compared to the non-smoking group, capabilities were less important, also because the difference in capability measures between these two groups were very small and non-significant. These results were consistent across analyses where I used the Capability Score as a measure, and the models in which I used a specific measure of capability to restrict smoking for guests. These results suggest that capability measures may have the potential to explain the transition from smoking to ban-for-baby but have less predictive power when looking at ban-for-baby compared to non-smoking.

The relation between capitals and capabilities is very complex, however the current analyses allowed me to explore whether there were any interactions between these predictors in relation to the analysed groups. Aside from the loss of predictive power of SHS knowledge and highest family education when exploring the risk of falling in the smoking vs. non-smoking groups, it was also observed that social capital became a significant predictor, in the presence of the capability to restrict smoking for guests. It could thus be observed that even if social capital was not a significant predictor when only including capitals in the model, it became significant when controlling for the capability to restrict smoking for guests. Finally, capabilities brought significant contributions to the models in which capitals were included, suggesting that even in the presence of capitals, they are still significant statistical predictors in understanding group membership. In the next chapter, I will discuss more in depth these findings, in the context of the current literature.

## **Chapter Six: Discussion**

This chapter critically examines the main findings of my empirical part, with reference to the current literature. I start the chapter with a discussion on the relevance of the research, considering the body of knowledge existing on the topic. I continue with a section on the main contributions to the literature, with a focus on the role of values in defining capabilities, the dimensions for the capability for smoke-free homes, the structural determinants of smoke-free homes, and ultimately the use of capabilities as statistical predictors for in-home smoking. I also discuss within this chapter implications for further research, based on the latest advancements in the field of capabilities and tobacco control. I approach issues around conceptualising and measuring capabilities, moving towards more holistic assessments of individual capabilities in the wider social and family dynamics, and the potential positioning of capabilities in the wider discussions stemming from behaviour change frameworks. The final section of the discussion chapter describes the limitations of the study design and the research challenges encountered in my process. The main points are also summarised at the end of the chapter.

## Relevance of the Research

My research used a mixed-methods, sequential research design, with a qualitative component followed by a quantitative component, to understand potential applications of the capability approach for investigating in-home smoking, as experienced and reported by mothers of young children. The study enrolled 17 women for qualitative interviews and 202 women for a telephone-administered questionnaire. All participants were mothers of children aged 3 or younger and were recruited from general practitioner offices and one Paediatrics outpatient clinic in Mures county, Romania. The design allowed the investigation of the complex relationship between in-home smoking practices and their structural determinants, with a focus on women's capabilities. The initial qualitative study explored women's narratives to identify capabilities relevant to in-home smoking decisions, while the subsequent quantitative research aimed to measure the effect of capabilities on such decisions, as well as observe any interactions with capitals (or resources). The qualitative study also informed the development of the instruments and measures of the subsequent quantitative study.

Protecting children from the harmful effects of SHS exposure is a critical public health problem, which needs to be addressed to reduce tobacco-attributable mortality and morbidity. Exposure to second-hand tobacco smoke (SHS) is linked to adverse health effects in children, ranging from respiratory, cardiovascular and oncological outcomes, to neurobehavioral and developmental delays (Makadia, Roper, Andrews, & Tingen, 2017; Salem, Saheen, & Allam, 2020; Braun, Klingelhofer, Oremek, David, & Groneberg, 2020). Global estimates from 2017 suggest that 1.2 million deaths were attributable to SHS exposure, with more than 63,000 occurring among children aged 10 or younger (Carreras, et al., 2020). In addition, younger children who spend more time at home, are at increased risk for higher exposure to SHS smoke, compared to older counterparts, when given the same level of parental smoking (Kim, et al., 2009). This evidence underpinned the rationale for

focusing my PhD topic on exploring smoking behaviour in homes with young children (36 months or younger).

Although data on children's SHS exposure in Romania was scarce when I started working on this research topic, a pilot study developed in 2011 on a sample of 1177 sixth grade children in Cluj-Napoca, Romania, revealed that one third lived with at least one smoker in the home, and 42.8% reported being exposed daily to SHS in their home (Brinzaniuc, Chereches, Rus, Duse, & Pop, 2011). A more recent study using a nationally representative sample in 2016 (post my data collection), uncovered that only one third of adult respondents living with children had a total ban on smoking in their homes, whereas almost half (46.7%) reported a partial ban, with smoking restricted to certain areas or time periods (Fu, et al., 2019). Results of my current study, presented in this thesis, also suggests that more than 40% of women reported living in a household with at least one smoker, 18.4% identified as a smoker themselves, while 33.7% reported living with a smoker partner. These data suggest that the issue of children's SHS exposure is still a significant public health concern, the complexity of which needs to benefit from increased public health attention.

### *Romania: its socio-economic and tobacco epidemic transitions*

The setting selected for the empirical part of my thesis was Romania, an Eastern-European country with a population of roughly 19 million people. Although improvements have been observed in the past years, Romania has one of the lowest life expectancies in the EU (6 years behind the EU average) and has experienced sharp inequalities in life expectancy by educational level (World Health Organization, 2019). Behavioural risk factors account for half of all deaths at a national level (World Health Organization, 2019). Based on Lopez's model of the four stages of the smoking epidemic, at the time of data collection, Romania could have been positioned in stage III transitioning to stage IV of the epidemic. This stage is characterized by emerging social inequalities in smoking (Lopez, Collishaw, & Piha, 1994). The available empirical evidence from that time period supports this smoking epidemic positioning.

Studies conducted on data from 2011, suggested that Romanian adults were situated slightly below the cut-off value for measurable wealth and educational inequalities in exposure to SHS in the home (Nazar, Lee, Arora, & Millett, 2016). A more recent study, collecting data between 2012-2015, reported an increased likelihood of women with higher education and income quitting smoking during pregnancy, but a relatively high proportion of women from high socioeconomic groups continued to smoke throughout pregnancy (Blaga, Brînzaniuc, Rus, Cherecheș, & Wallis, 2017).

At the time of data collection for the current research, Romania was classified as a middle-income country, having graduated to a high-income country in 2019 (The World Bank, 2021). This period was defined by a rapid growth, from both an economic as well as human development perspective. For example, from 2010 to 2019, life expectancy at birth increased by 2 years and GNI per capita increased by about 47% (UNDP, 2021). Even though in 2011 Romania was considered an economically developing country, it currently ranks 49 from 182 countries included in the Human Development Index and is considered to have a very high human development (United Nations, 2021). The research conducted for this thesis aimed to bring more evidence in understanding the social patterning of smoking behaviour in homes with young children, in a social context defined by Romania's transitioning from an economically developing country to a high-income country, in a time when social disparities in smoking and SHS exposure were still emerging. This allowed my research to capture a diversity of social dynamics, at a time when the social gradient in smoking was not established. This was reflected in my data by the limited statistical contribution of capital measures to the measured outcomes.

### *Relevance of a capability approach to health behaviours*

According to Marta Nussbaum, monitoring of social justice and health disparities is essential even for the more developed countries, to ensure adequate opportunities for each individual. Nussbaum points out when referring to the Human Development Reports that:

“All nations, however, contain struggles for lives worthy of human dignity, and all contain struggles for equality and justice (...) All nations, then, are developing nations, in that they contain problems of human development and struggles for a fully adequate quality of life and for minimal injustice. All are currently failing at the aim of ensuring dignity and opportunity for each person. For all [nations], then, the Capability Approach supplies insight” (Nussbaum M. C., 2011, p. 16)

Guided by this school of thought, and drawing from the works of Sen, Nussbaum, Robeyns, Abel & Frohlich, Wolff & De-Shalit, Venkatapuram, I aimed to demonstrate an operationalisation of capability theory for the exploration of in-home smoking behaviours, as experienced and reported by mothers of young children in a Romanian setting. The research design allowed me to identify and map capabilities related to restricting smoking in the home, as they were interpreted from the qualitative analysis of women’s narratives. It also allowed me to observe statistical differences across homes in which smoking was not allowed, homes in which smoking was banned due to the arrival of a new child in a family, and homes in which smoking was permitted, with a specific focus on capabilities. Results suggested that women were more likely to belong to the smoking-permitted group, compared to both the ban-for-baby and the non-smoking group, if they reported lower capabilities. This relationship was maintained for both the capability to restrict smoking for guests, as well as a more general capability score. Even more interestingly, when comparing the ban-for-baby with the non-smoking group, capabilities seemed not to impact group allocation. This suggests that reduced capabilities are only associated with being allocated to the smoking-permitted group, when compared to the other two groups.

The capability approach (CA) places at its core individuals and their values, as well as their “practically possible opportunities” to achieve outcomes, towards a “good or flourishing life” (Chiappero-Martinetti & Venkatapuram, 2014). As a result, it distances itself from the purely resource-focused approach to health inequalities (Ruger, 2010). In the pursuit of understanding the social determinants of children’s exposure to second-hand tobacco smoke, the capability of caregivers to ensure smoke-free homes for their children was considered essential, thus it became the focus of this research initiative.

The potential of this framework lies in a comprehensive approach, bridging structure and agency, allowing a more in-depth and contextualized understanding of smoking dynamics. Frohlich (2013) makes an important case for employing capability theory for vulnerable populations and public health approaches to non-communicable diseases. She describes differential capabilities as pivotal on the effect of population-level interventions across different social groups and cautions that not accounting for them could lead to widening inequalities (Frohlich, 2013). The long-term goal of my research was to offer insights to move beyond behaviour-focused interventions, and to inform more complex interventions, which consider smoking dynamics and structural determinants, to maximise equity and social justice. This latter goal was guided by the pragmatic paradigm in which the current research was conducted, whereas I recognise the limitation of the critical realist paradigm in being used to predict phenomena and support building interventions.

The capability approach has been increasingly adopted in public health, one evidence being the introduction of capability assessment tools within the UK's NICE guidance (National Institute for Health and Care Excellence, 2014). Also, the 2016 Lancet Commission on adolescent health and wellbeing centres its recommendations on achieving human potential and emphasizes the importance of focusing on creating optimal contexts for the developing capabilities of youth (Patton, et al., 2016). However, researchers have pointed out that more methodological work is needed to understand the operationalisation of health among capability sets – clarifying for example if health is an end (a specific capability) or a means (to achieve other capabilities) (Kinghorn, 2015). In other words, should we include health-specific capabilities in empirical investigations or just acknowledge the importance of health as a determinant of other capabilities. Kinghorn, as a researcher focusing on patients with chronic pain (Kinghorn, Robinson, & Smith, 2014), encourages the process of identifying important capabilities through participatory research, in order to move beyond generic measures, to allow the uncovering of important capabilities for specific groups (Kinghorn, 2015). My own position resonates with that of Kinghorn's as I propose that capabilities could also be

useful in the development of health interventions, and not only as global evaluation measures. As a result, in the research conducted within the current thesis, I have attempted to understand if such capabilities could be formulated around in-home smoking, as they could theoretically have the potential for understanding smoke-free decisions. Investigating women's "beings and doings" related to protecting children from SHS, could offer more insights for effective interventions.



## Main Contributions to the Literature

This section critically discusses the main findings of the presented research, in the context of the most recent developments and critiques emerging around the capability approach. It starts with a discussion on the role of values in the definition of capabilities as they emerged from my research, in relation to an alternative value-neutral approaches discussed in the literature. It continues with a discussion on the main dimensions for the capability for smoke-free homes, identified in my qualitative research and further statistically explored in my quantitative research. Finally, I discuss the findings relating to the structural determinants of in-home smoking decisions as well the role of capabilities in statistically predicting these decisions. As the data integration strategy for the four initial research questions was discussed in more detail in Chapter 3, the additional table below describes the integration of qualitative and quantitative data for the points described in this section.

**Table 27** Integration of qualitative and quantitative data in inferring main contributions to the literature

| Discussed finding  | Data integration strategy   |
|--|---|
| Values and the capability for smoke-free homes             | Finding inferred from qualitative data exclusively.   |
| Dimensions of the capability for smoke-free homes          | Initial mapping of capability dimensions was conducted through the qualitative research, and further tested statistically through the quantitative strand. Quantitative results are also further contextualised using qualitative insights. |
| Structural determinants of in-home smoking practices       | Inferred from quantitative findings and contextualised using qualitative insights.  |
| Capabilities as statistical predictors of smoke-free homes | Finding inferred from quantitative data exclusively.  |
| Capabilities' interactions with capitals                   | Inferred from quantitative findings and contextualised using qualitative insights.  |

### *Values and the capability for smoke-free homes*

Sen describes capabilities in terms of freedoms which allow people “to choose the lives that they have reason to value” (Sen, 1992, p. 81). As a result, values regarding a certain behaviour or action are core to defining capabilities. Recent critiques of Sen’s definition aim to promote a value-neutral approach, which does not account for the “have reasons to value” dimension of “doings and beings” articulated by Sen (Fibieger Byskov, 2020). Fibieger Byskov (2020) reasons that the volatility and the undefined nature of values limits the applicability of the capability approach. However, the current study brings qualitative evidence that the values component from Sen’s definition is critical when discussing smoking behaviours. My qualitative data suggested that women expressed health, moral and social values associated with restricting smoking in the home, thus they valued this capability and reported reasons to value it. Smoker mothers also valued smoking behaviour as a coping or empowerment mechanism, which in some cases created tensions between the capability to smoke and the capability to maintain the home smoke-free. From this perspective, the investigation of the “have reason to value” component allowed a more comprehensive understanding of women’s capability for smoke-free homes, as well as the potential of transforming those capabilities into functionings. These findings suggest that in the case of smoking behaviour, values associated with the functionings should be carefully observed.

### *Dimensions of the capability for smoke-free homes*

Moving beyond values, the qualitative research also focused on gaining greater understanding of, as well as define, the sets of alternatives or opportunities women had, to realize functionings. In other words, how could the capability for smoke-free homes be conceptualised. Using Nussbaum’s question “What is this person able to do and be?” (Nussbaum M. C., 2011, p. 20), the research uncovered several themes which were discussed by women in relation to smoking inside the home. As the study enrolled women with diverse socio-

economic backgrounds, as well as living in diverse smoking contexts, it allowed the exploration of their discourses to identify common or diverging themes.

In my qualitative study, capability was often discussed by women from the perspective of realized functionings, but it offered an exploration platform for investigating and defining capability for smoke-free homes, through their narratives. These mechanisms have been previously identified in the literature, where valued functionings (also known as “well-being achievements”), outcomes relevant to individual values (also known as “agency achievements”), the ability to achieve in terms of well-being (“well-being freedoms”) and in accordance with one’s own values (“agency freedoms”) are used as a relevant mechanisms to evaluate capabilities, which are harder to articulate (Gasper, 2007).

Women reported different levels of perceived control over their living environment. This was described as a constraint for the ones who lived with smokers, even if they reported an increased value for smoke-free homes. In a small number of individual cases, limited control over the living environment also seemed to protect from smoking in the home, where the extended family had a higher value for non-smoking, compared to the mother. This duality of level of control was further explored quantitatively and results suggested similar mixed results, in the sense that I have not found a statistically significant association between perceived level of control and in-home smoking decisions. This finding can be further contextualised with recent ethnographic research conducted in the field of capability approaches to nutrition, where agency dynamics between family members were relevant in food choices in the home, even if mothers were usually the ones doing the cooking (Visser & Haisma, 2021). In other words, the complexities of in-home power dynamics and in-home negotiations cannot be captured only by looking at perceived level of control.

For non-smoker mothers especially, the main tension with the capability to maintain the home-smoke free was the one for social relations or affiliation. As the qualitative data suggested, this was most present in the context of smoker

social connections and family members. Some women reported navigating trade-offs between maintaining favourable social relations and maintaining a smoke-free home. Some reported using avoidance and distancing strategies such as not dealing with the situation. Others addressed the situations using problem solving, in the form of harm minimizing strategies (such as intensified ventilation of rooms or restricting smoking to a room to which children did not have access to), non-verbal interactions to minimize tensions (such as not owning ashtrays) or even confrontational strategies (with the smokers). The latter was described by women who also discussed increased capabilities in general, such as ability to make decisions in the home or had reported increased control over their living environment. Wolff and De-Shalit (2007) make a similar case for trade-offs when discussing risks associated with functionings. They conceptualize the “inverse cross-category risk” as defining a situation when individuals secure a functioning, by taking actions which put the security of another functioning at risk, or even completely sacrifice it (Wolff & de-Shalit, 2007, pp. 70-71). In this case, women were putting the ban of in-home smoking at risk (even if they reported reasons to value it), to secure social affiliation and social relations functionings.

A connected theme which was constructed when analysing capabilities was women’s ability to restrict smoking for visitors or guests (people who did not live in the same dwelling). The “guest status” and social interactions with people who came to visit was described as difficult by some women who lived in households in which smoking did not usually occur, but felt guests had a different status. For women who lived in a household where smoking was permitted, they did not feel they could restrict smoking for guests as household members smoked themselves. And in dwellings in which harm reduction strategies were employed and smoking was restricted to certain parts of the home (or even banned completely), some would relax those restrictions when having guests. This finding is consistent with similar results of a qualitative study in Scotland, conducted after the implementation of smoke-free legislation. It identified a particular normative discourse around smoking in the home, related to an “acceptable social identity as a hospitable person who is

not anti-smoker” (Phillips, Amos, Ritchie, Cunningham-Burley, & Martin, 2007). Other studies on in-home smoking among disadvantaged caregivers, revealed a lack of autonomy in restricting smoking for visitors, especially in relation to smoker family and friends who supported them in caregiving. This was attributed to the fear of affecting social relations and losing child support (Jones, et al., 2011). Based on these findings, it appeared that this capability of restricting smoking for guests was expressed for both smoking households as well as households in which women expressed lower capability to maintain a smoke-free environment. Evidence from systematic reviews approaches this duality, reflecting a concern for respecting “the need to smoke” for other smokers, as well as the “fear of being seen as hypocrite” when individuals smoked themselves (Passey, Longman, Robinson, Wiggers, & Jones, 2016).

Due to the nature of this capability, it was further investigated quantitatively, as it seemed to be a core difference between women who felt they had increased capabilities around keeping the home smoke-free and the ones who did not (regardless of the structural factors which shaped the capability). The results of the quantitative data further supported the relevance of this capability, in the sense that it statistically predicted group allocation across in-home smoking groups.

### *Structural determinants of in-home smoking practices*

The sample structure of the quantitative component of the research allowed the investigation of differences across the three distinct groups, defined by smoking behaviour inside the home. The empirically observed differences across these three groups was identified as critical in understanding the potential predictors for falling into one group or another, especially in the case of ban-for-baby in comparison with smoking groups.

From a capitals’ perspective, the smoking group had lower levels of family education (cultural capital), a slightly higher prevalence of low knowledge regarding the risk of children’s SHS exposure (cultural capital for health), but not statistically significant, higher levels of self-reported financial strain, and no significant differences across income levels (economic capital), compared to

the other two groups. Also, no difference across social capital was observed between the three groups. These findings are consistent with the literature, as at the time of data collection, Romania was still going through a smoking transition, in which social disparities in smoking were emerging. As a result, the lack of a clear social gradient reflecting inequalities in smoking across multiple capital measures can be potentially explained by the phase in the smoking epidemic of Romania, when the quantitative data were collected.

From a smoking perspective, there were significant differences between the three groups with regards to maternal smoking, paternal smoking as well as the total number of smokers in the home. In this sense, smoking homes had a higher proportion of smoker mothers, smoker fathers as well as a higher average number of smoker household members. Similar results are present in the literature suggesting that homes with one or two smoker household members are less likely to report a smoking ban in the home (Zhang, Martinez-Donate, Kuo, Johnes, & Palmersheim, 2012). Studies also suggest that in-home smoking bans are associated with nation-level control policies (Ferketich AK, 2016), and at the time of data collection, Romania did not even have a full ban on smoking in all public indoor spaces. The latter was only implemented in March 2016 (Szabo, et al., 2016, pp. 28-30).

### *Capabilities as statistical predictors of smoke-free homes*

Based on the existing literature and the findings of the qualitative research, a set of 10 capabilities were articulated, which were then used in the quantitative study. These capabilities were identified as being closely connected to women's ability to restrict smoking in the home. Thus, in the quantitative study, respondents rated how much they felt they could: express themselves freely in the home they live in; influence how people behave in the home; decide how to live their own life; feel free to raise their own children as they would like to; influence decisions within the home; make structural changes in the home; influence how money is spent in the home; live a healthy happy life themselves; provide a healthy environment for their children to grow in; restrict smoking for

guests. These measures constituted the main capabilities constructs used in the analyses.

The quantitative data thus supported the statistical testing of individual capabilities based on the themes identified in the qualitative data. The direct association between capability items and in-home smoking practice (smoking, non-smoking, ban-for-baby) suggested that six out of ten formulated capabilities were associated with in-home smoking outcomes (or functioning). These were (the capability to) influence how people behave in the home, influence decisions in the home, influence how money is spent in the home, live a healthy and happy life, express freely in the home, and restrict smoking for guests. These constructs have the potential to be further tested in other populations, as this is the first study to map the capability space of in-home smoking, in homes with young children.

Beyond individual associations, a generic capabilities construct was also defined based on 9 of the capability items listed above, while the smoking-specific capability to restrict smoking for guests was used independently in the statistical models, to offer insights on the predictors of smoke-free homes. Both measures had a direct effect on group membership (non-smoking, ban-for-baby, smoking) even after controlling for total number of smokers in the home. However, both measures better predicted group membership when comparing smoking with ban-for-baby and non-smoking but had no statistical effect when comparing ban-for-baby and non-smoking. A potential explanation is the fact that for both measures, the ban-for-baby group was much more similar in terms of capabilities to the non-smoking group, than the smoking group. This finding was even more interesting as I could not detect major capitals differences across groups, yet capability differences were more detectable and predicted better smoking bans in my sample. Although there is limited application and empirical evidence of capability as a predictor of health behaviours in the literature, caregiver capability is conceptualised as an important factor in child health outcomes, such as child growth (Yousefzadeh, Biggeri, Arciprete, & Haisma, 2019). As a result, the current research brings

novel, empirical evidence of the predictive power of capability measures on health behaviours, and more specifically in-home smoking restrictions.

### *Capabilities' interactions with capitals*

When exploring capitals in the presence of capabilities, an important finding was that when I controlled for capabilities, cultural capital for health lost its statistical significance when comparing the smoking group to the non-smoking group. Similarly, when controlling for the capability to restrict smoking for guests, social capital became a significant predictor for group membership, when comparing smoking and non-smoking, as well as smoking and ban-for-baby. These interactions are consistent with the theoretical framework I put forward in my quest to conceptualise the relationship between resources (capitals) and capabilities. Even though the importance of resources and their availability is recognized within the capability approach, they are not central to this framework, as they are seen as only a set of determinants for the range of options available for one's health agency (Abel & Frohlich, 2012). Resources are moderated by conversion factors, such as personal skills, bodily health, cultural norms, structural determinants, which affect capabilities and their potential to be turned (or converted) into functionings (López Barreda, Robertson-Preidler, & Bedregal García, 2019). Even though the sample limitations of the research presented in this thesis did not allow the investigation of the full path from resources to capabilities to functionings, the interaction effects observed in the analysis are consistent with their conceptualisation in the literature and should further be pursued.

One particularly interesting interaction which was uncovered by the data, is the direction of the effect of my measure of social capital, and its statistical effect on predicting group allocation across smoking, ban-for-baby and non-smoking groups. My data suggested that only when controlling for the capability to restrict smoking for guests, social capital became statistically significant, while it statistically increased the odds of being allocated to the smoking group, compared to the ban-for-baby or non-smoking group. This could be seen as unexpected, as social capital (and associated support measures) has been



historically documented to be instrumental in smoking cessation and prevention of relapse (Westmaas, Bontemps-Jones, & Bauer, 2010). However, the measure used in this study was focusing on a more generic measure of social capital, with a focus on support relevant for child rearing, and not smoking-specific social support. Other research on social networks dynamics related to smoking suggests that they can play a conflicting role, depending on context. A large longitudinal study from the Netherlands for example, suggested that among smokers, cessation is less likely, and relapse is more likely, if more network members smoke (Blok, de Vlas, van Empeln, & van Lenthe, 2017). In my initial model, I had controlled for the number of smokers in the home, but I also ran the model again, controlling for a variable measuring how much they estimated smokers are present in their life. This also had little impact on the measure of social capital, while controlling for the capability to restrict smoking for guests.

A recent study documented the role of social networks on disadvantaged pregnant women's cessation during and after pregnancy. These data suggested that social networks can sometimes hinder cessation, and the sources can go beyond the smoking status of the individuals in the network, for example by them contributing to stressful situations (Dereksen, Kunst, Murugesu, Jaspers, & Fransen, 2021). This was not measured in my study; thus, it could not be further tested. Another particularly interesting study comparatively looked at environmental (social and cultural) predictors of SHS exposure among Koreans in Seoul and American Koreans in California, and suggested that social network dynamics, tobacco control policies and social norms play an important role in exposure. One of these observed differences related to the influence that elders had on SHS exposure, which was more prominent in Koreans compared to American Koreans. The authors subsequently hypothesized they can be attributed to higher social power which older family members have in Korea (Allem, et al., 2015). These dynamics emerged from my qualitative study as well, where power dynamics in the home were discussed in relation to the ability to make decisions in the home. However, as these power dynamics were not also measured quantitatively,

these statistical relationships could not be further explored with the available data.

The fact that in my sample this relation was only observed when controlling for the capability to restrict smoking for guests, can be suggestive of interactions which cannot be fully measured with the available data. The ability to mobilise resources on the social network could have interactions with this capability, which should be further investigated qualitatively as well as quantitatively, with a focus on path analysis. This particular capability, as derived from my qualitative research, can be very nuanced and incorporate different power-dynamics. Thus, it could potentially host a range of interactions which could not be observed with the current available quantitative data. Nonetheless, this finding contributes to the literature by bringing more empirical evidence on the dynamics between capitals (resources) and capabilities, and the highlights the importance to account for them when aiming to understand a smoking behaviour in context.

## Implications for Further Research

Explorations of child second-hand tobacco smoke exposure through a capability lens were not identified in the scientific literature up to this point. Recent reviews suggest that capability theory applications in health have mostly focused on topics such as physical activity and diet, patient empowerment, multidimensional poverty, and the assessment of interventions (Mitchell, Roberts, Barton, & Coast, 2017). It has also been used to theoretically contextualise inequalities in smoking in adults, associated with measured spatial accessibility to resources (Vallée, Shareck, Le Roux, Kestens, & Frohlich, 2020). A few other studies have been identified to use this framework to understand women's empowerment and decision-making in relation to their health, in developing countries (Mabsout, 2011; Nikiema, Haddad, & Potvin, 2012; Zereyesus, 2017). Although important in contribution, the limitations of a PhD thesis research did not allow a full investigation of capabilities for smoke-free homes, and a range of conceptual and methodological constraints have not been addressed. In this section I will discuss some of them and propose directions for further research, while my last section in this chapter will discuss the limitation and challenges in more detail.

### *Conceptualising and measuring the capability for smoke-free homes*

Although Sen's and Nussbaum's operationalisations are not prescriptive in terms identifying and measuring capabilities, several conceptualisations of the capability approach, stemming mostly from health economics, have led to the development of instruments for assessing health interventions. The OCAP-18 is an instrument aiming to measure the effectiveness of public health interventions, which demonstrated correlations with health and wellbeing measures (Lorgelly, Lorimer, Fenwick, Briggs, & Anand, 2015). A similar measure of general wellbeing in adults using is ICECAP-A, which focuses on

stability, attachment, autonomy, achievement, and enjoyment capabilities (Al-Janabi, Flynn, & J, 2012; Flynn, et al., 2015). The ICECAP-O was originally designed to be used for socio-economic evaluations of social care and health interventions in older people, later employed to measure extended quality of life outcomes for the same population (Flynn, Chan, & Coast, 2011). The OxCAP-MH was designed to measure outcomes in mental health research and interventions (Simon, Anand, Gray, Rugkåsa, & Yeeles, 2013; Vergunst, Jenkinson, & Burns, 2017). ICECAP-SCM is an instrument designed to measure seven capabilities identified as essential for end-of-life care (Kinghorn & Coast, Assessing the capability to experience a 'good death': A qualitative study to directly elicit expert views on a new supportive care measure grounded in Sen's capability approach, 2018). Kinghorn and colleagues also developed a capability-based instrument to measure wellbeing in patients with chronic pain (Kinghorn, Robinson, & Smith, 2014). More recently, the capability approach has been used, in a limited number of studies, to inform the development of measures for specific capabilities, which move away from general wellbeing measures. One such example is a Dutch study which developed a battery of questions to assess specific capabilities in deaf children with Cochlear implants (Rijke, et al., 2019). However, none of the instruments identified in the literature would have been suitable for the purpose of this research, as I aimed to use capabilities to understand the social patterning of smoking behaviour, rather than measure the impact of an intervention or a health condition on general capabilities (or general well-being).

Like the instruments developed by authors in the field, the research presented in this thesis used a qualitative phase to inform the development of an instrument to measure capabilities which were found to be relevant for restricting in-home smoking. This list of 10 capabilities were found to be associated with group membership (non-smoking, ban-for-baby, and smoking) in my sample. However, as capabilities can be contextual, further research should be conducted on the list of capabilities relevant for restricting smoking in homes with young children, across different socio-economic and cultural contexts.

Of particular interest is the capability to restrict smoking for guests, which was an important predictor of in-home smoking rules in my sample. As this construct emerged from the qualitative data, it would be interesting to analyse whether it is a particularity of this socio-cultural context, or if findings can be replicated in other areas. Other studies have suggested that visitors (or guests) may be the subject of exceptions of smoking in the home, but at varying degrees (Robinson, Ritchie, Amos, Greaves, & Cunningham-Burley, 2011; Robinson J. , 2008; Green, Courage, & Rushton, 2003). Based on this, I hypothesize that the measure has the potential to be relevant in contexts outside of Romania, but further research is needed. Also, reusing the measures of capabilities in similar populations in Romania, where the dynamics of in-home smoking have changed since the time of data collection, could bring more insights on how much these measures are stable and have good face validity.

The design of the study allowed the subsequent statistical exploration of the predicting power of general capabilities, as well as the smoking-specific capability referring to restricting smoking for guests, on the decision to allow or ban smoking in the home. However, the limitations of the sample size (and more specifically the relative low count in two of the categories of my dependent variable) did not allow an analysis of the full path from capabilities to functionings, or an exploration of the moderating or mediating effects of capitals. Further research should investigate this full path, to get a deeper understanding on the mechanisms of capabilities on smoking behaviours. Recent evidence from economics and welfare researchers assess multiple measurement methods for capabilities: (1) direct elicitation (as used in the current study), (2) structural equation modelling, (3) random utility methods, and more recently (4) Bayesian stochastic frontier analysis; the latter is being proposed as the best mechanism to provide estimates on capabilities sets and have the advantage of being able to account for continuous, discrete and multivariate outcome variables (Henderson & Follett, 2020). The approach of direct elicitation can be useful, but it is limited in its potential to be able to account for the full complexity of capability sets. Public health researchers

studying tobacco control through a capability lens could draw on this new evidence, and collaborate with health economists to design instruments, and analyse results, in a way which addresses the methodological challenges of estimating capabilities.

### *Individual capabilities in a family context*

Within the current study I have focused on the narratives and capabilities of mothers in the home. This decision to include only mothers was two-fold, balancing the advantages of including a large enough population to observe the variables of interest, as well as the limited resources available for this research. However, existing evidence suggests that smoking in the home should be viewed in its wider social and family dynamics, including the wider social network which includes non-home members, as negotiations of decisions occur within these dynamics (Robinson, Ritchie, Amos, Greaves, & Cunningham-Burley, 2011). As a result, further research should be conducted to measure the dynamics of capabilities within the home, and their role in family decision-making. I have observed within this research that women's capabilities are significant in predicting in-home smoking rules. However, particular attention should be given to intra-household power imbalances, as both Sen as well as Robeyns point out, can have significant impact on the ability of women to transform resources into capabilities (Sen, 1992, pp. 122-123; Robeyns, 2003). As a result, conducting studies which include family dynamics and which account for the capabilities of the wider social network, can have the potential to provide stronger insights.

### *Can we act on capabilities to support health behaviours?*

Future studies should also investigate whether improving capabilities can have the potential of improving smoking behaviours. In other words, would supporting women or families build capabilities for maintaining their home smoke-free, have an impact on in-home smoking rules? And what dimensions would be important to focus on? Emerging studies conducted on other public health and social work topics, have conceptualised this approach. A study developed in Sydney, Australia drew upon a capability approach to design and

deliver a community-development initiative to improve mental health in a disadvantaged setting (Rose & Thompson, 2012). A qualitative study conducted in Edinburgh on job seeking among persons with disabilities proposed improvements of the UK Government Remploy program to enhance essential capabilities to improve its outcomes (Robertson, 2018). Even though there is limited empirical evidence, aside from the research undertaken in this thesis, to suggest a capability approach to public health interventions to reduce child SHS exposure, the adoptions of this framework documented in the literature suggests that there is potential. However, further research is needed to fully conceptualise and measure capabilities relevant for in-home smoking restrictions, which could be the subject of effective interventions.

### *Bridging structure and agency, from an interdisciplinary standpoint*

My last point in the discussions of the implications for further research focuses on how this work can further build upon the existing models for improving population health, by addressing health behaviours. Although many methodological challenges for using the capability approach in understanding health behaviours still exist, the framework could have potential to integrate with, and contribute to, the body of knowledge relating to health programs. My approach in this thesis has been largely a sociological one, focusing on a population-level understanding of capabilities and their implications for health, and it draws on a framework originating from seminal works in economics and human development. However, it intersects health psychology when conceptualising implications for interventions. In this section, I briefly discuss the potential of the capability approach to contribute to some of the existing theories and frameworks of behaviour change which are currently employed to reduce the burden of tobacco world-wide. I will not exhaustively discuss implications for intervention, but rather open a discussion on the opportunities to be further explored, for improving population health through health interventions, using a capabilities lens. I also argue for an interdisciplinary approach to supporting and improving population health.

Due to the nature of the capability approach to view behaviours in context, as dynamic systems, thus bridging structure and agency, I will approach two frameworks and their associated theories, which have already been successfully employed in changing smoking behaviours by using a more ecological approach: the COM-B framework (core to the Behaviour Change Wheel) and the combination of Self-Determination Theory and Motivational Interviewing clinical technique. In this next section I will discuss the commonalities as well as the areas where the capability approach could be integrated with, or build upon, established theories and models of behaviour change, by considering structure and context.

The COM-B framework aims to describe the relations between key components which interact dynamically with any health behaviour: capability, motivation, and opportunity (Michie, van Stralen, & West, 2011). In this context, Michie et al. define *capability* as the physical and psychological capacity of an individual (including holding necessary skills and knowledge), which enable engagement in an activity; *opportunity* comprises all social and physical external factors, which make the behaviour possible or even prompt it; and *motivation* refers to reflective evaluations and automatic processes which drive a behaviour (Michie, van Stralen, & West, 2011). In this sense, the capabilities conceptualisation used in my research, mostly relate to the opportunity and capability mechanisms described by Michie and colleagues. Motivation, as described in COM-B, is less explored in the capability approach, beyond the “value and have reason to value” component, which is a limitation in applying it as-is to behaviour-change interventions.

The COM-B is also the hub, or the central dimensions which support the identification of the “sources of the behaviour”, on which the layers of possible interventions are built in the Behaviour Change Wheel (BCW) (Michie, Atkins, & West, 2014, p. 16). Thus, they provide the starting point for identifying a target behaviour, its competing behaviour, understand their context and move towards identifying the best strategies for behaviour change interventions. From an assessment perspective, Michie and colleagues recommend a total of



10 items for the behavioural diagnosis of capability (reflecting knowledge, physical skills and strength, mental skills and strength, and ability to overcome physical limitations), and 7 items for the behavioural diagnosis of opportunity (reflecting resources such as time, money, materials as well as accessibility, triggers to prompting, support from others and social norms) (Mitchie, Atkins, & West, 2014, p. 58). According to the authors, these measures allow an in-depth contextualisation of the behaviour.

From a capability approach perspective, the dimensions described by Mitchie and colleagues are viewed as *resources* and *conversion factors*, where the latter impact the extent to which an individual can convert resources into *functionings*. In other words, the capability of any individual to attain a functioning, which they value or have reason to value, is predicted by the degree to which they can convert available resources into functionalities. In the capability approach literature, conversion factors are usually grouped into three categories: *personal conversion factors* - internal to the person such as physical abilities, metabolism or even specific skills; *social conversion factors* - social norms, societal practices, power relations, public policies, etc; and *environmental conversion factors* - geographical location, the physical or built environment, infrastructure, services, etc. (Robeyns, 2017, p. 45).

As it can be observed, there are many communalities between the conceptual framework defined by Mitchie and colleagues and the capability approach, as the measured dimensions are somewhat overlapping. However, from a measurement level perspective, the direction approached in my research argues that capabilities in the form of what people can achieve (as a self-reported construct) also has insights which draw on resources and conversion factors. For example, the capability to restrict smoking for guests emerged as an important predictor for smoke-free decisions in my studied population. This in itself is theoretically the result of dynamics of resources (whether economic, social or cultural) and individual conversion factors (personal, social or environmental). Thus, it provides an easy-to-assess construct which provides insights on reduced capabilities for a specific health functioning.

However, from an intervention perspective, this measure of capabilities provides little insight on how to increase capability and support mothers and their families to reduce in-home smoking. Or in other words, how can we increase capability to restrict smoking in the home and which are the behaviours (and/or structures) which should be targeted for such an intervention. Frameworks such as COM-B and the associated BCW could overcome these methodological challenges. In the presented example, the CA measure (as a mediating construct) could potentially provide insights on the capabilities which have an impact on the outcome (or functioning), while COM-B could support the identification of the specific behaviours which should be approached in behavioural interventions. Although the mechanisms and its utility should be further explored, CA measures could map areas of intervention (such as a capabilities to enhance) while keeping a systems' perspective, and COM-B could provide the conceptual and operational framework for moving from assessment to intervention strategy. In this way, the exhaustive list of measured constructs for behavioural diagnosis specific to COM-B (to be measured at a populational level) could potentially be reduced by a set of self-reported capabilities.

On the other hand, specific capabilities could also be used to measure the effect of interventions, as they are a mediating construct to behaviours (or functionings). In their work, Mitchie and colleagues draw readers' attention to focus on other evaluation measures beyond effectiveness in changing a behaviour. They mention the APEASE criteria for designing and evaluating interventions: affordability, practicability, effectiveness and cost-effectiveness, acceptability, safety, and equity (Mitchie, Atkins, & West, 2014, p. 22). For understanding impact on equity, I argue that interventions could also measure variations in capabilities, to understand where they excel or fail in supporting relevant capabilities, which in turn can be manifested into functionings. Coming back to the example of the capability of restricting smoking for guests, an intervention designed to support mothers in smoke-free decisions, could also measure variations in self-reported *capability* to restrict smoking for guests, and not only the actual behaviour (functioning) of banning smoking in the home.

This approach could be particularly useful to ensure that interventions do not widen inequalities, but positively impact capabilities across the entire spectrum of the targeted populations.

As I have discussed previously, the capability approach does not approach actions in terms of motivation, but rather in terms of values, resources, and conversion factors. However, some behaviour change theories, although their focus is individual motivation towards change, account for context or structure. The synthesis of Self-Determination theory (SDT) and Motivational Interviewing (MI) strategy has been observed to support effective interventions focusing on health behaviour change (Patrick & Williams, 2012). SDT focuses on the quality and type of motivation that drives behaviour, highlighting differences between autonomous motivation (reflecting self-supported reasons for engaging in the behaviour) and controlled motivation (controlled by external factors) (Teixeira, et al., 2020). In addition, this quality of motivation is considered to be determined by the degree to which individual actions respond to autonomy (are freely chosen and reflect sense of ownership), competence (capacity to engage in actions, including physical and psychological abilities) and relatedness (the degree to which they lead to individuals feeling accepted and connected with significant people and communities), all three being viewed as basic psychological needs (Deci & Ryan 2000; Deci & Ryan, 2006).

On the other hand, MI is a widely adopted counselling strategy, derived from clinical psychology practice in the field of addiction, that is successfully employed in behaviour change in a wide variety of health behaviours (Markland, Ryan, Tobin, & Rollnick, 2005). Its mechanisms are led by a client-driven and client-centred approach to supporting intrinsic motivation to change, by addressing individual ambivalence or conflicting motivations (Miller & Rollnik, 2002, p. 25). This strategy thus allows individuals, traditionally with the support of a trained counsellor, to explore all motivations and take different stances, to resolve these conflicting motivations that drive behaviour. A joint framework of SDT and MI has been appraised as benefiting from a top-down, theory-driven approach of SDT, as well as the bottom-up, discovery approach of MI (derived

from clinical practice), in which the behaviour change is driven by the interaction with the client (Vansteenkiste, Williams, & Resnicow, 2012).

The dynamics between controlled and autonomous motivation, as well as motivation ambivalence, are particularly interesting from a capability approach as well. As I discussed in the previous sections, capabilities are prerequisites of actual functionings, which put a great emphasis on autonomy and choice, thus its paradigm resonates with the principles laid out by SDT and MI. The capability approach also places great importance on structural factors, which drive a certain health behaviour (such as creating a smoke-free environment for children). As it could be inferred from the results of my research, multiple structural determinants are at play, and tensions between different capabilities are manifested (i.e., capability to keep the environment smoke free vs. the capability for social relations). Although STD and MI do not provide a comprehensive framework for a capability approach-driven intervention due to its focus on motivation, it can provide helpful methodologies for understanding and addressing conflicting capabilities and capability-structure limitations. Or in other words, support an intervention *component* which aims to support individuals in navigating and exploring conflicting capabilities and develop problem-solving strategies.

Specific strategies (or techniques) have been successfully devised to support these basic psychological needs of autonomy, competence, and relatedness in interventions, to develop autonomous motivation in participants. A recent expert consensus review identified 21 motivation and behaviour change techniques used in interventions to support autonomy, competence and relatedness such as using non-controlling and informational language, exploring life aspirations and values, providing meaningful rationale and choice, encouraging experimentation and self-initiation of the behaviour, use of empathic listening, providing opportunities for support, clarifying expectations, addressing obstacles for change, help in developing a clear and concrete plan of action, promoting self-monitoring, etc (Teixeira, et al., 2020). These advancements in the field of SDT could be critically assessed for future

investigations in building capabilities in populations, to support functionings (or their manifestation into behaviour).

In addition, capabilities are interlinked, as it could also be inferred from the data presented in this thesis. For example, the capability to restrict smoking for guests was tightly connected to other capabilities as well as perceived control over the living environment. This suggests that some health-related capabilities cannot be addressed out of the context of general capabilities, as a specific health behaviour change intervention can have different effects on individuals with varying capability sets. This concern or focus aligns with the approach proposed by SDT and MI, where behaviours and autonomous motivation are always viewed in context, and externally controlled motivation explored regardless of the source (Patrick & Williams, 2012). As a result, although the approaches (CA and SDT/MI) are different in terms of scope, they also share a great degree of compatibility between their theoretical frameworks, which could be further explored.

To conclude, the capability approach adopts a wide lens to look at individual behaviours, with a strong focus on structure and how this structure impacts what individuals want to achieve. Nonetheless, its current methodological challenges could potentially build on the validated mechanisms of existing behaviour change theories, which are compatible from a philosophical perspective. In addition, the capability approach and the measurement of self-reported capabilities could contribute to the investigations conducted from a health behaviour change perspective, by providing relevant measurements, for both formative as well as summative evaluations. Mapping behaviour-relevant capabilities and developing associated measures, would support easier assessments of areas of intervention. Future research should focus on the relationship between the dimensions of behaviour change theories or models, and capability measures.

## Limitations and Challenges

This section offers an overview of the main limitations and challenges of the study design, grouped into main categories, based on their source. In case of specific challenges relating to the implementation of the study design, the strategies I used to overcome them are also presented.

### *The research design*

As described and discussed in the previous chapters, smoking behaviour is highly contextual and dependent on complex dynamics, which are hard to explore in depth using only quantitative measures. As a result, my research also had a qualitative component, which was used to guide the quantitative research. However, the quantitative component was also cross-sectional, which imposes additional limitations on how the data should be interpreted. My dependent variable looked at the allocation of participants across three groups defining non-smoking homes, homes banning smoking in association with pregnancy or the birth of a child in the family, and homes in which smoking was reported at the time of the interview, at any extent. This classification was used to observe differences across contexts in which smoking was allowed and the ones which the arrival of a child had spontaneously incurred a change in in-home smoking. Although statistical relationships have been uncovered, they relied on retrospective, self-reported data, which limits the way we can interpret them. For example, I cannot argue that certain predictors influence the *transition* to smoke-free homes, but only that they predict better group allocation. To improve the consistency of future findings, prospective cohort studies should be implemented, to dynamically observe these changes of transitioning to smoke-free environments. Enrolling pregnant women in a study and monitoring them with repeated measures for a longer period post-partum, should provide a more compelling understanding of this process of transitioning to smoke-free homes.

The choice of research design also posed challenges in terms of implementation, as the study pursued an exploratory sequential mixed-methods design. The rationale for such an approach were discussed in my methods chapter, and have brought important advantages; however, they sometimes added complexity and were resource intensive. Due to its exploratory nature, the two research phases were built on each other, with the quantitative instrument being developed based on the findings of the qualitative research. This approach allowed building a more informed questionnaire but provided challenges when initially designing the research. One important challenge was that ethical approvals needed to be sought independently, in stages. In addition, the design of the quantitative instrument needed to be finalized in a very timely manner to allow data collection to unfold in an adequate timeframe from the qualitative component. These challenges were navigated, however they imposed additional pressure in implementing the study.

### *Participants and setting*

The conducted research aimed to understand mother's experiences in restricting in-home smoking, using a capability lens. One other important limitation of the study design was the focus on only one role in the home (that of mothers) without eliciting data from other household members. Due to the diversity of the behaviours and contexts, and the limitations of the current PhD research, I decided to only include mothers as participants. It allowed me to explore more in-depth the issue of capabilities in an array of socio-economic contexts, however the results do not provide a comprehensive view of children's exposure in the home, as described by other household members. It also excluded families in which mothers were not present (situations in which they had passed away, were not living with the child, or would be working temporarily abroad). Future research should include other family (and non-family) members of the household and explore a more integrated approach regarding the issue. In addition, the shared responsibilities within homes and

dynamics between family members would offer more information regarding smoking behaviour in context.

Another limitation of the research relies on the setting in which it was based. Mures county was selected due to the diversity of its population (as described in the study population section) but in itself is not representative of the entire population of Romania. Due to the large population at a national level and the regional differences which might exist, interpreting the results of the study needs to be done with caution as the results cannot be generalized for the entire country.

### *Recruitment strategy*

The recruitment process involved using the healthcare system (GP offices and outpatient Paediatrics Department) as a point of recruitment, which had benefits in terms of identifying clusters of eligible participants and the convenience of approaching them. It allowed me to initially screen GP practices and identify clusters with high concentrations of mothers (to minimize logistical costs) but also to maximize socio-economic diversity (urban/rural settings or settings with various levels of deprivation). I only included participants from the outpatient setting of the Paediatrics clinic, in addition to the participants recruited from GPs, to recruit a population with a profile close to the general population. However, one important limitation is that the sample selected is not identical to the general population, even if it covers a diversity of socio-economic contexts. For example, families who do not access the healthcare system at all, their children are not registered with a GP, or who live too far from the Paediatrics clinic might have been excluded due to the design. This is especially relevant for the inferences drawn in the quantitative component of the research design.

An additional limitation of the quantitative component of the study design was the small sample size recruited for this research. Due to the slow recruiting process, only 202 questionnaires were available for analysis. This in turn led to a relatively small absolute number of participants who reported having banned smoking for the wellbeing of the child ( $n=35$ ), which was a group of interest for



my analysis. In this context, the results of the quantitative data analysis should be interpreted within these limitations. To reduce any bias in data collection, I decided not to administer questionnaires in the healthcare setting, but only obtain a Consent for Contact when they accessed healthcare services. The questionnaire was administered subsequently via telephone. This led to an increased number of potential participants (who agreed to be contacted) but were not included in the study as they could not be followed-up (43.7%). A potential contributing factor is the fact that the consent for contact forms were collected in batches from the GP practices and paediatrics unit. As a result, in some cases, there might have been even 2-3 weeks between the time of signing the consent for contact and the first contact attempt, and their initial interest could have reduced in the meantime, or life circumstances could have changed. Improved logistical measures (such as electronic communication of enrolment) could potentially address these implementation challenges.

### *Potential reporting bias*

The recruitment process (via consent from contact forms distributed in healthcare practices) could have also contributed to reporting bias, although questionnaires were administered via telephone interviews. Within my sample, I had a lower-than-expected percentage of respondents reporting smoking in the home (17.5%), compared to the overall smoking prevalence in the studied households (more than one fourth of respondents reported at least one smoker living in the home). Thus, there is potential for under-reporting in my sample. A connected aspect was that for the collected data, I had few missing cases to handle, as participants were more open to go through each of the questions in the structured interview. On the other hand, there is an increased risk for reporting bias also due to social desirability, which is expected to be even higher than self-administered questionnaires. As a result, the low absolute counts of persons reporting smoking in the home could also be explained by this aspect and should be taken into consideration. Secondly, the collected data reported exclusively on self-reported data, and no biochemical validation of child exposure was used. As a result, it is important to keep in mind that the

values reported are only estimations of smoking in the home, and not validated information on child actual exposure.

In relation to the qualitative component, the recruitment strategy might have impacted on my perceived positionality by study participants. I explained to participants at the beginning of the interview that even though I had collaborated with the GP for recruitment, my research was independent from their work and their answers would not be communicated to them. I also explained the voluntary nature of the research, and that refusal to participate or answer questions would not affect their rights or entitlement to services they would normally benefit from. However, there could still be some influence on participants' responses associated with the recruitment process.

### *Data analysis*

One important limitation associated with the recruitment strategy and the final sample size, was associated with the fact that I could not statistically assess the full path from resources to conversion factors to capabilities and then functionings. As a result, my analysis only offered insights on independent models, which even if they constitute a strong basis for future research, fail to account for all factors. Given the importance of a complete view over these mechanisms, future studies should consider exploring the full path. Another important limitation in data analysis was the fact that the constructs I had measured quantitatively were not validated against existing measures of capabilities. As a result, I had observed the dynamics of this capability sets in relation to other capabilities through my qualitative investigation, however it was not further pursued quantitatively, as I was limited by the lack of similar instruments. As more empirical evidence will emerge in the future years around tobacco and capabilities, it would be a significant methodological advancement to cross-validate different instruments and constructs, to ensure more robust measures.

## Summary of Discussions

Protecting children from the harmful effects of SHS exposure is still a significant public health concern, which needs to be understood to design effective intervention strategies. As young children spend a considerable time in their home environment, and early exposure is associated with even more severe consequences, understanding the behaviour of smoking in homes with young children is critical. Romania has just recently experienced a transition towards a high-income country, with a social patterning of smoking just emerging at the time of data collection for this thesis. Using insights from this context could provide valuable in exploring alternative mechanisms for explaining the social patterning of child exposure before the inequality gradient is steep. The value of this approach lies in the ability to explore different constructs relating to structure and agency, at a time when they don't overlap completely, and a dynamic is observed in families which engage in spontaneous behaviour change.

Current available systematic reviews suggest there currently still isn't enough strong information to suggest any effective intervention mechanism. In addition, the theoretical frameworks used have not employed the capability approach in any of the studies reviewed, despite its potential to support our understanding between the dynamics of structure and agency. More so, the application of the capability approach to health behaviours in general is very limited, although the existing studies showed promising results. As a result, the current thesis has brought novel empirical evidence on a conceptualisation of the capabilities to maintain homes smoke-free, in the context of young children living in them.

The main contributions brought to the literature as a result of this research was a better understanding of the role of values for health behaviour-related capabilities, a conceptualisation of the capability for smoke-free homes, an assessment of the structural determinants of in-home smoking and their

interaction with capabilities, and ultimately an assessment of the potential of capabilities as statistical predictors of in-home smoking practices.

This initiative also brings up a range of implications for further research, which were discussed in this chapter. Firstly, I discuss the methodological challenges of the application of the capability approach in this field, with a focus on conceptualising and measuring the capability for smoke-free homes. As novel statistical modelling strategies emerge, with a particular focus in the econometrics field, researchers have the potential to move beyond direct elicitation of capabilities, which are subject to biases in interpretation. In addition, as more evidence becomes available and associated measurement instruments, scholars could compare and validate more rigorously existing data collection tools. However, the current state of knowledge still lacks extensive empirical evidence to offer a context comprehensive enough to address all the existing methodological challenges. Secondly, I discussed the need to focus on further research on capabilities as derived by wider family dynamics, to view capabilities in context. My research only involved mothers; however, the obtained data supported the claims in the literature that individual capabilities are tightly linked to family capabilities and are subject to social context dynamics. Women's abilities to negotiate capabilities and navigate what Sen describes as "cooperative conflict" (Sen, 1987, pp. 42-25) would be essential to be investigated in more depth in future initiatives exploring smoking in homes with young children. This is more relevant in the context in which relevant sources of exposure have been documented in this research as well, which go beyond the women included in the study. Finally, aspects around the potential integration of the CA with existing ecological models of behaviour change was discussed. The similarities and compatibility, as well as mechanisms of potential integration with frameworks such as COM-B and SDT & MI were theoretically explored, and avenues for further research proposed.

## **Chapter Seven: Conclusions**

Within this last chapter of the thesis, I will present the conclusions of my work, with a focus on three topics. First, I will briefly summarise the main research outcomes, as described throughout the thesis. Secondly, I will summarise the main knowledge gained from the process, with a focus on ways forward. Thirdly, I will briefly discuss implications for policy and practice, as derived from my work. The chapter ends with a short concluding remark.

## A Brief Overview of the Research Outcomes

In this thesis, a conceptualization of the capability to maintain the home smoke-free was conducted, as emerging from the accounts of mothers of young children in Romania. The study was guided by the capability approach, attempting to lay the foundation for the exploration of children's second-hand tobacco smoke exposure via a capability lens. As mentioned previously, up to the moment of writing this thesis, no other studies were identified that use capability theory to explore children's SHS exposure or the social patterning of smoking behaviour in homes with young children. Thus, the thesis brings a novel contribution to knowledge, by expanding the application of the capability approach to understanding health behaviours.

The research outcomes have been reached by following the four research questions which guided a two-phase, mixed-methods study design. They aimed to understand this topic from both a qualitative as well as a quantitative perspective:

Q1 [qualitative]. How is maternal capability to provide smoke-free environments for children described by study participants?

Q2 [qualitative]. How do women describe the capability for a smoke-free home, in relation to other capabilities?

Q3 [quantitative] To what extent are capabilities associated with in-home smoking decisions?

Q4 [quantitative]. What interactions can be uncovered between existing resources (capitals), other structural determinants, and capabilities for smoke-free environments for children?

The first two research questions aimed to qualitatively explore the capabilities and functionings women describe when discussing decisions around smoking in the home. It also aimed to gain a greater understanding of how smoking-related capabilities and functionings co-occur with other capabilities. Qualitative data from my study suggested that banning smoking in the home is a “doing” which women reported they valued and had reason to value. In addition, its

dynamics with other capabilities was further explored qualitatively, to understand its dimensions, and suggested important ties with other capability sets. Data suggested that the capabilities relevant for maintaining a smoke-free home occur together with other capabilities for functionings women reported they value. In other cases, capabilities relevant for maintaining a smoke-free home were described to be in tension with other capabilities, in contexts where trade-offs had to be made. This allowed an observation of the dynamics of capabilities.

The third and fourth research questions aimed to understand the role of capabilities in statistically predicting in-home smoking practices, and to identify what interactions could be uncovered between them and existing resources (capitals), or other structural determinants. The capabilities for smoke-free home environments for children were thus measured in relation to actual functionings. Inspired by the work of Abel and Frohlich, who proposed a model to explore the link between capitals and capabilities (Abel & Frohlich, 2012), I aimed to quantitatively measure if capabilities (generic or smoking-specific) have predictive power in relation to in-home smoking decisions, and if any interactions could be observed between capitals' indicators and measures of capabilities. The smoking-specific capability measured in the study emerged from the qualitative data and referred to women's capability to restrict smoking for people who are not members of the home (also referred to as guests or visitors).

Evidence from the quantitative phase of my study suggested that both generic capabilities (set derived and articulated based on the qualitative findings) as well as the capability to restrict smoking for non-home members (visitors or guests), predict group affiliation across smoking homes, non-smoking homes and homes who have banned smoking associated with the arrival of a child in the family. These mapped dimensions could constitute a strong starting point for developing a more comprehensive set of capabilities to be measured in similar populations. Finally, statistical interactions between these capabilities and measures of capitals align with the existing conceptual models of the

capability approach, encouraging further empirical explorations to understand the full path to functionings via capabilities, in the case of smoking in homes with young children.



## Knowledge Gained from Using a Capability Lens on a Health Behaviour

Within this section I would like to conclude on some key points related to what has been learned from the process of using a capability lens on understanding a health behaviour. To do so, I start by circling back to the overarching research question which guided my journey, and which generated the sub-questions discussed in the previous section. I will continue with two other derived points, related to capabilities for smoke-free homes and methodological concerns.

*How can the occurrence of in-home smoking be explained in households with young children in Romania, using a capability lens?*

In the previous section, I have discussed the main research outcomes as derived from my specific research questions. However, in this section, I would like to circle back to my overarching research question, which broadly enquires how we can use a capability lens to explain the social patterning of in-home smoking. Due to the exploratory nature of the study in a field that has not been previously investigated using this approach, the question was intentionally broadly formulated. The aim of this broad question was to act as a signpost for my effort, to keep me from losing the big picture when narrowing down on the sub-questions and operationalisations of the research. As a result, in my conclusions, I would like to come back to this overarching research question and reflect to what extent I had managed to answer to it.

My research could not fully answer this very broad question, however it brought insights towards supporting that the capability approach can be a valuable framework for investigating health behaviours. Although most of the literature had focused on health as a capability or even on health as a means to capabilities of well-being, my research brought evidence towards its potential in understanding health behaviours. The qualitative research uncovered women's

narratives around their capabilities to transform and maintain a smoke-free home (a functioning which they reported they valued and had reason to value), in relation to other capabilities. These capabilities were related to the control over their living environment, the dynamics with the people living in their home as well as dynamics with the extended social network. The quantitative evidence on the other hand managed to uncover statistical relationships between the capability constructs used in the analysis and the studied functioning (the self-reported in-home smoking behaviour). It offered insights on the capability differences across three groups of respondents, who lived in non-smoking homes, smoking homes and homes that banned smoking with the birth of a baby in the family. It also provided insights on interactions with resources (or capitals) which women reported having at an individual or family level. Although the capability approach does not focus exclusively on resources, it acknowledges their importance in supporting the conversion towards capabilities and functionings.

To conclude, the current research makes a significant contribution to knowledge on the potential to understand a health behaviour through a capability lens, by effectively bridging structure and agency. Instead of only looking at associations between resource distributions and behavioural outcomes (or as defined by the capability approach, *functionings*), it allows us to investigate the capability spectrum associated with a current behavioural outcome. By focusing on the relevant capability spectrum, it allows us to understand a behaviour in context, and focus our attention on capabilities that matter. For example, a low level of capability to influence the behaviour of people in the home, or to make structural changes in the home (as reported by mothers), could offer public health specialists' insights towards potentially extending intervention efforts to include the wider family in any interventions to reduce smoking in the home. A reduced capability to restrict smoking for guests, could also be addressed through wider community-level interventions to increase the responsibility of individuals when visiting a home where a child lives. In other words, the capability approach has the potential to support us in

understanding the social patterning of a health behaviour in the full context in which it occurs.

### *Can we speak about capabilities for smoke-free homes?*

When I have started researching this topic, the conceptual space of the capabilities for smoke-free homes was completely undefined. Although the work of previous scholars on defining capabilities sets were still very much helpful, they were limited in the sense of not being tailored to the purpose I had set out. The qualitative study suggested promising results relating to how I could think about a capability space for smoke-free homes, and the quantitative component allowed me to statistically explore the constructs that emerged. As mentioned previously, a set of 10 capabilities were identified, out of which six were independently associated with in-home smoking behaviour. All 10 however were included in the analysis, as 9 of them loaded well statistically on one construct which I have named the Capability Score related to in-home smoking, and one distinct one, which distanced itself by focusing on the specific aspect of the capability to restrict smoking for visitors. Both constructs (the aggregated score as well as the individual tenth capability) statistically predicted group allocation across the non-smoking, smoking and ban-for-baby groups I have defined in my study. This suggests that they measured dimensions which are associated with in-home smoking. Having finalised this process, I can conclude that we can indeed speak about capabilities in this area, however more research is needed to further refine the list of relevant capabilities and test them across different socio-economic and cultural settings.

### *Do we know enough, and have methodological concerns been addressed?*

Significant methodological challenges still face the capability approach, and more empirical initiatives should be implemented to have a pool of insights to draw from. As discussed in the previous chapter, there are numerous avenues for further research, which would significantly increase the application of capability theory in the health field. Its underspecified nature offers flexibility, but

at the same time, it increases its inaccessibility for translating it into practice, to render actionable insights. Given the complexity of the topic as well as its cross-disciplinary nature, there is a risk for a fragmentation of research to continue. For example, the advances in econometrics which I have presented in the previous chapter, relating to satisfactory measurement of capabilities, is still inaccessible for many public health researchers, myself included. As a result, the field could benefit from more interdisciplinary efforts and cross-disciplinary teams, to validate the theoretical approach in different settings. More so, evidence from lower income countries is also imperatively needed, in order not to widen existing inequalities, and ensure that any newly articulated methodologies are transferable. To conclude, I would state that we know more about the empirical applications of capability approach in public health, but certainly many more methodological challenges remain unaddressed. Given the potential of this framework to support equitable public health interventions, it is essential for scholars to continue working on this field, to address these challenges.

## Implications for Policy and Practice

The major contribution of the capability approach, as also demonstrated through this thesis, is its focus on the individual. From a health promotion perspective, this brings a novel approach to how we design and evaluate interventions. As my research suggested, alongside the work of many other scholars, structure and agency are multi-faceted and highly contextual. The traditional approach of segmenting groups of beneficiaries for interventions can be limited in effectiveness, and the design of health-conducive environments which break all structural barriers in an equitable manner is often inaccessible. As a result, public health professionals should consider alternatives to investigating health behaviours in ways that do not make generalisations about the people it is designing them for, but rather employ tailored mechanisms to respond to individual needs. Interventions which use tailoring are already employed, such as technology-supported interventions or clinical interventions which make use of individual counselling. How we can scale these types of initiatives could be a core path for exploration, to maximise effectiveness and ultimately equity in health.

In this sense, the capability approach could be extremely valuable as its individual-centredness could offer the mechanisms needed to bridge structure and agency and think about interventions which address individual complexities of living. Although (as reiterated through the thesis) methodological challenges still exist, steps have been made in the direction of isolating relevant capabilities for specific functionings. In this thesis, I have focused on mapping capabilities relevant for smoking in homes with young children, which although imperfect, still offered insights on individual capabilities associated with this behaviour. The implications for practice could be significant if such measures are used when designing and evaluating interventions aiming to reduce child secondhand tobacco smoke exposure. They could provide insights towards designing intervention strategies which address (or at least account for) structural determinants and associated capabilities, which are interconnected.

Due to the limited generalisability of my research, policy recommendations cannot be put forward in terms of addressing health inequalities. However, my findings can contribute to the existing effort of promoting the inclusion of capabilities in systematic evaluations of population health and well-being. Following UKs initiative, for example, of incorporating capability measures into the NICE guidelines, other policymakers could consider moving beyond functionings and health outcomes, as more evidence towards the relevance of capabilities emerges.

By incorporating measures of capabilities when designing and evaluating policies, services and programs, policymakers could assess their effectiveness on dimensions other than actual functionings. As such, policymakers could benefit from a more contextualised understanding of the way policies impact different population groups, as well as understand their potential limitations in addressing marginalised populations. In addition, as the capability approach has its roots in human development work, it can also be employed in identifying the best areas to allocate resources, to maximise capabilities. Taking a step back from an exclusive focus on functionings, could help policymakers explore the best alternatives for *functionings in context* and map the relevant areas of resource allocation to support health functioning. By considering structure-agency dynamics, it pushes towards a holistic view of health, which does not only focus on structure *or* agency at a time. So instead of designing policies which only address one dimension, with limited consideration towards the other, a capability approach to public policy could facilitate accounting for all the dynamic and interacting parts which shape human capability. A capability approach could support policymakers in generating policy alternatives that focus on maximising what individuals can achieve, create the framework for flourishing capabilities and reduce the magnitude of what Wolff & de-Shalit described as corrosive disadvantage. Until health policies start to focus more on maximising capabilities, differential effects will occur, contributing to widening inequalities.

## Concluding Remarks

The findings presented in this thesis make an original contribution to the existing body of knowledge regarding the benefits of employing a capability approach to health. Although the use of capabilities as a measure of well-being and quality of life was more extensively studied, the potential of the capability approach in informing health interventions which promote health equity has been understudied. This research brings novel empirical data on capabilities relevant for smoke-free environments in homes with young children, as well as on using capabilities as statistical predictors of health behaviours. It thus demonstrates the potential of using capability measures to design effective interventions to advance population health and mitigate health inequalities in the field of tobacco control.

## References

- Abel, T. (1991). Measuring health lifestyles in a comparative analysis: theoretical issues and empirical findings. *Social Science & Medicine*, 32, 899-908.
- Abel, T. (2007). Cultural Capital in Health Promotion. In D. McQueen, K. D.V., I. Potvin, L. Pelikan, L. Balbo, & T. Abel, *Health and modernity. The role of theory in health promotion* (pp. 43-73). New York: Springer-Verlag.
- Abel, T., & Frohlich, K. L. (2012). Capitals and capabilities: Linking structure and agency to reduce health inequalities. *Social Science and Medicine*, 74(2), 236-244.
- Abdullah, A.S.M., Mak, Y.W., Loke, A.Y., Lam, T.H. (2005). Smoking cessation intervention in parents of young children: a randomised controlled trial. *Addiction*, 100(11):1731-40.
- Al-Janabi, H. T. (2013). Can Capabilities be Self-reported? A Think Aloud Study. *Social Science & Medicine*, 87, 116–122.
- Al-Janabi, H., Flynn, T., & J, C. (2012). Development of a self-report measure of capability wellbeing for adults: the ICECAP-A. *Qual Life Res*, 28(1), 167-176.
- Al-Janabi, H. (2018). Do capability and functioning differ? A study of U.K. survey responses. *Health Economics*, 27, 465–479.
- Aldabe, B., Anderson, R., Lyly-Yrjanainen, M., Parent-Thirion, A., Vermelyn, G., Kelleher, C., & Niedhammer, I. (2011). Contribution of material, occupational, and psychosocial factors in the explanation of social inequalities in health in 28 countries in Europe. *J Epidemiol Community Health*, 65(12), 1123-31.
- Aligne, A., Moss, M., Auinger, P., & Weitzman, M. (2003). Association of pediatric dental caries with passive smoking. *JAMA*, 289(10), 1258-64.
- Allem, J., Ayers, J., Unger, J., Vollinger, R., Latkin, C., Juon, H., . . . Hovell, M. (2015). The Environment Modifies the Relationship between Social Networks and Secondhand Smoke Exposure among Korean Nonsmokers in Seoul and California. *Asia Pac J Public Health*, 27(2), NP437-NP447.
- Andrew, S., & Halcomb, E. (2009). *Mixed methods research for nursing and the health sciences*. Chichester, U.K: Wiley-Blackwell Pub.
- Armstrong, K.L., Fraser, J.A., Dadds, M.R., Morris, J. (2000). Promoting secure attachment, maternal mood and child health in a vulnerable population: a



- randomized controlled trial. *Journal of Paediatrics and Child Health*, 36(6):555-62.
- Bacigalupe, A., Esnaola, S., Martín, U., & Borrell, C. (2013). Two decades of inequalities in smoking prevalence, initiation and cessation in a southern European region: 1986-2007. *Eur J Public Health*, 23(4), 552-8.
- Baheiraei, A., Kharaghani, R., Mohsenifar, A., Kazemnejad, A., Alikhani, S., Milani, H.S., et al. (2011) Reduction of secondhand smoke exposure among healthy infants in Iran: randomized controlled trial. *Nicotine & Tobacco Research*, 13(9):840-7.
- Bala, M., Strzeszynski, L., Topor-Madry, R., & Cahill, K. (2013). Mass media interventions for smoking cessation in adults. *Cochrane Database Syst Rev*, 6, CD004704.
- Batty, D. G., Der, G., & Macintyre, S. (2006). Does IQ explain socioeconomic inequalities in health? Evidence from a population based cohort study in the west of Scotland. *BMJ*, 332, 580.
- Behbod, B., Sharma, M., Baxi, R., Roseby, R., & Webster, P. (2018). Family and carer smoking control programmes for reducing children's exposure to environmental tobacco smoke. *Cochrane Database of Systematic Reviews*(1).
- Biesta, G. (2010). Pragmatism and the Philosophical Foundations of Mixed Methods Research. In A. Tashakkori, & C. Teddlie, *SAGE Handbook of Mixed Methods in Social & Behavioral Research*. Thousand Oaks, CA: SAGE Publications.
- Biggs, B., King, L., Basu, S., & Stuckler, D. (2010). Is wealthier always healthier? The impact of national income level, inequality, and poverty on public health in Latin America. *So Sci Med*, 71(2), 266-273.
- Bird, Y., Kashaniamin, L., Nwankwo, C., & Moraros, J. (2020). Impact and Effectiveness of Legislative Smoking Bans and Anti-Tobacco Media Campaigns in Reducing Smoking among Women in the US: A Systematic Review and Meta-Analysis. *Healthcare*, 8(1), 20.
- Blackburn, C., Bonas, S., Spencer, N., Coe, C., Dolan, A., & Moy, R. (2005). Parental smoking and passive smoking in infants: fathers matter too. *Health Educ Res*, 20(2), 185-94.
- Blaga, O. M., Brînzaniuc, A., Rus, I. A., Cherecheș, R. M., & Wallis, A. B. (2017). Smoking and Smoking Cessation During Pregnancy. An Analysis of a Hospital Based Cohort of Women in Romania. *Journal of Community Health*, 42(2), 333-343.

- Blakely, T., & Wilson, N. (2005). The contribution of smoking to inequalities in mortality by education varies over time and by sex: two national cohort studies, 1981-84 and 1996-99. *International Journal of Epidemiology*, 34, 1054-1062.
- Bland, M. (2015). *An introduction to Medical Statistics*, 4th Edition. New York: Oxford University Press.
- Blok, D. J., de Vlas, S. J., van Empeln, P., & van Lenthe, F. J. (2017). The role of smoking in social networks on smoking cessation and relapse among adults: A longitudinal study. *Preventive Medicine*, 99, 105-110.
- Bolte, G., & Fromme, H. (2009). Socioeconomic determinants of children's environmental tobacco smoke exposure and family's home smoking policy. *Eur J Public Health*, 19, 52-58.
- Borrelli, B., McQuaid, E.L., Novak, S.P., Hammond, S.K., Becker, B.(2010). Motivating Latino caregivers of children with asthma to quit smoking: a randomized trial. *Journal of Consulting & Clinical Psychology*, 78(1):34-43.
- Borrelli, B., McQuaid, E.L., Tooley, E.M., Busch, A.M., Hammond, S., Becker, B., et al. (2016). Motivating parents of kids with asthma to quit smoking: the eDect of the teachable moment and increasing intervention intensity using a longitudinal randomized trial design. *Addiction*, 111(9):1646-55.
- Bourdieu, P. (1986). The Forms of Capital. In J. Richardson, *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). Westport: Greenwood.
- Bowen, G.A. (2008). Naturalistic inquiry and the saturation concept: a research note. *Qualitative Research*, 8(1):137-152.
- Bozicevic, I., Gilmore, A., & Oreskovic, S. (2004). *The Tobacco Epidemic in South-East Europe Consequences and Policy Responses*. WHO Tobacco Free Initiative. Washington: The World Bank.
- Braun, M., Klingelhofer, D., Oremek, G. M., David, Q., & Groneberg, D. A. (2020). Influence of Second-Hand Smoke and Prenatal Tobacco Smoke Exposure on Biomarkers, Genetics and Physiological Processes in Children-An Overview in Research Insights of the Last Few Years. *Int J Environ Res Public Health*, 9(17), 3212.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3, 77-101.
- Breton, E., & Sherlaw, W. (2011). Examining Tobacco Control Strategies and Aims Through a Social Justice Lens: An Application of Sen's Capability Approach. *Public Health Ethics*, 4(2), 149-159.

- Brinzaniuc, A., Chereches, R., Rus, I. A., Duse, I. A., & Pop, O. M. (2011). Are tweens safe at home from second-hand tobacco smoke exposure? Evidence from Eastern Europe. *European Journal of Public Health*. Supplement 21, p. 154. Copenhagen: EUPHA.
- Brown, R. C. (2018). Resisting Moralisation in Health Promotion. *Ethical Theory and Moral Practice*, 21, 997-1011.
- Caleyachetty, A., Lewis, S., McNeill, A., & Leonardi-Bee, J. (2012). Struggling to make ends meet: exploring pathways to understand why smokers in financial difficulties are less likely to quit successfully. *Eur J Public Health*, 22(Suppl 1), 41-8.
- Cantrell, J., Vallone, D., Thrasher, J., Nagler, R., Feirman, S., Muenz, L., . . . Viswanath, K. (2013). Impact of Tobacco-Related Health Warning Labels across Socioeconomic, Race and Ethnic Groups: Results from a Randomized Web-Based Experiment. *PLoS One*, 8(1), e52206.
- Carreras, G., Lachi, A., Cortini, B., Gallus, S., Jose Lopez, M., Lopez-Nicolas, A., . . . Investigators, T. P. (2020). Burden of disease from exposure to secondhand smoke in children in Europe. *Pediatric Research* .
- Cavelaars, A., Kunst, A., Geurts, J., Crialesi, R., Grötvedt, L., Helmer, U., . . . Mackenbach, J. (2000). Educational differences in smoking: international comparison. *BMJ*, 320(7242), 1102-7.
- Center for Health Policy and Services Bucharest. (2004). Smoking and Public Health in Romania (document in Romanian). Retrieved April, 2021 from Stop Smoking Romania: [https://stopfumat.eu/wp-content/uploads/2014/10/Studiu\\_CPSS\\_04.pdf](https://stopfumat.eu/wp-content/uploads/2014/10/Studiu_CPSS_04.pdf)
- Chapman, B. P., Fiscella, K., Kawachi, I., & Duberstein, P. R. (2010). Personality, socioeconomic status, and all-cause mortality in the United States. *American Journal of Epidemiology*, 171, 83-92.
- Chen, Y.T., Hsiao, F.H., Lee, C.M., Wang, R.H., Chen, P.L. (2016). Effects of a parent-child interactive program for families on reducing the exposure of school-aged children to household smoking. *Nicotine & Tobacco Research*, 18(3):330-40.
- Chiappero-Martinetti, E., & Venkatapuram, S. (2014). The Capability Approach: A Framework for Population Studies. *African Population Studies*, 28(2), 708-720.
- Chittleborough, C., Baum, F., Taylor, A., & Hiller, J. (2006). A life-course approach to measuring socioeconomic position in population health surveillance systems. *J Epidemiol Community Health*, 60(11), 981-92.

- Cobanoglu, N., Kiper, N., Dilber, E., Gurcan, N., Gocmen, A., Ozcelik, U., . . . Kose, M. (2007). Environmental Tobacco Smoke Exposure and Respiratory Morbidity in Children. *Inhalation Toxicology*, 19(9), 779-785.
- Coburn, D. (2000). Income inequality, social cohesion and the health status of populations: the role of neo-liberalism. *Social Science & Medicine*, 51, 135-146.
- Coburn, D. (2004). Beyond the income inequality hypothesis: class, neo-liberalism, and health inequalities. *Social Science & Medicine*, 58, 41-56.
- Collins B.N., Nair U.S., Hovell M.F., DiSantis K.I., JaDe K., Tolley N.M., et al. (2015). Reducing underserved children's exposure to tobacco smoke: a randomized counseling trial with maternal smokers. *American Journal of Preventive Medicine*, 49(4):534-44.
- Collins, B. N., Lepore, S. J., Winickoff, J. P., & Sosnowski, D. W. (2020). Parents' Self-efficacy for Tobacco Exposure Protection and Smoking Abstinence Mediate Treatment Effects on Child Cotinine at 12-Month Follow-up: Mediation Results from the Kids Safe and Smokefree Trial. *Nicotine & Tobacco Research*, 22(11), 1981–1988.
- Collishaw, N. L. (2010). The Millennium Development Goals and tobacco control. *Global Health Promotion*, Supp(1), 51-59.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research* (Vol. 2nd ed). Los Angeles: SAGE Publications.
- Curry, S.J., Ludman, E.J., Graham, E., Stout, J., Grothaus, L., Lozano, P. (2003). Pediatric-based smoking cessation intervention for lowincome women: a randomized trial. *Archives of Pediatrics and Adolescent Medicine*, 157(3):295-302.
- Curry, L., & Nunez-Smith, M. (2015). *Mixed Methods in Health Sciences Research - A practical primer*. Thousand Oaks: CA: SAGE Publications.
- Davey Smith, G., & Hart, C. (2002). Life-Course Socioeconomic and Behavioral Influences on Cardiovascular Disease Mortality: The Collaborative Study . *Am J Public Health*, 1295-1298.
- Deaton, A. (2003). Health, Inequality, and Economic Development. *Journal of Economic Literature*, 41, 113-158.
- Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, 1(4), 227-268.

- Deci, E. L., & Ryan, R. M. (2006). Self-Regulation and the Problem of Human Autonomy: Does Psychology Need Choice, Self-Determination, and Will? *Journal of Personality*, 74, 1557-1586.
- Delpisheh, A., Kelly, Y., & Brabin, B. J. (2006). Passive cigarette smoke exposure in primary school children in Liverpool. *Public Health*, 120, 65-69.
- Dereksen, M. E., Kunst, A. E., Murugesu, L., Jaspers, M. W., & Fransen, M. P. (2021). Smoking cessation among disadvantaged young women during and after pregnancy: Exploring the role of social networks. *Midwifery*, 98, 102985.
- Drope, J., Schluger, N., Cahn, Z., Drope, J., Hamill, S., Islami, F., . . . Stoklosa, M. (2016). *The Tobacco Atlas*. Atlanta: American Cancer Society and Vital Strategies.
- Ellison, G. T. (2002). Letting the Gini out of the bottle? Challenges facing the relative income hypothesis. *Social Science & Medicine*, 54, 561-567.
- Emmons, K.M., Hammond, S.K., Fava, J.L., Velicer, W.F., Evans, J.L., Monroe, A.D. (2001). A randomized trial to reduce passive smoke exposure in low-income households with young children. *Pediatrics*, 108(1):18-24.
- European Comission. (2019, 01 22). Romania country profile. Retrieved April, 2021 from EURYDICE: [https://eacea.ec.europa.eu/national-policies/eurydice/content/political-social-and-economic-background-and-trends-64\\_en](https://eacea.ec.europa.eu/national-policies/eurydice/content/political-social-and-economic-background-and-trends-64_en)
- European Observatory of Health Systems and Policies. (2021). Romania Country Overview. Retrieved April, 2021 from European Observatory of Health Systems and Policies: <https://eurohealthobservatory.who.int/countries/romania/>
- Eurostat. (2017). European Comission. Retrieved June, 2021 from Eurostat: <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20171102-1>
- Eurostat. (2021, 02 09). Health workforce migration. Retrieved April, 2021 from Eurostat Data Browser: [https://ec.europa.eu/eurostat/databrowser/view/HLTH\\_RS\\_WKMG\\_\\_custom\\_853276/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/HLTH_RS_WKMG__custom_853276/default/table?lang=en)
- Eurostat. (2021, 02 09). Individuals who have never used a computer. Retrieved April, 2021 from Eurostat Data Browser: [https://ec.europa.eu/eurostat/databrowser/view/isoc\\_r\\_cux\\_i/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/isoc_r_cux_i/default/table?lang=en)
- Eurostat. (2021, 02 09). Individuals' level of digital skills. Retrieved 2021, April from Eurostat Data Browser:

[https://ec.europa.eu/eurostat/databrowser/view/isoc\\_sk\\_dskl\\_i/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/isoc_sk_dskl_i/default/table?lang=en)

Eurostat. (2021, 02 13). Average satisfaction by domain, sex, age and educational attainment level. Retrieved April, 2021 from Eurostat Data Browser:

[https://ec.europa.eu/eurostat/databrowser/view/ILC\\_PW01\\_\\_custom\\_851493/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ILC_PW01__custom_851493/default/table?lang=en)

Eurostat. (2021, 02 23). Health care expenditure by provider. Retrieved April, 2021 from Eurostat Data Browser:

[https://ec.europa.eu/eurostat/databrowser/view/HLTH\\_SHA11\\_HP\\_\\_custom\\_853180/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/HLTH_SHA11_HP__custom_853180/default/table?lang=en)

Eurostat. (2021, 02 25). Gender pay gap in unadjusted form by NACE Rev.2 activity. Retrieved April, 2021 from Eurostat Data Browser:

[https://ec.europa.eu/eurostat/databrowser/view/earn\\_gr\\_gpgr2\\$DV\\_595/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/earn_gr_gpgr2$DV_595/default/table?lang=en)

Eurostat. (2021, 03 26). Self-reported unmet need for medical examination and care by sex. Retrieved April, 2021 from Eurostat Data Browser:

[https://ec.europa.eu/eurostat/databrowser/view/sdg\\_03\\_60/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/sdg_03_60/default/table?lang=en)

Eurostat. (2021, April 2021). Employment rates by sex, age and citizenship. Retrieved April, 2021 from Eurostat Data Browser:

[https://ec.europa.eu/eurostat/databrowser/view/lfsa\\_organ/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/lfsa_organ/default/table?lang=en)

Eurostat. (2021, April 22). Severe material deprivation by age and sex. Retrieved April, 2021 from Eurostat Data Browser:

[https://ec.europa.eu/eurostat/databrowser/view/ILC\\_MDDD11\\_\\_custom\\_851258/default/bar?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ILC_MDDD11__custom_851258/default/bar?lang=en)

Eurostat. (2021, March 25). Mean and median income by age and sex - EU-SILC and ECHP surveys. Retrieved April, 2021 from Eurostat Data Browser:

[https://ec.europa.eu/eurostat/databrowser/view/ILC\\_DI03\\_\\_custom\\_851314/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ILC_DI03__custom_851314/default/table?lang=en)

Eurostat. (2021, March 4). Eurostat Data Browser. Retrieved April, 2021 from Expenditure: main results:

[https://ec.europa.eu/eurostat/databrowser/view/spr\\_exp\\_sum/default/bar?lang=en](https://ec.europa.eu/eurostat/databrowser/view/spr_exp_sum/default/bar?lang=en)

Fabrigar, L. R., & Wegener, D. T. (2012). Exploratory Factor Analysis. New York: Oxford University Press.

- Ferketich AK, L. A. (2016). Relation between national-level tobacco control policies and individual-level voluntary home smoking bans in Europe. *Tobacco Control*, 25, 60-65.
- Fernandez, E., Garcia, M., Schiaffino, A., Borrás, J., Nebot, M., & Segura, A. (2001). Smoking Initiation and Cessation by Gender and Educational Level in Catalonia, Spain. *Preventive Medicine*, 32(3), 218-223.
- Ferris, E., Cummins, C., Chiswell, C., & Jones, L. J. (2021). A Mixed-Methods Systematic Review and Synthesis of Secondary Care Interventions to Reduce Secondhand Smoke Exposure Among Children and Young People. *Nicotine & Tobacco Research*, 23(4), 643-653.
- Fibieger Byskov, M. (2020). Beyond 'having reason to value': why we should adopt a procedure-independent and value-neutral definition of capabilities. *Journal of Economic Methodology*, 27(1), 18-35.
- Finlay, L., & Gough, B. (2003). *Reflexivity: A Practical Guide for Researchers in Health and Social Sciences*. Oxford: Blackwell Science.
- Fleischer, N. L., Diez Roux, A. V., & Hubbard, A. E. (2012). Inequalities in body mass index and smoking behavior in 70 countries: evidence for a social transition in chronic disease risk. *Am J Epidemiol*, 175, 167-176.
- Fleming, P., & Blair, P. S. (2007). Sudden Infant Death Syndrome and parental smoking. *Early Hum Dev*, 83(11), 721-5.
- Flynn, T., Chan, P., & Coast, J. e. (2011). Assessing quality of life among British older people using the ICEPOP CAPability (ICECAP-O) measure. *Appl Health Econ Health Policy*, 9, 317-329.
- Flynn, T., Huynh, E., Peters, T., Al-Janabi, H., Clemens, S., Moody, A., & Coast, J. (2015). Scoring the Icecap-a capability instrument. Estimation of a UK general population tariff. *Health Economics*, 24(3), 258-269.
- Foster, J., & Sen, A. (1997). *On Economic Inequality*. Oxford: Clarendon Press.
- French GM, Groner JA, Wewers ME, Ahijevych K. (2007). Staying smoke free: an intervention to prevent postpartum relapse. *Nicotine & Tobacco Research*, 9(6):663-70.
- Frohlich, K. L. (2013). Learning from the social sciences in chronic diseases health promotion: Structure, agency and distributive justice. In M. D., *Global Handbook on Noncommunicable Diseases and Health Promotion* (pp. 73-82). New York: Springer.
- Frohlich, K. L., & Potvin, L. (2008). Transcending the known in public health practice: the inequality paradox: the population approach and vulnerable populations. *Am J Public Health*, 98, 216-221.

- Fu, M., Castellano, Y., Tigova, O., Kyriajos, C., Fong, G., Mons, U., . . . Fernandez, E. (2019). Prevalence and correlates of different smoking bans in homes and cars among smokers in six countries of the EUREST-PLUS ITC Europe Surveys. *Tob Induc Dis*, 16, A8.
- Gaspar, D. (2007). What is the capability approach?. Its core, rationale, partners and dangers. *Journal of Socio-Economics*, 36(3), 335-359.
- GBD 2015 Tobacco Collaborators. (2017, May 13). Smoking prevalence and attributable disease burden in 195 countries and territories, 1990–2015: a systematic analysis from the Global Burden of Disease Study 2015. *The Lancet*, 1885-1906.
- Goodchild, M., Nargis, N., & d'Espaignet, T. (2018). Global economic cost of smoking-attributable diseases. *Tobacco Control*, 27, 58–64.
- Graham, H. (2002). Building an inter-disciplinary science of health inequalities: the example of lifecourse research. *Soc Sci Med*, 55, 2005-2016.
- Green, E., Courage, C., & Rushton, L. (2003). Reducing domestic exposure to environmental tobacco smoke: a review of attitudes and behaviours. *The Journal of the Royal Society for the Promotion of Health*, 123(1), 46-51.
- Greene, J. C., & Hall, J. N. (2010). *Dialectics and Pragmatism: Being of Consequence*. In A. Tashakkori, & C. Teddlie, *SAGE Handbook of Mixed Methods in Social & Behavioral Research*. Thousand Oaks, CA: SAGE Publishing.
- Gregoraci, G., van Lenthe, F., Artnik, B., Bopp, M., Deboosere, P., Kovacs, K., . . . Mackenbach, J. (2016). Contribution of smoking to socioeconomic inequalities in mortality: a study of 14 European countries, 1990–2004. *Tobacco Control*, 26, 260-268.
- Guillaumier, A., Bonevski, B., & Paul, C. (2012). Anti-tobacco mass media and socially disadvantaged groups: a systematic and methodological review. *Drug Alcohol Rev*, 31, 698-708.
- Harper, S., & McKinnon, B. (2012). Global socioeconomic inequalities in tobacco use: internationally comparable estimates from the World Health Surveys. *Cancer Causes Control*, 23(Suppl 1), 11-25.
- Harutyunyan, A., Movsisyan, N., Petrosyan, V., Petrosyan, D., Stillman, F. (2013). Reducing children's exposure to secondhand smoke at home: a randomized trial. *Pediatrics*, 132(6):1071-80.
- Henderson, H., & Follett, L. (2020). A Bayesian framework for estimating human capabilities. *World Development*, 129, 104872.



- Hersberger, J. (2003). A qualitative approach to examining information transfer via social networks among homeless populations. *The New Review of Information Behaviour Research: Studies of Information Seeking in Context*, 4, 95-108.
- Hiscock, R., Bauld, L., Amos, A., Fidler, J., & Munafò, M. (2012). Socioeconomic status and smoking: a review. *Ann N Y Acad Sci*, 1248, 107-23.
- Hovanec, J., Siemiatycki, J., Conway, D. I., Olsson, A., Stücker, I., Guida, F., . . . McL. (2018). Lung cancer and socioeconomic status in a pooled analysis of case-control studies. *PloS one*, 13(2), e0192999.
- IGME. (2020). Data - Compare Estimates. Retrieved April, 2021 from IGME UN Inter-agency Group for Child Mortality Estimations: <https://childmortality.org/data>
- Ivankova, N. V., & Kawamura, Y. (2010). Emerging Trends in the Utilization of Integrated Designs in the Social, Behavioral and Health Sciences. In A. Tashakkori, & C. Teddlie, *Sage handbook of mixed methods in social & behavioral research*. Thousand Oaks, CA: SAGE Publications.
- Iversen, V. (2003). Intra-Household Inequality: A Challenge for the Capability Approach? *Feminist Economics*, 9(2-3), 93-115.
- Johnson, E., Dominici, F., Griswold, M., & Zeger, S. (2003). Disease cases and their medical costs attributable to smoking: an analysis of the national medical expenditure survey. *Journal of Econometrics*, 112(1), 135-151.
- Jones, L. L., Atkinson, O., Longman, J., Coleman, T., McNeill, A., & Lewis, S. A. (2011). The Motivators and Barriers to a Smoke-Free Home Among Disadvantaged Caregivers: Identifying the Positive Levers for Change. *Nicotine & Tobacco Research*, 13(6), 479-486.
- Jones, L., Hashim, A., McKeever, T., Cook, D., Britton, J., & Leonardi-Bee, J. (2011). Parental and household smoking and the increased risk of bronchitis, bronchiolitis and other lower respiratory infections in infancy: systematic review and metaanalysis. *Respir Res*, 12, 5.
- Joossens, L., & Raw, M. (2007). *Progress in Tobacco Control in 30 European Countries, 2005 to 2007*. Berne: Swiss Cancer League.
- Joossens, L., & Raw, M. (2011). *The Tobacco Control Scale 2010 in Europe*. Brussels: Association of European Cancer Leagues.
- Kegler, M.C., Bundy, L., Haardorfer R., EscoDery, C., Berg, C., Yembra, D., et al. (2015). A minimal intervention to promote smokefree homes among 2-1-1 callers: a randomized controlled trial. *American Journal of Public Health*, 105(3):530-7.

- Kim, S., Wipfli, H., Navas-Acien, A., Dominici, F., Avila-Tang, E., Onicescu, G., . . . Samet, J. M. (2009). Determinants of Hair Nicotine Concentrations in Nonsmoking Women and Children: A Multicountry Study of Secondhand Smoke Exposure in Homes. *Cancer Epidemiol Biomarkers Prev*, 18, 3407-3414.
- Kinghorn, P., & Coast, J. (2018). Assessing the capability to experience a 'good death': A qualitative study to directly elicit expert views on a new supportive care measure grounded in Sen's capability approach. *PLOS One*, 13(2).
- Kinghorn, P. (2015). Exploring Different Interpretations of the Capability Approach in a Health Care Context: Where Next? *Journal of Human Development and Capabilities*, 16(4), 600-616.
- Kinghorn, P., Robinson, A., & Smith, R. D. (2014). Developing a Capability-Based Questionnaire for Assessing Well-Being in Patients with Chronic Pain . *Social Indicators Research*, 897-916.
- Kroenke, K., Spitzer, R. L., Williams, J. B., & Lowe, B. (2009). An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ-4. *Psychosomatics*, 50(6), 613-621.
- Kuiper, S., Maas, T., van Schayck, C.P., Muris, J.W., Schonberger, H.J., Dompeling, E., et al. (2005). The primary prevention of asthma in children study: design of a multifaceted prevention program. *Pediatric Allergy and Immunology*, 16(4):321-31.
- Kum-Nji, P., Mangrem, C., Wells, P., & Herrod, H. (2009). Is Environmental Tobacco Smoke Exposure a Risk Factor for Acute Gastroenteritis in Young Children? *Clinical Pediatrics*, 48(7), 756-762.
- Kwok, M., Schooling, C., Ho, L., Leung, S., Mak, K., McGhee, S., . . . Leung, G. (2016). Early life second-hand smoke exposure and serious infectious morbidity during the first 8 years: evidence from Hong Kong's "Children of 1997" birth cohort. *Tobacco Control*, 17, 263-270.
- Lam, T. H., Leung, G. M., & Ho, L. M. (2001). The effects of environmental tobacco smoke on health services utilization in the first eighteen months of life. *Pediatrics*, 107, e91.
- Landman, A., Ling, P. M., & Glantz, S. A. (2002). Tobacco industry youth smoking prevention programs: protecting the industry and hurting tobacco control. *American Journal of Public Health*, 92, 917-930.
- Levy, N. (2006). Autonomy and Addiction. *Canadian Journal of Philosophy*, 36(3), 427-448.
- Link, B. G. (2008). Epidemiological sociology and the social shaping of population health. *J Health Soc Behav*, 49, 367-384.

- Link, B., & Phelan, J. (1995). Social conditions as fundamental causes of disease. *J Health Soc Behav*, 90-94.
- López Barreda, R., Robertson-Preidler, J., & Bedregal García, P. (2019). Health assessment and the capability approach. *Global Bioethics*, 30(1), 19-27.
- Lopez, A. D., Collishaw, N. E., & Piha, T. (1994). A descriptive model of the cigarette epidemic in developed countries. *Tobacco Control*, 3, 242-247.
- Lorenc, T., Petticrew, M., Welch, V., & Tugwell, P. (2013). What types of interventions generate inequalities? Evidence from systematic reviews. *J Epidemiol Community Health*, 67(2), 190-193.
- Lorgelly, P., Lorimer, K., Fenwick, E., Briggs, A., & Anand, P. (2015). Operationalising the capability approach as an outcome measure in public health: The development of the OCAP-18. *Social Science & Medicine*, 142, 68-81.
- Lynch, J. (2000). Income inequality and health: expanding the debate. *Soc Sci Med*, 51, 1001-5.
- Lynch, J., & Davey Smith, G. (2005). A lifecourse approach to chronic disease epidemiology. *Annu Rev Public Health*, 26, 1-35.
- Lynch, J., Davey Smith, G., Harper, S., & Hillemeier, M. (2004). Is Income Inequality a Determinant of Population Health? Part 2. U.S. National and Regional Trends in Income Inequality and Age- and Cause-Specific Mortality. *Millbank Q*, 82, 355-400.
- Lynch, J., Smith, G., Hillemeier, M., Shaw, M., Raghunathan, T., & Kaplan, G. (2001). Income inequality, the psychosocial environment, and health: comparisons of wealthy nations. *The Lancet*, 358(9277), 194-200.
- Lynch, J., Smith, G., Kaplan, G., & House, J. (2000). Income inequality and mortality: importance to health of individual income, psychosocial environment, or material conditions. *BMJ*, 320(7243), 1200-4.
- Mabsout, R. (2011). Capability and Health Functioning in Ethiopian Households. *Social Indicators Research*, 101(3), 359-389.
- Macinko, J., Shi, L., Starfield, B., & Wulu, J. J. (2003). Income inequality and health: a critical review of the literature. *Med Care Res Rev*, 60(4), 407-52.
- Mackenbach, J. P. (2010). Has the English strategy to reduce health inequalities failed? *Soc Sci Med*, 71, 1249-1258.
- Mackenbach, J. P. (2012). The persistence of health inequalities in modern welfare states: the explanation of a paradox. *Soc Sci Med*, 75(4), 761-9.

- Mackenbach, J. P., & Howden-Chapman, P. (2003). New perspectives on socioeconomic inequalities in health. *Perspect Biol Med*, 46, 428-444.
- Mackenbach, J. P., Stirbu, I., Roskam, A.-J. R., Schaap, M. M., Menvielle, G., Leinsalu, M., & Kunst, A. E. (2008). Socioeconomic Inequalities in Health in 22 European Countries. *N Engl J Med*, 358, 2468-2481.
- Makadia, L. D., Roper, J. P., Andrews, J. O., & Tingen, M. S. (2017). Tobacco Use and Smoke Exposure in Children: New Trends, Harm, and Strategies to Improve Health Outcomes. *Curr Allergy Asthma Rep*, 14, 55.
- Markland, D., Ryan, R. M., Tobin, V. J., & Rollnick, S. (2005). Motivational Interviewing and Self-Determination Theory. *Journal of Social and Clinical Psychology*, 24(6), 811-831.
- Marmot, M., & Wilkinson, R. G. (2001). Psychosocial and material pathways in the relation between income and health: a response to Lynch et al. *BMJ*, 322, 1233-1236.
- Maso, I. (2003). Confession, Catharsis, or Cure? Rethinking the Uses of Reflexivity as Methodological Power in Qualitative Research. In L. Finlay, & B. Gough, *Reflexivity: A Practical Guide for Researchers in Health and Social Sciences*. Oxford: Blackwell Science.
- Matthers, C. D., & Loncar, D. (2006). Projections of Global Mortality and Burden of Disease from 2002 to 2030. *PLOS Medicine*, 3(11), e442.
- Maxwell, J. A., & Mittapalli, K. (2010). Realism as a Stance for Mixed Methods Research. In A. Tashakkori, & C. Teddlie, *SAGE Handbook of Mixed Methods Research in Social and Behavioral Research*. Thousand Oaks: CA: SAGE Publishing.
- Mellor, J. M., & Milyo, J. (2001). Reexamining the evidence of an ecological association between income inequality and health. *J Health Polit Policy Law*, 26, 487-522.
- Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, 6, 42.
- Miller, T., Rauh, V. A., Glied, S. A., Hattis, D., Rundle, A., Andrews, H., & Perera, F. (2006). The economic impact of early life environmental tobacco smoke exposure: early intervention for developmental delay. *Environmental health perspectives*, 14(10), 1585–1588.
- Miller, W. R., & Rollnik, S. (2002). *Motivational Interviewing: Preparing People for Change*. New York: Guilford Publications.

- Ministry of Health Romania. (2011). Global Adult Tobacco Survey: Romania. Bucharest: Ministry of Health.
- Mitchell, P. M., Roberts, T. E., Barton, P. M., & Coast, J. (2017). Applications of the Capability Approach in the Health Field: A Literature Review. *Social Indicators Research*, 133(1), 345-371.
- Mitchie, S., Atkins, L., & West, R. (2014). *The Behaviour Change Wheel - A Guide to Designing Interventions*. Great Britain: Silverback Publishing.
- Morgan, D. (2014). *Integrating Qualitative and Quantitative Methods: A Pragmatic Approach*. London: SAGE Publications, Inc.
- Morgan, D. L. (2007). Paradigms Lost and Pragmatism Regained: Methodological Implications of Combining Qualitative and Quantitative Methods. *Journal of Mixed Methods Research*, 1(1), 48-76.
- Morgan, D. L. (2014). Pragmatism as a Paradigm for Social Research. *Qualitative Inquiry*, 20(8), 1045-1053.
- Murray, R., & McNeill, A. (2012). Reducing the social gradient in smoking: initiatives in the United Kingdom. *Drug Alcohol Rev*, 31(5), 693-7.
- Nadhiroh, S. R., Djokosujono, K., & Utari, D. M. (2020). Socioeconomic characteristics, paternal smoking and secondhand tobacco smoke exposure among infants in Jakarta, Indonesia. *Tobacco induced diseases*, 18, 38.
- Nanninga, S., Lehne, G., Ratz, T., & Bolte, G. (2019). Impact of Public Smoking Bans on Social Inequalities in Children's Exposure to Tobacco Smoke at Home: An Equity-Focused Systematic Review. *Nicotine Tob Res*, 22(11), 1462-1472.
- National Institute for Health and Care Excellence. (2014). *Developing NICE guidelines: the manual - Process and Methods*. Retrieved January, 2021 from nice.org.uk:  
<https://www.nice.org.uk/process/pmg20/chapter/incorporating-economic-evaluation>
- National Institute for Statistics Romania. (2011). Volume I: Resident Population - Demographic Structure. Retrieved November, 2020 from Census Romania 2011: <http://www.recensamantromania.ro/noutati/volumul/>
- Nazar, G. P., Lee, J. T., Arora, M., & Millett, C. (2016). Socioeconomic inequalities in secondhand smoke exposure at home and at work in 15 low- and middle-income countries. *Nicotine and Tobacco Research*, 18(5), 1230-1239.

- Neubauer, S., Welte, R., Beiche, A., & al, e. (2006). Mortality, morbidity and costs attributable to smoking in Germany: update and a 10-year comparison. *Tobacco Control*, 15, 464-471.
- Niaura, R., & Abrams, D. B. (2002). Smoking cessation: progress, priorities, and prospectus. *J Consult Clin Psychol*, 70, 494-509.
- Nikiema, B., Haddad, S., & Potvin, L. (2012). Measuring women's perceived ability to overcome barriers to healthcare seeking in Burkina Faso. *BMC Public Health*, 12(1), 147.
- Nussbaum, M. (2000). Women's Capabilities and Social Justice. *Journal of Human Development*, 1(2), 219-247.
- Nussbaum, M. C. (2011). *Creating Capabilities: The Human Development Approach*. Cambridge: Mass.: Belknap Press of Harvard University Press.
- O'Donnell, R., Angus, K., McCulloch, P., Amos, A., Greaves, L., & Semple, S. (2019). Fathers' Views and Experiences of Creating a Smoke-Free Home: A Scoping Review. *International Journal of Environmental Research and Public Health*, 16, 5164.
- O'Donnell, R., Amos, A., Turner, S., Adams, L., Henderson, T., Lyttle, S., . . . Semple, S. (2020). 'They only smoke in the house when I'm not in': understanding the limited effectiveness of a smoke-free homes intervention. *Journal of Public Health*, fdaa042.
- OECD & European Observatory on Health Systems and Policies. (2019). *State of Health in the EU: Romania Country Health Profile*.
- Oliver, C. (2012). Critical realist grounded theory: A new approach for social work research. *British Journal of Social Work*, 42(2), 371-387.
- Ortega Cuelva, G., Cabezas Pena, C., Almeda Ortega, J., Saez Zafra, M., Ballve Moreno, J.L., Pascual Esteban, J.A., et al. (2015). Effectiveness of a brief primary care intervention to reduce passive smoking in babies: a cluster randomised clinical trial. *Journal of Epidemiology and Community Health*, 69(3):249-60.
- Padgett, D. K. (2012). *Qualitative and Mixed Methods in Public Health*. Thousand Oaks, CA: SAGE Publications.
- Palipudi, K., Gupta, P., Sinha, D., Andes, L., Asma, S., McAfee, T., & Group, G. C. (2012). Social determinants of health and tobacco use in thirteen low and middle income countries: evidence from Global Adult Tobacco Survey. *PLoS One*, 7(3), e33466.
- Pampel, F. C., Krueger, P. M., & Denney, J. T. (2010). Socioeconomic Disparities in Health Behaviors . *Annu Rev Sociol*, 349-370.

- Parry, O., Thomson, C., & Fowkes, G. (1999). Life Course Data Collection: Qualitative Interviewing using the Life Grid. *Sociological Research Online*, 4(2).
- Partos, T., Hiscock, R., Gilmore, A., Branston, J., Hitchman, S., & McNeill, A. (2020). Impact of tobacco tax increases and industry pricing on smoking behaviours and inequalities: a mixed-methods study. *Public Health Res*, 8(6).
- Passey, M. E., Longman, J. M., Robinson, J., Wiggers, J., & Jones, L. L. (2016). Smoke-free homes: what are the barriers, motivators and enablers? A qualitative systematic review and thematic synthesis. *BMJ Open*, 6, e010260.
- Patrick, H., & Williams, G. (2012). Self-determination theory: its application to health behavior and complementarity with motivational interviewing. *Int J Behav Nutr Phys Act*, 9, 18.
- Patton, G., Sawyer, S., Santelli, J., Ross, D., Affi, R., Allen, N., . . . Baldwin, W. e. (2016). Our future: a Lancet commission on adolescent health and wellbeing. *The Lancet*, 387(10036), 2423-2478.
- Peruga, A., López, M. J., Martinez, C., & Fernández, E. (2021). Tobacco control policies in the 21st century: achievements and open challenges. *Molecular oncology*, 15(3), 744–752.
- Phelan, J., Link, B., & Tehranifar, P. (2010). Social conditions as fundamental causes of health inequalities: theory, evidence and policy implications. *J Health Soc Behav, Suppl*, 28-40.
- Philip Morris. (2001, November 1). CEMA Project 2000 - Participants. Retrieved June, 2013 from Legacy Tobacco Documents Library. [Online] Bates Number 2073306988: <http://legacy.library.ucsf.edu/tid/qxy27d00>
- Phillips, R., Amos, A., Ritchie, D., Cunningham-Burley, S., & Martin, C. (2007). Smoking in the home after the smoke-free legislation in Scotland: qualitative study. *BMJ*, 335(7619), 553.
- Phillips, R.M., Merritt, T.A., Goldstein, M.R., Deming, D.D., Slater, L.E., Angeles, D.M. (2012). Prevention of postpartum smoking relapse in mothers of infants in the neonatal intensive care unit. *Journal of Perinatology*, 32(5):374-80.
- Pillow, W. (2003). Confession, Catharsis, or Cure? Rethinking the Uses of Reflexivity as Methodological Power in Qualitative Research. *International Journal of Qualitative Studies in Education*, 16(2), 175-196.

- Pirie, K., Peto, R., Reeves, G. K., Green, J., & Beral, V. (2013). The 21st century hazards of smoking and benefits of stopping: a prospective study of one million women in the UK. *The Lancet*, 381(9861), 133-141.
- Priest, N., Roseby, R., Wtares, E., Polnay, A., Campbell, R., Spencer, N., . . . Ferguson-Thorne, G. (2008). Family and carer smoking control programmes for reducing children's exposure to environmental tobacco smoke (Review). *Cochrane Database of Systematic Reviews*(4), CD001746.
- Prokhorov, A.V., Hudmon, K.S., Marani, S.K., Bondy, M.L., Gatus, L.A., Spitz, M.R., et al. (2013). Eliminating second-hand smoke from MexicanAmerican households: outcomes from Project Clean Air-Safe Air (CASA). *Addictive Behaviors*, 38(1):1485-92.
- Raghuveer, G., White, D., Hayman, L., Woo, J., Villafane, J., Celermajer, D., . . . Zachariah, J. (2016). Cardiovascular Consequences of Childhood Secondhand Tobacco Smoke Exposure: Prevailing Evidence, Burden, and Racial and Socioeconomic Disparities. *Circulation*, 134, e336–e359.
- Rasmussen, S. R., Søgaaard, J., & Kjellberg, J. (2021). Lifetime costs and lifetime net public expenditures of smoking. *European Journal of Public Health*, ckaa209.
- Raum, E., Küpper-Nybelen, J., Lamerz, A., Hebebrand, J., Herpertz-Dahlmann, B., & Brenner, H. (2011). Tobacco smoke exposure before, during, and after pregnancy and risk of overweight at age 6. *Obesity*, 19(12), 2411-7.
- Rijke, W. J., Vermeulen, A. M., Wendrich, K., Mylanus, E., Langereis, M., & van der Wilt, G. J. (2019). Capability of deaf children with a cochlear implant. *Disability and Rehabilitation*, 1-6.
- Rise, J., & Lund, K. E. (2005). Predicting children's level of exposure to environmental tobacco smoke based on two national surveys in Norway in 1995 and 2001. *Addict Behav*, 30, 1267-1271.
- Robertson, P. J. (2018). Building capabilities in disabled job seekers: A qualitative study of the Remploy Work Choices programme in Scotland. *Social Work & Society*, 16(1).
- Robeyns, I. (2003). Sen's Capability Approach and Gender Inequality: Selecting Relevant Capabilities. *Feminist Economics*, 9(2-3), 61-92.
- Robeyns, I. (2017). *Wellbeing, Freedom and Social Justice - The Capability Approach Re-Examined*. Cambridge: Open Book Publishers.
- Robinson, J. (2008). 'Trying my hardest': the hidden social costs of protecting children from environmental tobacco smoke. *International Review of Qualitative Research*, 1(2), 173-194.



- Robinson, J., Ritchie, D., Amos, A., Greaves, L., & Cunningham-Burley, S. (2011). Volunteered, negotiated, enforced: family politics and the regulation of home smoking. *Sociology of Health & Illness*, 33(1), 66-80.
- Romanian Ministry of Education and Research. (2011, Oct 1). National Education Law, Chapter III, Art. 20. Retrieved June 2, 2013 from <http://www.edu.ro/index.php/legaldocs/14847>
- Rose, V. K., & Thompson, L. M. (2012). Space, place and people: a community development approach to mental health promotion in a disadvantaged community. *Community Development Journal*, 47(4), 604-611.
- Roseby, R., Waters, E., Polnay, A., Campbell, R., Webster, P., & Spencer, N. (2003). Family and carer smoking control programmes for reducing children's exposure to environmental tobacco smoke. *Cochrane Database Systematic Reviews*(3), CD001746.
- Rosen, L. J., Myers, V., Winickoff, J. P., & Kott, J. (2015). Effectiveness of Interventions to Reduce Tobacco Smoke Pollution in Homes: A Systematic Review and Meta-Analysis. *Environmental Research and Public Health*, 12(12), 16043-16059.
- Rückinger, S., Rzehak, P., Chen, C. M., Sausenthaler, S., Koletzko, S., Bauer, C. P., . . . Group, & G.-p. (2010). Prenatal and postnatal tobacco exposure and behavioral problems in 10-year-old children: results from the GINI-plus prospective birth cohort study. *Environmental health perspectives*, 118(1), 150-154.
- Ruger, P. J. (2009). *Health and Social Justice*. New York: Oxford University Press.
- Ruger, P. J. (2010). Health Capability: Conceptualization and Operationalization. *Health Policy and Ethics*, 100(1), 41-49.
- Ruger, P. J., & Zhang, K. (2019). Addiction as Capabilities Failure. *University of Pennsylvania Journal of Law and Public Affair*, 5(1), 25-61.
- Salem, E. A.-A., Saheen, H. M., & Allam, H. K. (2020). Secondhand tobacco smoke, does it have an impact on the neurobehavioral performance of the exposed children? *Environ Sci Pollut Res Int*, 27(36), 44701-44708.
- Salmond, C., Crampton, P., Atkinson, J., & Edwards, R. (2012). A decade of tobacco control efforts in New Zealand (1996-2006): impacts on inequalities in census-derived smoking prevalence. *Nicotine Tob Res*, 14(6), 664-73.
- Sammons, P. (2010). The Contribution of Mixed Methods to Recent Research on Educational Effectiveness. In A. Tashakkori, & C. Teddlie, *Sage handbook of mixed methods in social & behavioral research*. Thousand Oaks, CA: SAGE Publications.

- Schuster, M., Franke, T., & Pham, C. (2002). Smoking Patterns of Household Members and Visitors in Homes With Children in the United States. *Arch Pediatr Adolesc Med.*, 156(11), 1094-1100.
- Sen, A. (1985). *Commodities and Capabilities*. Amsterdam: North Holland.
- Sen, A. (1987). *Gender and Cooperative Conflicts*. Helsinki: Wider .
- Sen, A. (1992). *Inequality Reexamined*. Oxford: Claredon Press.
- Sen, A. (1993). Capability and well-being. In A. Sen, *The Quality of Life* (pp. 30-53). Oxford: Claredon Press.
- Sen, A. (2005). Human Rights and Capabilities. *Journal of Human Development*, 6(2), 151-166.
- Sharma, A., Lewis, S., & Szatkowski, L. (2010). Insights into social disparities in smoking prevalence using Mosaic, a novel measure of socioeconomic status: an analysis using a large primary care dataset. *BMC Public Health*, 10, 755.
- Simon, J., Anand, P., Gray, A., Rugkåsa, J., & Yeeles, K. (2013). Operationalising the capability approach for outcome measurement in mental health research. *Social Science & Medicine*, 98, 187-196.
- Simpson, D. (2000). Romania: mixed messages. *Tbacco Control*, 9(3), 268.
- Smith, C. E., Hill, S. E., & Amos, A. (2020). Impact of population tobacco control interventions on socioeconomic inequalities in smoking: a systematic review and appraisal of future research directions . *Tobacco Control*, Published Online First: 29 September 2020.
- Stoddard, J. J., & Gray, B. (1997). Maternal smoking and medical expenditures for childhood respiratory illness. *Am J Public Health*, 87, 205-209.
- Stotts, A., Northrup, T., Green, C., Suchting, R., Hovell, M., Khan, A., . . . Tyson, J. (2020). Reducing Tobacco Smoke Exposure in High-Risk Infants: A Randomized, Controlled Trial. *J Pediatr*, 218, 35-41.
- Strachan, D., & Cook, D. (1997). Health effects of passive smoking. 1. Parental smoking and lower respiratory illness in infancy and early childhood. *Thorax*, 52(10), 905-914.
- Studlar, D. T., & Christensen, K. (2009). The Impact of Tobacco Control Policies in the EU: Comparing Old and New Member States. *EUSA Conference*. Los Angeles.
- Szabo, A., Lazar, E., Burian, H., Rogers, T., Foley, K., Abram, Z., . . . Chaloupka, F. (2016). The Economics of Tobacco and Tobacco Taxation in Romania.

University of Medicine and Pharmacy Tg Mures. Târgu Mureş: Editura  
University Press Tîrgu Mureş.

- Tashakkori, A., & Teddlie, C. (2010). SAGE handbook of mixed methods in social & behavioral research. Thousand Oaks, CA: SAGE Publications.
- Teixeira, P. J., Marques, M. M., Silva, M. N., Brunet, J., Duda, J. L., Haerens, L., . . . al., e. (2020). A classification of motivation and behavior change techniques used in self-determination theory-based interventions in health contexts. *Motivation Science*, 6(4), 438-455.
- The American Cancer Society. (2016). Romania Fact-Sheet. Retrieved April, 2021 from The Tobacco Atlas: <https://files.tobaccoatlas.org/wp-content/uploads/pdf/romania-country-facts-en.pdf>
- The World Bank. (2021, February 10). The World Bank in Romania: Country Overview. From The World Bank Official Website: <https://www.worldbank.org/en/country/romania/overview>
- Thomas, S., Fayter, D., Misso, K., Ogilvie, D., Petticrew, M., Sowden, A., . . . Worthy, G. (2008). Population tobacco control interventions and their effects on social inequalities in smoking: systematic review. *Tobacco Control*, 17(4), 230-7.
- Thun, M., Peto, R., Boreham, J., & Lopez, A. D. (2012). Stages of the cigarette epidemic on entering its second century. *Tobacco Control*, 21, 96-101.
- Till, M., Abu-Omar, K., Fersch, S., Reimers, A., & Gelius, P. (2021). Measuring capabilities in health and physical activity promotion: a systematic review. *BMC Public Health*, 21, 353.
- Turrell, G., Hewitt, B. A., & Miller, S. A. (2012). The influence of neighbourhood disadvantage on smoking cessation and its contribution to inequalities in smoking status. *Drug Alcohol Rev*, 31, 645-652.
- U.S. Department of Health and Human Services. (2006). The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General. Atlanta, GA.
- UNDP. (2020). Technical Notes. Retrieved April, 2021 from Human Development Index (HDI): [http://hdr.undp.org/sites/default/files/hdr2020\\_technical\\_notes.pdf](http://hdr.undp.org/sites/default/files/hdr2020_technical_notes.pdf)
- UNDP. (2021, March 10). Briefing Notes for Romania. From Human Development Report 2020: <http://hdr.undp.org/sites/default/files/Country-Profiles/ROU.pdf>

- United Nations. (2021, March 10). Romania Human Development Indicators. From United Nations Development Reports: <http://hdr.undp.org/en/countries/profiles/ROU#>
- Vallée, J., Shareck, M., Le Roux, G., Kestens, Y., & Frohlich, K. L. (2020). Is accessibility in the eye of the beholder? Social inequalities in spatial accessibility to health-related resources in Montréal, Canada. *Social Science & Medicine*, 245.
- van de Ven, D., Robroek, S., & Burdorf, A. (2020). Are workplace health promotion programmes effective for all socioeconomic groups? A systematic review. *Occupational and Environmental Medicine*, 77, 589-596.
- van der Heyden, J., Schaap, M., Kunst, A., Esnaola, S., Borrell, C., Cox, B., . . . Van Oyen, H. (2009). Socioeconomic inequalities in lung cancer mortality in 16 European populations. *Lung Cancer*, 63(3), 322-330.
- Vanker, A., Gie, R., & Zar, H. (2017). The association between environmental tobacco smoke exposure and childhood respiratory disease: a review. *Expert Rev Respir Med*, 11(8), 661-673.
- Vansteenkiste, M., Williams, G., & Resnicow, K. (2012). Toward systematic integration between SelfDetermination Theory and Motivational Interviewing as examples of top-down and bottom-up intervention development: Autonomy or volition as a fundamental theoretical principle. *International Journal of Behavioral Nutrition and Physical Activit*, 9, 23.
- Veinot, T. C., Mitchell, H., & Ancker, J. S. (2018). Good intentions are not enough: how informatics interventions can worsen inequality. *Journal of the American Medical Informatics Association*, 25(8), 1080–1088.
- Venkatapuram, S. (2011). *Health Justice: An Argument from the Capabilities Approach*. Cambridge: Polity Press.
- Vergunst, F., Jenkinson, C., & Burns, T. e. (2017). Psychometric validation of a multi-dimensional capability instrument for outcome measurement in mental health research (OxCAP-MH). *Health Qual Life Outcomes*, 15, 250.
- Victora, C., Vaughan, J. P., Barros, F. C., Silva, A. C., & Tomasi, E. (2000, Sep 23). Explaining trends in inequities: evidence from Brazilian child health studies. *The Lancet*, 358(9235), 1093-8.
- Visser, S. S., & Haisma, H. (2021). Fulfilling food practices: Applying the capability approach to ethnographic research in the Northern Netherlands. *Social Science & Medicine*, 272.
- von dem Knesebeck, O., Verde, P., & Dragano, N. (2006). Education and health in 22 European countries. *Soc Sci Med*, 63(5), 1344-51.

- Wagstaff, A., & van Doorslaer, E. (2000). Income inequality and health: what does the literature tell us? *Annu Rev Public Health*, 21, 543-567.
- Wang, Z., May, S., Charoenlap, S., Pyle, R., Ott, N., Mohammed, K., & Joshi, A. (2015). Effects of secondhand smoke exposure on asthma morbidity and health care utilization in children: a systematic review and meta-analysis. *Annals of Allergy, Asthma and Immunology*, 115(5), 396-401.
- West, R., Kock, L., Kale, D., & Brown, J. (2020). Smoking Toolkit Study Monthly Update 17th December 2020. Retrieved April, 2021 from Smoking in England: <http://www.smokinginengland.info/sts-documents/>
- Westmaas, L. J., Bontemps-Jones, J., & Bauer, J. E. (2010). Social support in smoking cessation: reconciling theory and evidence. *Nicotine Tob Res*, 12(7), 695-707.
- Wahlgren, D.R., Hovell, M.F., Meltzer, S.B., Hofstetter, C.R., Zakarian, J.M. (1997). Reduction of environmental tobacco smoke exposure in asthmatic children. A 2-year follow-up. *Chest*, 111(1):81-8.
- WHO. (2019). Tobacco use declining globally but set to miss targets. Retrieved April, 2021 from World Health Organization - Regional office for Europe: <https://www.euro.who.int/en/health-topics/disease-prevention/tobacco/news/news/2019/12/tobacco-use-declining-globally-but-set-to-miss-targets>
- Wilkinson, R. G. (1997). Socioeconomic determinants of health. Health inequalities: relative or absolute material standards? *BMJ*, 314, 591-595.
- Wilkinson, R. G. (1998). Mortality and distribution of income. Low relative income affects mortality. *BMJ*, 1611-1612.
- Wilkinson, R. G. (1999). Income inequality, social cohesion, and health: clarifying the theory--a reply to Muntaner and Lynch. *Int J Health Serv*, 29, 525-543.
- Wilkinson, R. G. (2000). Deeper than "neoliberalism". A reply to David Coburn. *Soc Sci Med*, 51, 997-1000.
- Wilkinson, R. G. (2000). The need for an interdisciplinary perspective on the social determinants of health. *Health Economics*, 9, 581-583.
- Wilkinson, R. G., & Pickett, K. E. (2006). Income inequality and population health: a review and explanation of the evidence. *Soc Sci Med*, 62, 1768-1784.
- Wilkinson, R. G., & Pickett, K. E. (2007). The problems of relative deprivation: why some societies do better than others. *Soc Sci Med*, 65, 1965-1978.
- Wilson, L., Avila, T. E., Chander, G., Hutton, H., Odelola, O., Elf, J., . . . Apelberg, B. (2012). Impact of tobacco control interventions on smoking initiation,

- cessation, and prevalence: a systematic review. *J Environ Public Health*, 2012, 961724.
- Winickoff, J. P., Park, E. R., Hipple, B. J., Berkowitz, A., Vieira, C., Firely, J., . . . Rigotti, N. A. (2008). Clinical effort against secondhand smoke exposure: development of framework and intervention. *Pediatrics*, 122(2), e363-75.
- Wipfli, H., Avila-Tang, E., Navas-Acien, A., Kim, S., Onicescu, G., Yuan, J., . . . Study, F. H. (2008). Secondhand smoke exposure among women and children: evidence from 31 countries. *Am J Public Health*, 98, 672-679.
- Wolff, J., & de-Shalit, A. (2007). *Disadvantage*. Oxford University Press.
- World Bank. (2020). Databank Country Profile Romania. Retrieved March, 2021 from World Development Indicators database:  
[https://databank.worldbank.org/views/reports/reportwidget.aspx?Report\\_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=ROU](https://databank.worldbank.org/views/reports/reportwidget.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=ROU)
- World Bank. (2021). The World Bank in Romania - Country Overview. Retrieved March, 2021 from The World Bank:  
<https://www.worldbank.org/en/country/romania/overview#1>
- World Health Organisation. (2020). Health for All Explorer. Retrieved April, 2021 from European Health Information Gateway:  
<https://gateway.euro.who.int/en/hfa-explorer/#DmdhGeBZaD>
- World Health Organization. (2005). *Preventing chronic diseases : a vital investment : WHO global report*. Geneva: WHO.
- World Health Organization. (2019). Country Profile Romania. Retrieved April, 2021 from WHO report on the global tobacco epidemic::  
[https://www.who.int/tobacco/surveillance/policy/country\\_profile/rou.pdf?ua=1](https://www.who.int/tobacco/surveillance/policy/country_profile/rou.pdf?ua=1)
- World Health Organization. (2020). Health for All Explorer. Retrieved April, 2021 from European Health Information Gateway:  
<https://gateway.euro.who.int/en/hfa-explorer/#YNa5zzgtil>
- Yang, J., & Malone, R. (2008). "Working to shape what society's expectations of us should be": Philip Morris' societal alignment strategy. *Tobacco Control*, 17, 391-398.
- Yi, Z., Mayorga, M., Hassmiller Lych, K., & Pearson, J. (2017). Changes in cigarette smoking initiation, cessation, and relapse among U.S. adults: a comparison of two longitudinal samples. *Tobacco Induced Diseases*, 15, 17.

- Yilmaz, G., Karacan, C., Yoney, A., Yilmaz, T. (2006). Brief intervention on maternal smoking: a randomized controlled trial. *Child: Care, Health and Development*, 32(1):73-9.
- Yousefzadeh, S., Biggeri, M., Arciprete, C., & Haisma, H. (2019). A Capability Approach to Child Growth. *Child Indicators Research*, 12(2), 711-731.
- Yousuf, H., Hofstra, M., Tijssen, J., & et.al. (2020). Estimated Worldwide Mortality Attributed to Secondhand Tobacco Smoke Exposure, 1990-2016. *JAMA Netw Open*, 3(3), e201177.
- Zereyesus, Y. A. (2017). Women's Empowerment in Agriculture and Household-Level Health in Northern Ghana: A Capability Approach. *Journal of International Development*, 29(7), 899-918.
- Zhang, X., Martinez-Donate, A. P., Kuo, D., Johnes, N. R., & Palmersheim, K. A. (2012). Trends in home smoking bans in the USA, 1995–2007: prevalence, discrepancies and disparities. *Tobacco Control*, 21, 330-336.

## **Appendices**

|  |     |
|--|-----|
| Appendix 1. University of Warwick Biomedical and Scientific Research Ethics Committee (BSREC) Approvals..... | 284 |
| Appendix 2. Local approvals and ethics approvals for data collection.....                                    | 289 |
| Appendix 3. Participant Information Leaflets.....  | 292 |
| Appendix 4. Consent for Contact Forms.....   | 300 |
| Appendix 5. Informed Consent Forms.....  | 302 |
| Appendix 6. Semi-structured Interview Guide (Phase I).....   | 305 |
| Appendix 7. Questionnaire (Phase II).....  | 309 |



# Appendix 1. University of Warwick Biomedical and Scientific Research Ethics Committee (BSREC) Approvals

14<sup>th</sup> April 2014

**Warwick**  
Medical School

PRIVATE

Alexandra Brinzaniuc  
C/O Clare Blackburn  
Department of Mental Health  
Warwick Medical School  
CV4 7AL

Dear Alexandra,

**Study Title and BSREC Reference:** *A Study on the Social Determinants of Smoking Behaviour in Households with Young Children in Romania* **REGO-2014-681**

Thank you for submitting the above-named project to the University of Warwick's Biomedical and Scientific Research Ethics Sub-Committee (BSREC) via the full review process.

Your application has been reviewed by two Close Reader(s) and they have raised some queries about particular aspects of the study and the associated documentation. While these are relatively minor please note that they must be addressed and approved by the Chair before this study may proceed.

In view of these concerns I therefore advise that conditional approval has been granted pending action to address these concerns which are detailed in the following page. I look forward to receiving your response. Please be reassured that revisions are normally dealt with within a few working days in order to minimise further delay.

Yours sincerely,

Chair  
Biomedical and Scientific  
Research Ethics Sub-Committee

**Biomedical and Scientific  
Research Ethics Subcommittee**  
A010 Medical School Building  
Warwick Medical School,  
Coventry, CV4 7AL.  
Tel: 02476-151875  
Email: [BSREC@Warwick.ac.uk](mailto:BSREC@Warwick.ac.uk)

Medical School Building  
The University of Warwick  
Coventry CV4 7AL United Kingdom  
Tel: +44 (0)24 7657 4880  
Fax: +44 (0)24 7652 8375

THE UNIVERSITY OF  
**WARWICK**

---

**Study Title and BSREC Reference:** *A Study on the Social Determinants of Smoking Behaviour in Households with Young Children in Romania* **REGO-2014-681**

---

**Consent Forms:**

1. Insert version number and date of the PIL referred to in the consent forms.

**Protocol:**

2. Please detail who will be selecting the eligible participants. Is this the GP or the investigator?
3. Please include how GP's will be approached and how consent to access their records will be given if applicable.
4. With reference to the three selection criteria, please include how you will find out this information.
5. Details of how GP's will be approached needs to be included in the protocol and if done by letter please include a copy with version number and date.
6. The protocol mentions that C4C's will be secure until they are handed to the PhD candidate, please also detail where they will be held subsequently.

**Other aspects:**

7. All documents require version number and dates in the footer
8. Proof read and amend grammatical errors such as 'Consent From'/'Consent Form'
9. Please check that any abbreviations have been spelt in full on first use (SHS in the protocol)

**How to submit revisions:**

Please amend the protocol and other relevant documentation, **highlighting** the changes you have made in a different colour and include in your resubmission a word document summarising the changes you have made.

Your revision document(s) also need to show that this is a different version to the one you originally submitted. The recommended way to do this is to include the Project title, version 2, date of submission a header or footer.

When completed please email in **PDF format** (colour) to: [BSREC@Warwick.ac.uk](mailto:BSREC@Warwick.ac.uk).

**Medical School Building**

The University of Warwick  
Coventry CV4 7AL United Kingdom  
Tel: +44 (0)24 7657 4880  
Fax: +44 (0)24 7652 8375

15<sup>th</sup> May 2014

**Warwick**  
Medical School

PRIVATE

Alexandra Brinzaniuc  
C/O Clare Blackburn  
Department of Mental Health  
Warwick Medical School  
CV4 7AL

Dear Alexandra,

Study Title and BSREC Reference: *A Study on the Social Determinants of Smoking Behaviour in Households with Young Children in Romania* **REGO-2014-681**

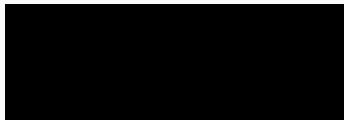
---

Thank you for submitting your revisions to the above-named project to the University of Warwick Biomedical and Scientific Research Ethics Sub-Committee for Chair's Approval.

I am pleased to confirm that I am satisfied that you have met all of the conditions and your application meets the required standard, which means that full approval is granted and your study may commence.

I take this opportunity to wish you success with the study and to remind you any substantial amendments require approval from the committee before they can be made. Please keep a copy of the signed version of this letter with your study documentation.

Yours sincerely,



David Davies  
Chair  
Biomedical and Scientific  
Research Ethics Sub-Committee

**Biomedical and Scientific  
Research Ethics Subcommittee**  
A010 Medical School Building  
Warwick Medical School,  
Coventry, CV4 7AL.  
Tel: 02476-151875  
Email: [BSREC@Warwick.ac.uk](mailto:BSREC@Warwick.ac.uk)

Medical School Building  
The University of Warwick  
Coventry CV4 7AL United Kingdom  
Tel: +44 (0)24 7657 4880  
Fax: +44 (0)24 7652 8375

THE UNIVERSITY OF  
**WARWICK**

10<sup>th</sup> November 2014

**Warwick**  
Medical School

PRIVATE

Alexandra Brinzaniuc  
Warwick Medical School  
Coventry  
CV4 7AL

Dear Alexandra,

**Study Title and BSREC Reference:** *A Study on the Social Determinants of Smoking Behaviour in Households with Young Children in Romania* REGO-2014-681 AM01

Thank you for submitting a substantial amendment application for the above-named project to the University of Warwick's Biomedical and Scientific Research Ethics Sub-Committee.

I am pleased to confirm that the changes that you wish to make to this study have been approved.

Please keep a copy of the signed version of this letter with your study documentation.

Yours sincerely,



Dr David Davies  
Chair  
Biomedical and Scientific  
Research Ethics Sub-Committee

**Biomedical and Scientific  
Research Ethics Sub-Committee**  
A010 Medical School Building  
Warwick Medical School,  
Coventry, CV4 7AL.  
Tel: 02476-151875  
Email: [BSREC@warwick.ac.uk](mailto:BSREC@warwick.ac.uk)

Medical School Building  
The University of Warwick  
Coventry CV4 7AL United Kingdom  
Tel: +44 (0)24 7657 4880  
Fax: +44 (0)24 7652 8375

THE UNIVERSITY OF  
**WARWICK**

15<sup>th</sup> April 2015

**Warwick**  
Medical School

PRIVATE

Alexandra Brinzaniuc  
PhD Student  
Mental Health & Wellbeing  
WMS  
University of Warwick  
Coventry  
CV4 7AL

Dear Alexandra,

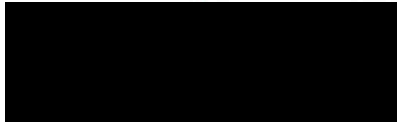
Study Title and BSREC Reference: *A Study on the Social Determinants of Smoking Behaviour in Households with Young Children in Romania* REGO-2014-681 AM02

Thank you for submitting a substantial amendment application for the above-named project to the University of Warwick's Biomedical and Scientific Research Ethics Sub-Committee.

I am pleased to confirm that the changes that you wish to make to this study have been approved.

Please keep a copy of the signed version of this letter with your study documentation.

Yours sincerely



Professor Scott Weich  
Chair  
Biomedical and Scientific  
Research Ethics Sub-Committee

**Biomedical and Scientific  
Research Ethics Sub-Committee**  
A010 Medical School Building  
Warwick Medical School,  
Coventry, CV4 7AL.  
Tel: 02476-528207  
Email: [BSREC@warwick.ac.uk](mailto:BSREC@warwick.ac.uk)

Medical School Building  
The University of Warwick  
Coventry CV4 7AL United Kingdom  
Tel: +44 (0)24 7657 4880  
Fax: +44 (0)24 7652 8375

THE UNIVERSITY OF  
**WARWICK**

## Appendix 2. Local approvals and ethics approvals for data collection



Ministerul Educației, Cercetării, Tineretului și Sportului  
ROMÂNIA

UNIVERSITATEA DE  
MEDICINĂ ȘI FARMACIE  
TÎRGU MUREȘ

Cod procedură: UMFTGM-REG-74 Ediția 01  
Nr. anexe: 03  
Pagina: 12 din 12

Anexa 03: UMFTGM-REG-74-F03

### Decizia Comisiei de etică a cercetării științifice

nr. 68 din 27.05.2015

Comisia de etică a cercetării științifice din cadrul Universității de Medicină și Farmacie din Tîrgu Mureș a evaluat din punctul de vedere al respectării normelor de etică a cercetării științifice propunerea de studiu intitulată

**"Un studiu asupra determinantilor sociali ai fumatului în casele de copii mici în România (proiectul SHINE)"**

adresată Comisiei de etica cercetării în data de 20.05.2015, de către d-l/d-na Brinzaniuc Alexandra, având funcția de asistent cercetare / doctorand și locul de muncă la Centrul de Sănătate Publică și Politici de Sănătate, Facultatea de Științe Politice, Administrative și ale Comunicării, UBB, Cluj-Napoca / Facultatea de Medicină, Universitatea Warwick, Marea Britanie

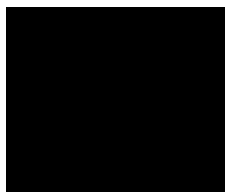
În urma evaluării documentelor depuse, Comisia decide:

#### a) aprobarea desfășurării studiului

Avizul favorabil este valabil numai în condițiile descrise în propunerea de studiu înaintată Comisiei, pentru o perioadă maximă de 12 luni .

Președintele Comisiei de etică a cercetării științifice

Prof. Dr. Sanda Copotoiu







**SPITALUL CLINIC JUDEȚEAN DE URGENȚĂ TG. MUREȘ**

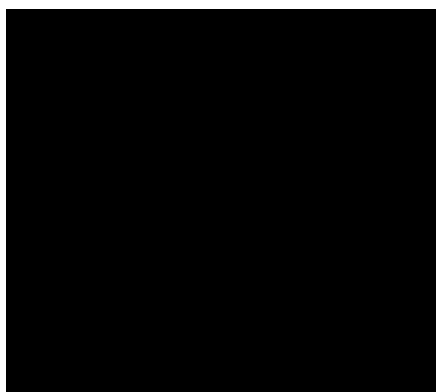
Tîrgu Mureș, str. Gh. Marinescu nr. 50, cod: 540136  
Tel: 0265 – 212.111, 211.292, 217.235; Fax: 0265 – 215.768  
E-mail: [secretariat@spitjudms.ro](mailto:secretariat@spitjudms.ro)  
Operator de date cu caracter personal nr.26287

Nr.8851/ 29 Aprilie 2015

**ACORDUL MANAGERULUI UNITĂȚII PRIVIND DESFĂȘURAREA  
STUDIULUI CLINIC**

Precizăm prin prezentul document acordul nostru privind desfășurarea în Spitalul Clinic Județean de Urgență Tîrgu Mureș, Str. Gh Marinescu, Nr. 50, Tîrgu Mureș, 540136, Romania, Secția Clinică Pediatrie, a studiului de cercetare cu titlul **„Un studiu asupra determinantilor sociali ai fumatului în casele cu copii mici în România (Proiectul SHINE)”**, cu respectarea procedurilor operaționale privind desfășurarea studiilor clinice și a tuturor protocoalelor terapeutice.

Îndrumător: Prof. Dr. Mărginean Oana Cristina, medic primar pediatrie  
Solicitant: Alexandra Brânzaniuc, asistent de cercetare



Colegiului Județean al Medicilor Mureș  
Strada Argeșului nr.25  
Târgu Mureș 540098

COLEGIUL MEDICILOR DIN JUD. MUREȘ  
INTRARE Nr. 2035  
din 20 (ziua) 06 (luna) 2014 (anul)



În atenția Comisiei de Etică,

Subsemnata, Alexandra Brînzaniuc, asistent de cercetare în cadrul Centrului de Sănătate Publică și Politici de Sănătate, Univesitatea Babeș-Bolyai Cluj-Napoca și doctorand în cadrul Departamentului de Sănătate Mentală, Warwick Medical School, Universitatea din Warwick, Marea Britanie, solicit prin prezenta luarea la cunoștință a protocolului de cercetare al proiectului *Un studiu asupra determinantilor sociali ai comportamentului de fumat în familiile cu copii mici (0-3 ani) din România*.

Studiul face parte din activitatea mea de cercetare pentru programul doctoral din cadrul Universității din Warwick și este finanțat prin programul de granturi pentru tineri cercetători al Universității Babeș-Bolyai Cluj-Napoca, prin contractul 34066/01.11.2013. Cercetare propusă are ca scop înțelegerea mecanismelor prin care disparitățile sociale sunt asociate cu comportamentul de fumat (și mai specific expunerea copiilor, cu vârsta 0-36 luni, la fumul de țigară), factor care are un potențial ridicat de a contribui pe termen lung la amplificarea disparităților în sănătate. Designul de studiu este unul transversal, exploratoriu, care utilizează metode mixte de cercetare, aplicate secvențial. O primă componentă calitativă a studiului va implica 12-20 de interviuri cu femei, mame de copii cu vârste cuprinse între 0-36 de luni. Cea de-a doua componentă a studiului este una cantitativă, care urmărește administrarea unui număr de 250-300 de chestionare telefonice unui grup de femei, similar celui descris în prima fază. O descriere pe larg a protocolului studiului este atașată acestei cereri.

Proiectul a obținut aprobarea Comitetului de Etică Științifică și Biomedicală a Universității din Warwick, cât și pe cea a Comisiei de Etică a Universității Babeș-Bolyai. În consecință, înaintez prezenta cerere cu solicitarea de a lua la cunoștință documentele studiului (vizele etice, descrierea studiului, un pliant informativ pentru participanți, formularul de consimțământ pentru contact, formularul de consimțământ pentru participare în studiu). Pentru orice informații suplimentare, vă stau la dispoziție.

Vă mulțumesc anticipat.

Târgu Mureș  
20.06.2014

Cu deosebită considerație,  
Alexandra Brînzaniuc

Centrul de Sănătate Publică și Politici de Sănătate  
Institutul de Cercetări Sociale  
Facultatea de Științe Politice, Administrative și ale Comunicării  
Universitatea Babeș-Bolyai Cluj-Napoca  
Strada Pandurilor nr 7 (Clădirea Universității)  
birou 909

Department of Mental Health and Wellbeing  
Warwick Medical School  
University of Warwick  
CV4 7AL



## Appendix 3. Participant Information Leaflets



Center for Health Policy and Public Health  
Institute for Social Research  
Faculty of Political, Administrative and  
Communication Sciences  
Babes-Bolyai University Cluj-Napoca  
7, Pandurilor Street, 400376, Cluj-Napoca, România

THE UNIVERSITY OF  
**WARWICK**

Warwick Medical School  
The University of Warwick  
Coventry, CV4 7AL The United Kingdom

### Participant Information Leaflet

*(Study Phase 1)*

**Project title:** A study on the social determinants of smoking behaviour in households with young children in Romania (Project SHINE)

**Investigator:** Alexandra Brînzaniuc, MA, PhD candidate

Research assistant at the Center for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University, Cluj-Napoca Romania; PhD Candidate - Warwick Medical School, The University of Warwick, UK.

**Contact information:** E-mail: alexandra.brinzaniuc@publichealth.ro (or a.brinzaniuc@warwick.ac.uk); Telephone: (+40)752144118

#### Introduction

You are invited to take part in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you. Please take the time to read the following information carefully. Talk to others about the study if you wish.

Part 1 tells you the purpose of the study and what will happen to you if you take part. Part 2 gives you more detailed information about the conduct of the study. Please ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

#### PART 1

##### What is this study about?

We know that quitting smoking is a difficult process, but in the same time, smoking and exposure to tobacco smoke can affect health. Thus, we would like to find out how smoking occurs in households with young children, in a group of families in Mures county. By interviewing mothers of young children (0-36 months) the study wishes to understand how daily living conditions and life events shape individual decisions and ultimately influence smoking. The long-term goal of this research is to inform the development of effective programs to support parents in Romania to offer smoke-free environments for their children. The study is conducted by Alexandra Brînzaniuc, in her capacity of a PhD student at Warwick Medical School, The University of Warwick, in the United Kingdom as well as of a research assistant within the Center for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University Cluj-Napoca, Romania.

##### Do I have to take part?

It is entirely up to you to decide if you want to join the study. We will describe the study and go through this information sheet with you. If you agree to participate, we will ask you to sign a consent form. You are free to withdraw at any time, without giving any reason. You are also free to not answer questions which you feel

uncomfortable with. The decision to withdraw from the study or not answer any questions will not affect you or your circumstances in any way.

#### **What will happen to me if I take part?**

If you decide to participate in the research, you will firstly be asked to offer your consent for the research team to contact you, by filling in and signing a Consent for Contact Form, which you will be kindly requested to give to the person who handed you this information leaflet. In 1-2 weeks' time, someone from the research team might contact you via the telephone number you provided, to schedule an interview, in a setting in your community (a private space within the medical office or a similar setting), at a date and time you feel are appropriate. There is a possibility that you will not be contacted to be invited to participate, depending on the number of persons interested in the study. If you are contacted and a meeting is arranged, you will be invited to participate in a 30-60 minute interview, conducted by someone from the research team. The interviewer will ask you about the people in your life, smoking in your home, your attitudes on smoking and your smoking history, major life events and how they impacted on smoking, your health and the health of the other people in your family, as well as some information on the place where you currently live.

#### **What are the possible disadvantages, side effects, risks and /or discomforts of taking part in this study?**

There are no foreseen disadvantages or risks in taking part in this research study.

#### **What are the possible benefits in taking part?**

There are no direct benefits for your participation in the study, but the information we get from this study may benefit other parents and their children, as it aims to inform future public health programs.

#### **Expenses and payments**

Participation in the study is free of charge. You will not have to pay anything to be a participant. Also you will not be paid in order to take part in this study. However, we would like to offer you a symbolic gift (a baby thermometer) as a sign of gratitude for the time you offered responding to our questions.

#### **What will happen when the study ends?**

All data will be stored for a period of 10 years, in a secured, password-protected environment. Your contact information will be secured and no one outside the research team will have access to it in this period. After the 10 years, all data will be destroyed.

#### **Will my taking part in the study be kept confidential?**

Yes. We will follow strict ethical and legal practice and information about you will be handled in confidence. Further details are included in Part 2.

#### **What if there is a problem?**

Any complaint about the way you have been dealt with during the study or any possible harm you might have suffered will be addressed. Detailed information is given in Part 2.

#### **This concludes Part 1.**

**If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision.**

## **PART 2**

### **Who is organizing and funding the research?**

This research study is organized by Alexandra Brinzaniuc, as part of her PhD research within The University of Warwick, the UK, and in her capacity of a research assistant within the Center for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University Cluj-Napoca, Romania. This activity is financially supported by Babes-Bolyai University in Cluj-Napoca, through a Young Researchers' Grants, grant no. 34066/o1.11.2013.

### **What will happen if I don't want to carry on being part of the study?**

If you wish to withdraw from the study at any time during the interview, you may do so without any repercussions. Also, you may choose to also withdraw the data you provided up to that point. The same level of confidentiality described above will be provided to you, even if you chose to withdraw from the study before the interview is finalized.

### **What if there is a problem?**

This study is covered by the University of Warwick's insurance and indemnity cover. If you have an issue, please contact Jo Horsburgh (details below).

### **Who should I contact if I wish to make a complaint?**

Any complaint about the way you have been dealt with during the study or any possible harm you might have suffered will be addressed. Please address your complaint to the research department of Babes-Bolyai University Cluj-Napoca using the e-mail address [cercetare@ubbcluj.ro](mailto:cercetare@ubbcluj.ro).

Alternatively, you can address your complaint to the person below, who is a Senior University of Warwick official entirely independent of this study:

Jo Horsburgh, Deputy Registrar, Deputy Registrar's Office, University of Warwick Coventry, UK, CV4 8UW, T: +00 44 (0) 2476 522 713 E: [J.Horsburgh@warwick.ac.uk](mailto:J.Horsburgh@warwick.ac.uk)

### **Will my taking part be kept confidential?**

All the information you provide is kept confidential, and none of the reporting of the study results will allow your identification. We will not use your name or identification information in any of the presentations of the study. The interview will be audio-taped, but you will be asked to use a pseudonym in order to maintain confidentiality. After the interview, the conversation will be transcribed. The audio recordings and the transcripts will be kept on a secure, password-protected environment. All identification data and contact information will be kept in a distinct file from the main data set. Similarly, all monitoring documents such as field-work journal will be kept in a secure location and will not make use of any real names.

### **What will happen to the results of the research study?**

The research findings will be presented in the thesis of PhD candidate Alexandra Brînzaniuc, the principal investigator of the research team. Results will also be synthesized in a report to Babes-Bolyai University, as a funder of the current research. Additionally, the findings might be presented in scientific conferences or published in scientific journals. If you are interested in the results of the study, the research team will send a summary of the findings to your e-mail address or home address, after the study has been finalized. To

request this information, please contact the research team at alexandra.brinzaniuc@publichealth.ro or telephone number (+40)752144118.

**Who has reviewed the study?**

This study has been reviewed and given a favourable opinion by the University of Warwick's Biomedical Research Ethics Committee, the Ethics Committee of Babes-Bolyai University Cluj-Napoca and the Mures County College of Physicians' Ethical Committee.

**What if I want more information about the study?**

If you have any questions about any aspect of the study or your participation in it not answered by this participant information leaflet, please contact:

Alexandra Brinzaniuc at the e-mail address alexandra.brinzaniuc@publichealth.ro, telephone number (+40)752144118 or address: 7 Pandurilor street Cluj-Napoca, Romania.

**Thank you for taking the time to read this participant information leaflet!**



Center for Health Policy and Public Health  
Institute for Social Research  
Faculty of Political, Administrative and  
Communication Sciences  
Babes-Bolyai University Cluj-Napoca  
7, Pandurilor Street, 400376, Cluj-Napoca, România

THE UNIVERSITY OF  
**WARWICK**

Warwick Medical School  
The University of Warwick  
Coventry, CV4 7AL The United Kingdom

## Participant Information Leaflet

*(Study Phase II)*

**Project title:** A study on the social determinants of smoking behaviour in households with young children in Romania (Project SHINE)

**Investigator:** Alexandra Brînzaniuc, MA, PhD candidate

Research assistant at the Center for Health Policy and Public Health, Insitute for Social Research, Babes-Bolyai University, Cluj-Napoca Romania; PhD Candidate - Warwick Medical School, The University of Warwick, UK.

**Contact information:** E-mail: alexandra.brînzaniuc@publichealth.ro (or a.brînzaniuc@warwick.ac.uk); Telephone: (+40)264402215

### Introduction

You are invited to take part in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you. Please take the time to read the following information carefully. Talk to others about the study if you wish.

Part 1 tells you the purpose of the study and what will happen to you if you take part. Part 2 gives you more detailed information about the conduct of the study. Please ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

### PART 1

#### What is this study about?

We know that quitting smoking is a difficult process, but in the same time, smoking and exposure to tobacco smoke can affect health. Thus, we would like to find out how smoking occurs in households with young children, in a group of families in Mures county. By interviewing mothers of young children (0-36 months) the study wishes to understand how daily living conditions and life events shape individual decisions and ultimately influence smoking. The long-term goal of this research is to inform the development of effective programs to support parents in Romania to offer smoke-free environments for their children. The study is conducted by Alexandra Brînzaniuc, in her capacity of a PhD student at Warwick Medical School, The University of Warwick, in the United Kingdom as well as of a research assistant within the Center for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University Cluj-Napoca, Romania.

#### Do I have to take part?

It is entirely up to you to decide if you want to join the study. We will describe the study and go through this information sheet with you. If you agree to participate, we will ask you to sign a consent form. You are free to withdraw at any time, without giving any reason. You are also free to not answer questions which you feel uncomfortable with. The decision to withdraw from the study or not answer any questions will not affect you or your circumstances in any way.

Participant Information Leaflet (Phase 2) Version 1 – 10.10.2014

#### **What will happen to me if I take part?**

If you decide to participate in the research, you will firstly be asked to offer your consent for the research team to contact you, by filling in and signing a Consent for Contact Form, which you will be kindly requested to give to the person who handed you this information leaflet. In 1-3 weeks' time, someone from the research team will contact you via the telephone number you provided, and invite you to participate in a telephone interview of about 20-25 minutes, at a time suitable for you. The interviewer will ask you about your current socioeconomic conditions, the people in your life and the support you receive from them, smoking in your home, your attitudes on smoking and your smoking history, your health and the health of the other people in your family, as well as some information on your current living arrangements.

#### **What are the possible disadvantages, side effects, risks and /or discomforts of taking part in this study?**

There are no foreseen disadvantages or risks in taking part in this research study.

#### **What are the possible benefits in taking part?**

There are no direct benefits for your participation in the study, but the information we get from this study may benefit other parents and their children, as it aims to inform future public health programs.

#### **Expenses and payments**

Participation in the study is free of charge. You will not have to pay anything to be a participant. Also you will not be paid in order to take part in this study. However, we would like to offer you a symbolic gift (a baby thermometer) as a sign of gratitude for the time you offered responding to our questions. If you wish to receive it, at the end of the telephone interview we will ask for your mailing address, so we can deliver it to your home. In the case you wish to provide us with the address, we ensure you that it will be used solely for the purposes of delivering the thermometer to you, and will be kept separate from your questionnaire (in a registry stored in a secure, locked cabinet).

#### **What will happen when the study ends?**

All data will be stored for a period of 10 years, in a secured, password-protected environment. Your contact information will be secured and no one outside the research team will have access to it in this period. After the 10 years, all data will be destroyed.

#### **Will my taking part in the study be kept confidential?**

Yes. We will follow strict ethical and legal practice and information about you will be handled in confidence. Further details are included in Part 2.

#### **What if there is a problem?**

Any complaint about the way you have been dealt with during the study or any possible harm you might have suffered will be addressed. Detailed information is given in Part 2.

#### **This concludes Part 1.**

**If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision.**



## **PART 2**

### **Who is organizing and funding the research?**

This research study is organized by Alexandra Brinzaniuc, as part of her PhD research within The University of Warwick, the UK, and in her capacity of a research assistant within the Center for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University Cluj-Napoca, Romania. This activity is financially supported by Babes-Bolyai University in Cluj-Napoca, through a Young Researchers' Grants, grant no. 34066/01.11.2013.

### **What will happen if I don't want to carry on being part of the study?**

If you wish to withdraw from the study at any time during the interview, you may do so without any repercussions. Also, you may choose to also withdraw the data you provided up to that point. The same level of confidentiality described above will be provided to you, even if you chose to withdraw from the study before the interview is finalized.

### **What if there is a problem?**

This study is covered by the University of Warwick's insurance and indemnity cover. If you have an issue, please contact Jo Horsburgh (details below).

### **Who should I contact if I wish to make a complaint?**

Any complaint about the way you have been dealt with during the study or any possible harm you might have suffered will be addressed. Please address your complaint to the research department of Babes-Bolyai University Cluj-Napoca using the e-mail address [cercetare@ubbcluj.ro](mailto:cercetare@ubbcluj.ro).

Alternatively, you can address your complaint to the person below, who is a Senior University of Warwick official entirely independent of this study:

Jo Horsburgh, Deputy Registrar, Deputy Registrar's Office, University of Warwick Coventry, UK, CV4 8UW, T: +00 44 (0) 2476 522 713 E: [J.Horsburgh@warwick.ac.uk](mailto:J.Horsburgh@warwick.ac.uk)

### **Will my taking part be kept confidential?**

All the information you provide is kept confidential, and none of the reporting of the study results will allow your identification. We will not use your name or identification information in any of the presentations of the study. All identification data and contact information you provide will be kept in a distinct file from the main data set. Similarly, all monitoring documents such as field-work journal will be kept in a secure location and will not make use of any real names.

### **What will happen to the results of the research study?**

The research findings will be presented in the thesis of PhD candidate Alexandra Brinzaniuc, the principal investigator of the research team. Results will also be synthesized in a report to Babes-Bolyai University, as a funder of the current research. Additionally, the findings might be presented in scientific conferences or published in scientific journals. If you are interested in the results of the study, the research team will send a summary of the findings to your e-mail address or home address, after the study has been finalized. To request this information, please contact the research team at [alexandra.brinzaniuc@publichealth.ro](mailto:alexandra.brinzaniuc@publichealth.ro) or telephone number (+40)264402215.

**Who has reviewed the study?**

This study has been reviewed and given a favourable opinion by the University of Warwick's Biomedical Research Ethics Committee and the Ethics Committee of Babes-Bolyai University Cluj-Napoca.

**What if I want more information about the study?**

If you have any questions about any aspect of the study or your participation in it not answered by this participant information leaflet, please contact:

Alexandra Brînzaniuc at the e-mail address [alexandra.brinzaniuc@publichealth.ro](mailto:alexandra.brinzaniuc@publichealth.ro), telephone number (+40)264402215 or address: 7 Pandurilor street Cluj-Napoca, Romania.

**Thank you for taking the time to read this participant information leaflet!**



## Appendix 4. Consent for Contact Forms



Center for Health Policy and Public Health  
Institute for Social Research  
Faculty of Political, Administrative and  
Communication Sciences  
Babes-Bolyai University Cluj-Napoca  
7, Pandurilor Street, 400376, Cluj-Napoca, România



Warwick Medical School  
The University of Warwick  
Coventry, CV4 7AL The United Kingdom

### Consent for Contact (Study Phase 1)

Please complete the form below if you are happy for the research investigator to contact you to invite you to participate in the study.

**Project title:** A study on the social determinants of smoking behaviour in households with young children in Romania (Project SHINE)

**Investigator:** Alexandra Brînzaniuc, research assistant (Centre for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University, Cluj-Napoca Romania) and PhD Candidate (Warwick Medical School, The University of Warwick, UK).

Please tick the boxes below:

I confirm I have read and understand the participant information leaflet dated 02.05.2014 for the study above. I have had the opportunity to consider the information, ask questions of a member of the research team and have had these answered satisfactory.

☐

I understand that all the information I provide will remain confidential.

☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reasons.

☐

I agree that in the case I am selected, the researcher can contact me on the telephone number I provide below, to participate in the study.

☐

Participant's name

Date

Signature

Telephone number:

As the study is focusing on understanding smoking behaviour among parents, we would like to know some information about you, in order to help us select a diverse group of participants

|  |   |  |
|--|---|--|
| What is your current age?<br>----- years | Do you currently smoke?<br><input type="checkbox"/> Yes<br><input type="checkbox"/> No, but I used to smoke in the past<br><input type="checkbox"/> No, I have never smoked | What is your highest level of attained education?<br><input type="checkbox"/> Less than high-school<br><input type="checkbox"/> High-school<br><input type="checkbox"/> University degree or above |
|--|---|--|

For any information please contact Alexandra Brînzaniuc at the e-mail address: [alexandra.brinzaniuc@publichealth.ro](mailto:alexandra.brinzaniuc@publichealth.ro) (or [a.brinzaniuc@warwick.ac.uk](mailto:a.brinzaniuc@warwick.ac.uk)), or via telephone at (+40)752144118

Consent for Contact (Phase 1) Version 2 – 02.05.2014



Center for Health Policy and Public Health  
Institute for Social Research  
Faculty of Political, Administrative and  
Communication Sciences  
Babes-Bolyai University Cluj-Napoca  
7, Pandurilor Street, 400376, Cluj-Napoca, România

THE UNIVERSITY OF  
**WARWICK**

Warwick Medical School  
The University of Warwick  
Coventry, CV4 7AL The United Kingdom

## Consent for Contact

(Study Phase II)

Please complete the form below if you are happy for the research investigator to contact you to invite you to participate in the study.

**Project title:** A study on the social determinants of smoking behaviour in households with young children in Romania (Project SHINE)

**Investigator:** Alexandra Brînzaniuc, research assistant (Centre for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University, Cluj-Napoca Romania) and PhD Candidate (Warwick Medical School, The University of Warwick, UK).

Please tick the boxes below:

I confirm I have read and understood the participant information leaflet dated 10.10.2014 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactory.

☐

I understand that all the information I provide will remain confidential.

☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reasons.

☐

I agree that a member of the research team can contact me on the telephone number I provide below, to invite me to participate in the study.

☐

Participant's name

Date

Signature

Telephone number:

For any information please contact Alexandra Brînzaniuc at the e-mail address:  
alexandra.brînzaniuc@publichealth.ro (or a.brînzaniuc@warwick.ac.uk), or via telephone at (+40)264402215

Participant identification code: \_\_\_\_\_

Consent for contact (Phase II) Version 1 – 10.10.2014

## Appendix 5. Informed Consent Forms



Center for Health Policy and Public Health  
Institute for Social Research  
Faculty of Political, Administrative and  
Communication Sciences  
Babes-Bolyai University Cluj-Napoca  
7, Pandurilor Street, 400376, Cluj-Napoca, România



Warwick Medical School  
The University of Warwick  
Coventry, CV4 7AL The United Kingdom

### Consent From

*(Study Phase 1)*

**Project title:** A study on the social determinants of smoking behaviour in households with young children in Romania (Project SHINE)

**Investigator:** Alexandra Brînzaniuc, research assistant (Centre for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University, Cluj-Napoca Romania) and PhD Candidate (Warwick Medical School, The University of Warwick, UK).

Please initial the boxes below

I confirm I have read and understand the information leaflet dated 02.05.2014 for the above study. I have had the opportunity to consider the information, ask questions of a member of the research team and have had these answered satisfactory.

☐

I understand that all the information I provide will remain confidential, and that I can choose not to respond to questions I don't feel comfortable with, without giving a reason.

☐

I agree to be audiotaped and I give my permission for anonymized quotes to be used as part of the research project.

☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reasons.

☐

I agree to take part in the above mentioned study.

☐

Participant's name

Date

Signature

Researcher

Date

Signature

For any information please contact Alexandra Brînzaniuc at the e-mail address:  
[alexandra.brinzaniuc@publichealth.ro](mailto:alexandra.brinzaniuc@publichealth.ro) (or [a.brinzaniuc@warwick.ac.uk](mailto:a.brinzaniuc@warwick.ac.uk)), or via telephone at (+40)752144118

Informed Consent (Phase 1) Version 3 – 15.05.2014



Centrul de Politici de Sănătate și Sănătate  
Publică  
Institutul de Cercetări Sociale  
Facultatea de Științe Politice, Administrative și ale  
Comunicării  
Universitatea Babeș-Bolyai, Cluj-Napoca  
Str. Pandurilor nr.7, 400376, Cluj-Napoca, România



Warwick Medical School  
The University of Warwick  
Coventry, CV4 7AL The United Kingdom

Subject unique ID code

Date (dd / mm / yyyy)

Operator code

### Verbal Informed Consent Form

#### (Study Phase II)

**Project title:** A study on the social determinants of smoking behaviour in households with young children in Romania (**Project SHINE**)

**Investigator:** Alexandra Brînzaniuc, research assistant (Centre for Health Policy and Public Health, Institute for Social Research, Babes-Bolyai University, Cluj-Napoca Romania) and PhD Candidate (Warwick Medical School, The University of Warwick, UK).

#### Telephone script for data collection operator:

Hello, Ms. *[place name of respondent here]*? My name is *[place name of interviewer here]* and I am calling on behalf of Babes-Bolyai University Cluj-Napoca, regarding a research study (*A study on the social determinants of smoking behaviour in households with young children*) that you were informed about in your general practitioner's office a while ago. At that time, you were offered a Participant Information Leaflet with more details about the study, and you gave us permission to contact you by signing a Consent for Contact form (and providing your contact details).

#### Q1. Do you remember receiving the leaflet and signing the consent for contact form?

- ☐ Yes *[continue]*
- ☐ No *[if no, give more details until the respondent clearly states she remembers. If she does not state signing the consent form, apologize for the disruption, end call and report to the main researcher for follow-up with the GP.]*

#### Q2. Would this be a good time for you to learn more about this study and decide if you would like to participate, or should we reschedule another telephone call at a more suitable time?

- ☐ Yes *[continue]*
- ☐ No *[reschedule call]*

The study we are conducting aims to find out how smoking occurs in households with young children, in a group of families in Mures county. By interviewing 250-300 mothers of young children (0-36 months) the study wishes to understand how daily living conditions, available resources and life events shape individual decisions and ultimately influence smoking within the home. The long-term goal of this research is to inform the development of effective programs to support parents in Romania to offer smoke-free environments for their children. As a result, we would like to invite you to take part in a short telephone interview (of about 20-25 minutes), to share your experience with tobacco smoking (whether you are a smoker, a former smoker or a non-smoker).

It is entirely up to you to decide if you want to join the study, and refusal to participate will not affect you in any way. You are free to withdraw at any time, without giving any reason. You are also free not to answer questions which you feel uncomfortable with. All the information you provide is kept confidential, and the reporting of the study results will not allow your identification; we will not use your name or identification information in any of the presentations of the results. Also if you wish to suspend the interview and resume it at a later time, you are free to do so.

**Q3. Would you be interested in participating in the research study I have just described and described in the participant leaflet you have received?**

- ☐ Yes [*Continue*]  
☐ No [*Thank the participant for the time they offered and end call*]  
Refusal reason (if any given):

---

**Q4. Do you have any other questions before we start the interview?**

- ☐ Yes [*Answer any questions the participant might have. Log the questions so the frequently emerging topics can be addressed in the introductory script for future calls*]  
☐ No

**I will be documenting your consent to participate. May I start with the first question?**

**Section for data collector:**

I hereby confirm that the participant has understood the terms and implications of the present study, she had the opportunity to ask any questions and has received satisfactory responses.

\_\_\_\_\_  
Name of study participant

\_\_\_\_\_  
Date of obtaining consent

\_\_\_\_\_  
Name and signature of data collector obtaining consent

## Appendix 6. Semi-structured Interview Guide (Phase I)

**A study on the social determinants of smoking behaviour in households with young children in Romania**

### *Phase 1 Interview Guide*

**Introduction:** Thank you for agreeing to participate in this study. The purpose of this interview is to understand how families with young children use their social network and financial resources for their health and their children's. I am also interested in understanding how smoking occurs within homes with young children, as well as how different life events impact parents smoking behavior, and of the ones around them. The information will be used to develop a questionnaire, to be administered to a large sample of women in Mures county.

#### **Section A. Social network mapping**

I would like to start with a discussion about your relationship with the people around you. In order to make that easier, I would like to use this diagram (*Show Figure 1*) and work with you to identify the people in your life that help you the most, people you can depend on, or generally people who are most present in your life. Use the four quadrants (Friends, Family, Neighbours or Other), and mark the people on any of the seven circles, by using their initials or a nickname (I am not interested in their actual name, it's just for you to know how to refer to them). You can choose to mark them on any of the seven circles, based on how close you feel they are to you (the closer you feel they are to you, the closer they should be marked to the inner circle (*self*)).

**Q1.** Now I would like you to circle all the people you live with, in the same dwelling.

**Q2.** Thinking of all the people on the diagram, which ones have children of their own?

**Q3.** To which of the people on the diagram can you turn to for help with:

- a. Practical routine activities, such as help with shopping or watching over your children?
- b. Information and advice on topics such as child health and rearing?
- c. Emotional support or reassurance when you feel overwhelmed or upset?
- d. Financial support, resources or material goods?

**Q3.1.** How often do you actually turn for help to these people? What kind of help do you need more often with (*Repeat categories a-d from Q3*)

**Q4.** How often do you discuss with people around you about health issues? Please show me on the diagram all the people you talk to about health issues, in a usual week.

**Q4.1.** If you received some advice on your health or your child's, from two or more people, who would you be more likely to believe? Why is that?

**Q5.** Looking at the people you marked on the diagram, I would like to ask you to mark with an X all the people that smoke, including yourself.

**Q6.** Now thinking of the people you feel are closer to you (*Point to closer knots*), have you ever discussed smoking, quitting smoking or smoking in the home with any of them?

*IF YES:* **Q6.1.** How often does this subject arises?

**Q6.2.** What do you feel is their opinion on smoking in general?

**Q6.3.** What about smoking in the home and around children, in particular?

**Q7.** What about the wider community you live in, how is smoking perceived? How do you perceive the role of smoking in the everyday life of the people in your community?

**Q8.** What does the phrase *passive smoking* mean to you?

**Q8.1.** What do you think of when you hear that phrase?

**Q8.2.** Have you ever discussed it with anyone around you?

## Section B. Life grid interviewing

For the next part, I would like to use this table (*Show Figure 2*) to create with you a timeline of your main life events, in relation to other significant aspects of your life such as your family, work, housing, health and smoking. You can refer here to your smoking, your partners', or of the people around you. I aim to create a story of your life, in order to better understand how this changed smoking around you.

**Q9.** I would like to start by asking you what is the year when you were born? (*Write at top of first column*)

**Q10.** What are the major personal life events you feel impacted your life?

**Q10.1.** What about any major changes in the social, political, or economical context you experienced, can you think of any that impacted your life? How did they impact you?

**Q11.** What are the major changes in your family (the one you were born in) that you can think of?

**Q11.1.** What about your current family (your partner, your children), what are the major events that marked this one?

**Q12.** What can you tell me about your work history?

**Q12.1.** When was the first time you had a job? What job was that?

**Q12.2.** What other jobs did you have throughout the years?

**Q13.** Did you start any special leisure activities which you feel are important to mention?

**Q14.** I would like to talk to you next about your home?

**Q13.1.** Were you born in this village/town? Did you move at all in your life?

**Q13.2.** Thinking about your current home, who owns it?



**Q13.3.** How satisfied are you with your current living arrangements? How do you feel about:

- a. The space you have?
- b. The location of your home?
- c. Other living arrangements such as the people you live with?

**Q13.4.** Thinking about your current home, how much control do you feel you have in making decisions that affect the way it is structured, the way it looks or the way people act in it?

**Q13.5.** Overall, how much impact do you feel you have in making your home a better place to live?

**Q14.** What about your health? Are there any important events you feel you should mention?

**Q14.1.** What about your child's health? What about other members of your close family?

**Q15.** I would now like to talk to you about smoking.

**Q15.1.** Did you grow up in an environment in which people smoked?

**Q15.2.** Did you ever experiment with smoking?

IF YES: Have you ever smoked?

IF YES: When did you start smoking?

Do you still smoke?

IF YES: How much do you smoke on an average day?

Do you ever smoke less than that? (IF YES, then why?)

Do you ever smoke more than that? (IF YES, then why?)

For how long have you been smoking?

Did you ever try to quit smoking? (IF YES: mark on the grid all quit attempts)

IF YES: What determined you to consider quitting?

Did you succeed in quitting? (IF YES: for how long?)

What were the main things that helped you quit?

What were the main things that made it difficult for you to quit?

IF RELAPSE: What made you start smoking again?

**Q15.3.** How could you describe smoking in your current home? Has it changed at all throughout the years?

IF home is not smoke-free:



**Q15.3.1.** Where do people usually smoke in your home?

**Q15.3.2.** Are there any rules regarding smoking in your home? What about smoking around your child/children?

**Q15.3.3.** Have you ever considered having a smoke-free home?

**Q15.3.4.** What are the main barriers you see keeping you from having a smoke-free home?

**Thank you for taking the time to answer my questions!**

## Appendix 7. Questionnaire (Phase II)



**Centrul de Politici de Sănătate și Sănătate Publică**  
Institutul de Cercetări Sociale  
Facultatea de Științe Politice, Administrative și ale Comunicării  
Universitatea Babeș-Bolyai, Cluj-Napoca  
Str. Pandurilor nr.7, 400376, Cluj-Napoca, România



**Warwick Medical School**  
The University of Warwick  
Coventry, CV4 7AL The United Kingdom

□ □ □

Subject unique ID code

□ □ □ □ □ □

Date (dd / mm / yyyy)

□ □

Operator code

A study on the social determinants of smoking behaviour in households with  
young children in Romania  
(Project SHINE)

**STUDY PHASE II QUESTIONNAIRE**

*The following questionnaire is administered via telephone, after attaining verbal consent from participants expressing interest in taking part in the research project.*

## SECTION I. Socio-demographics

*In this first section, I would like to ask you some questions about you and your family.*

1. What is your date of birth? (day/month/year) \_/\_/\_\_\_\_
2. What languages are usually spoken in your family? (*mark all that apply*)
  - ☐ Romanian
  - ☐ Hungarian
  - ☐ Romani
  - ☐ German
  - ☐ Other (please specify) \_\_\_\_\_

☐ Don't know  
☐ Refuse to answer
3. What is your highest level of completed education?
  - ☐ No studies
  - ☐ Primary school
  - ☐ Secondary school
  - ☐ High school (including post-high school education)
  - ☐ Undergraduate studies (bachelor)
  - ☐ Graduate studies (masters)
  - ☐ Postgraduate studies (doctoral studies)
  - ☐ Other \_\_\_\_\_

☐ Don't know  
☐ Refuse to answer
4. Are you currently still enrolled in an educational program?
  - ☐ Yes
  - ☐ No (*skip to question 6*)

☐ Don't know  
☐ Refuse to answer
5. What type of education are you currently undertaking?
  - ☐ High school
  - ☐ Undergraduate studies (bachelor)
  - ☐ Graduate studies (masters)
  - ☐ Postgraduate studies (doctoral studies)
  - ☐ Other \_\_\_\_\_

☐ Don't know  
☐ Refuse to answer
6. What is your marital status?
  - ☐ Married
  - ☐ Not married, with partner
  - ☐ Not married, without partner
  - ☐ Divorced/ Separated
  - ☐ Widowed

☐ Don't know  
☐ Refuse to answer
7. Are you currently working?
  - ☐ Yes (*skip to question 8*)
  - ☐ No

☐ Don't know  
☐ Refuse to answer

7.1. Have you ever worked?

☐ Yes  
☐ No (*skip to question 10*) ☐ Don't know ☐ Refuse to answer

7.2. When was the last time you worked?  
 \_\_\_\_\_ ☐ Don't know ☐ Refuse to answer

7.3. What is the reason for stopping work?  
☐ Maternity leave  
☐ Sick leave  
☐ Permanently left job (quit/fired)  
 Other reason: \_\_\_\_\_ ☐ Don't know ☐ Refuse to answer

8. Do you/did you have subordinates?  
☐ Yes ☐ Don't know  
☐ No ☐ Refuse to answer

9. What is/was your occupation or type of work?  
 \_\_\_\_\_  
☐ Don't know ☐ Refuse to answer

*IF they have a partner read Q10-12. If they don't have a partner, skip to Q13*

10. What is your partner's / husband's highest level of completed education?

- ☐ No studies ☐ Don't know  
☐ Primary school ☐ Refuse to answer  
☐ Secondary school  
☐ High school (including post-high school education)  
☐ Undergraduate studies (bachelor)  
☐ Graduate studies (masters)  
☐ Postgraduate studies (doctoral studies)  
☐ Other \_\_\_\_\_

11. Is your partner currently working?

- ☐ Yes  
☐ No ☐ Don't know ☐ Refuse to answer

12. What is your partner's / husband's occupation or type of work?

\_\_\_\_\_ ☐ Don't know ☐ Refuse to answer

13. I would like to ask you about your families' total monthly income (from all sources), after tax. Please could you tell me which of the following categories it falls into:

- ☐ 0-700 RON ☐ Don't know  
☐ 701-1500 RON ☐ Refuse to answer  
☐ 1501-3000 RON  
☐ 3001-5000 RON  
☐ 5001-7000 RON  
☐ More than 7000 RON

14. How many people are supported by this income?

No. of people \_\_\_\_\_

☐ Don't know ☐ Refuse to answer

15. In the last 12 months, have you or your family faced any negative changes in your economic circumstances including reduction in wages, being fired or laid off or suffering a financial loss?

☐ Yes  
☐ No

☐ Don't know  
☐ Refuse to answer

16. In the last 12 months...

|  | Never                    | Occasionally             | Frequently               | Always                   | Don't know               | Refuse to answer         |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| ... how often have you faced difficulties in paying bills?                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ... how often have you had money left at the end of the month?                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ... how often have you had to cut back on monthly expenses in order to make ends meet? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

17. In the last 12 months, how worried have you been about money for your family?

☐ Not at all worried  
☐ Slightly worried  
☐ Very worried  
☐ Extremely worried

☐ Don't know  
☐ Refuse to answer

## SECTION II. Living arrangements

*In this following section, I would like to ask you some questions about your living arrangements and your home.*

18. Where is your current residence?

- ☐ In an urban setting (a town)  
☐ In a rural setting (a village)

- ☐ Don't know  
☐ Refuse to answer

19. In what kind of a household do you live in?

- ☐ An apartment, in an apartment building  
☐ An apartment, in a house  
☐ A house, with a shared courtyard and other amenities  
☐ A house, with an independent courtyard and other amenities  
☐ Other situation \_\_\_\_\_

- ☐ Don't know  
☐ Refuse to answer

20. What is the estimated size of your dwelling space (livable area)

\_\_\_\_\_ sqm

- ☐ Don't know  
☐ Refuse to answer

21. How many rooms are there in this dwelling? (include all bedrooms, living rooms and dining rooms, but exclude the kitchen, bathrooms, or hallways)

\_\_\_\_\_ rooms

- ☐ Don't know  
☐ Refuse to answer

22. How many persons (including any children) live with you in the same dwelling? (do **not** include self)

\_\_\_\_\_ persons

- ☐ Don't know  
☐ Refuse to answer

23. Which of the following persons live with you, in the same household?

- ☐ Your children  
☐ Your husband or partner  
☐ Your parents  
☐ Your partner's parents  
☐ Your siblings or your partner's siblings  
☐ With their partner/ spouse (w or w/o children)  
☐ Other family members  
☐ With their partner/ spouse (w or w/o children)  
☐ Other persons who are not family  
☐ With their partner/ spouse (w or w/o children)  
☐ Other situation: \_\_\_\_\_

- ☐ Don't know  
☐ Refuse to answer

24. How many of these persons smoke? (do **not** include self)

\_\_\_\_\_ persons

- ☐ Don't know  
☐ Refuse to answer

25. How many children do you currently have, who live with you?

\_\_\_\_\_ children

☐ Don't know

☐ Refuse to answer

26. How old are your children? -----→ And can you tell me if he/she is a boy or a girl?

| Age     | Gender                       |                               | Don't know               | Refuse to answer         |
|---------|------------------------------|-------------------------------|--------------------------|--------------------------|
| Child 1 | <input type="checkbox"/> boy | <input type="checkbox"/> girl | <input type="checkbox"/> | <input type="checkbox"/> |
| Child 2 | <input type="checkbox"/> boy | <input type="checkbox"/> girl | <input type="checkbox"/> | <input type="checkbox"/> |
| Child 3 | <input type="checkbox"/> boy | <input type="checkbox"/> girl | <input type="checkbox"/> | <input type="checkbox"/> |
| Child 4 | <input type="checkbox"/> boy | <input type="checkbox"/> girl | <input type="checkbox"/> | <input type="checkbox"/> |
| Child 5 | <input type="checkbox"/> boy | <input type="checkbox"/> girl | <input type="checkbox"/> | <input type="checkbox"/> |
| Child 6 | <input type="checkbox"/> boy | <input type="checkbox"/> girl | <input type="checkbox"/> | <input type="checkbox"/> |
| Child 7 | <input type="checkbox"/> boy | <input type="checkbox"/> girl | <input type="checkbox"/> | <input type="checkbox"/> |

27. Do you, or someone else living in this home, own it?

☐ Yes (**Skip to question 29**)

☐ No

☐ Don't know

☐ Refuse to answer

28. If not, do you rent or are you boarding or other?

☐ Rent

☐ Boarding

☐ Other: \_\_\_\_\_

☐ Don't know

☐ Refuse to answer

29. How satisfied are you with the current physical condition of your home?

☐ Extremely satisfied

☐ Satisfied

☐ Unsatisfied

☐ Extremely unsatisfied

☐ Don't know

☐ Refuse to answer

30. How suitable or unsuitable is your accommodation for your current needs?

☐ Very suitable

☐ Suitable

☐ Unsuitable

☐ Extremely unsuitable

☐ Don't know

☐ Refuse to answer

31. How much control do you feel you have over the environment you live in? (to make decisions about how it looks or how people act in it)

☐ No control

☐ Very little control

☐ A lot of control

☐ Full control

☐ Don't know

☐ Refuse to answer

### SECTION III. Health status and health information

*In the following section, I would like to ask you some questions about your health status and your family's.*

32. How would you rate your overall health status?

- |                                    |   |
|------------------------------------|---|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Good      | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> Fair      |   |
| <input type="checkbox"/> Poor      |   |

33. Do you have any health conditions that limit or restrict your daily activity?

- |                              |   |
|------------------------------|---|
| <input type="checkbox"/> Yes | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> No  | <input type="checkbox"/> Refuse to answer |

34. Do any of your children have any of the following conditions? *(Please mark all that apply)*

- |  |   |
|--|---|
| <input type="checkbox"/> Asthma                  | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Chronic bronchitis      | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> Repeated ear infections |   |
| <input type="checkbox"/> None of the above       |   |

35. How would you rate the overall health status of your youngest child?

- |                                    |   |
|------------------------------------|---|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Good      | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> Fair      |   |
| <input type="checkbox"/> Poor      |   |

36. How often, in the last 6 month, has your youngest child suffered from respiratory infections (colds, pneumonia) or experienced coughing?

- |  |   |
|--|---|
| <input type="checkbox"/> Never               | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Once                | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> Twice               |   |
| <input type="checkbox"/> Three or more times |   |

37. When looking for information about your child's health or about child rearing, what sources would you usually access? *(don't read options and mark all that apply)*

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Partner                                 | <input type="checkbox"/> Pediatrician                        | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Own mother or grandmother               | <input type="checkbox"/> Other healthcare specialist         | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> Other family member                     | <input type="checkbox"/> Books                               |   |
| <input type="checkbox"/> Friends (with children of their own)    | <input type="checkbox"/> Magazines                           |   |
| <input type="checkbox"/> Friends (without children of their own) | <input type="checkbox"/> Internet – websites                 |   |
| <input type="checkbox"/> Neighbours                              | <input type="checkbox"/> Internet – forums and blogs         |   |
| <input type="checkbox"/> Co-workers                              | <input type="checkbox"/> TV/radio                            |   |
| <input type="checkbox"/> General practitioner                    | <input type="checkbox"/> I don't look for health information |   |
| <input type="checkbox"/> Other: _____                            |  |   |



38. In the last 6 months, have you borrowed or received a book, a magazine or a brochure about child health or child rearing, from family or friends?

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Yes -----> | <input type="checkbox"/> Once or twice       | <input type="checkbox"/> Don't know       |
|                                     | <input type="checkbox"/> Several times       | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> No         | <input type="checkbox"/> Often or very often |   |

39. In the last 6 months, have you bought a book or a magazine about child health or child rearing?

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Yes -----> | <input type="checkbox"/> Once or twice       | <input type="checkbox"/> Don't know       |
|                                     | <input type="checkbox"/> Several times       | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> No         | <input type="checkbox"/> Often or very often |   |

40. In the last 6 months, have you received useful information on health topics or exchanged advice on health problems with family and friends?

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Yes -----> | <input type="checkbox"/> Once or twice       | <input type="checkbox"/> Don't know       |
|                                     | <input type="checkbox"/> Several times       | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> No         | <input type="checkbox"/> Often or very often |   |

41. In the last 6 months, have you learnt something about child rearing or child health, from someone around you, which you have been able to put into practice?

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Yes -----> | <input type="checkbox"/> Once or twice       | <input type="checkbox"/> Don't know       |
|                                     | <input type="checkbox"/> Several times       | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> No         | <input type="checkbox"/> Often or very often |   |

42. In the last 6 months, have you used the internet to learn something about child rearing or child health, which you have been able to put into practice?

- |                                     |  |   |
|-------------------------------------|--|---|
| <input type="checkbox"/> Yes -----> | <input type="checkbox"/> Once or twice       | <input type="checkbox"/> Don't know       |
|                                     | <input type="checkbox"/> Several times       | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> No         | <input type="checkbox"/> Often or very often |   |

#### SECTION IV. Smoking behaviour

*In the following section, I would like to ask you some questions about your smoking, and of the people around you.*

46. Do you currently smoke tobacco on a daily basis, less than daily or not at all? (*do not include e-cigarettes*)

- |  |   |
|--|---|
| <input type="checkbox"/> Daily                                     | <input type="checkbox"/> Don't know   |
| <input type="checkbox"/> Less than daily                           | <input type="checkbox"/> Refuse to answer                                   |
| <input type="checkbox"/> Not at all ( <b>Skip to question 56</b> ) | <input type="checkbox"/> Smokes e-cigarettes ( <b>skip to question 56</b> ) |

47. How old were you when you started to smoke cigarettes?

\_\_\_\_\_ years old

☐ Don't know  
☐ Refuse to answer

48. How soon after waking do you smoke your first cigarette?

- |  |   |
|--|---|
| <input type="checkbox"/> Within 5 minutes                              | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> 5-30 minutes                                  | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> 31-60 minutes                                 |   |
| <input type="checkbox"/> Over 60 minutes ( <i>do not read option</i> ) |   |

49. Do you find it difficult to refrain from smoking in places where it is forbidden?

- |                              |   |
|------------------------------|---|
| <input type="checkbox"/> Yes | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> No  | <input type="checkbox"/> Refuse to answer |

50. Which cigarette would you hate giving up?

- |   |   |
|---|---|
| <input type="checkbox"/> The first in the morning | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Any other                | <input type="checkbox"/> Refuse to answer |

51. How many cigarettes a day do you smoke?

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/> 10 or less | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> 11-20      | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> 21-30      |   |
| <input type="checkbox"/> 31 or more |   |

52. Do you smoke more frequently during the first hours after awakening than during the rest of the day?

- |                              |   |
|------------------------------|---|
| <input type="checkbox"/> Yes | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> No  | <input type="checkbox"/> Refuse to answer |

53. Do you smoke even if you are so ill that you are in bed most of the day?

- |                              |   |
|------------------------------|---|
| <input type="checkbox"/> Yes | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> No  | <input type="checkbox"/> Refuse to answer |

54. How often does it happen for you to smoke while holding your baby?

- |                                 |   |
|---------------------------------|---|
| <input type="checkbox"/> Always | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Often  | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> Rarely |   |
| <input type="checkbox"/> Never  |   |

55. Which of the following best describes your thinking about quitting smoking?

- ☐ I plan on quitting in the next month  
☐ I am thinking of quitting in the next 12 months  
☐ I think about quitting someday, but not in the next 12 months  
☐ I am not interested in quitting

- ☐ Don't know  
☐ Refuse to answer

(Skip to question 59)

56. In the past, have you ever smoked tobacco on a daily basis, less than daily or not at all? (*do not include e-cigarettes*)

- ☐ Daily  
☐ Less than daily  
☐ Not at all (Skip to question 59)

- ☐ Don't know  
☐ Refuse to answer  
☐ Smoked e-cigarettes (skip to question 59)

57. How many cigarettes did you use to smoke on an average day?

- ☐ 10 or less  
☐ 11-20  
☐ 21-30  
☐ 31 or more

- ☐ Don't know  
☐ Refuse to answer

58. How likely do you think it is that you will permanently abstain from smoking?

- ☐ Very likely  
☐ Somewhat likely  
☐ Unlikely

- ☐ Don't know  
☐ Refuse to answer

59. Based on what you know or believe, does smoking tobacco cause serious illness?

- ☐ Yes  
☐ No

- ☐ Don't know  
☐ Refuse to answer

60. Based on what you know or believe, does smoking cause the following...

|  | Yes                      | No                       | Don't know               | Refuse to answer         |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| Stroke (blood clots in the brain that might cause paralysis) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Heart attack   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lung cancer  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

61. Based on what you know or believe, does smoking during pregnancy harm the health of the baby?

- ☐ Yes  
☐ No

- ☐ Don't know  
☐ Refuse to answer

62. Based on what you know or believe, does exposure to someone else's smoke cause serious illness to a child?

- ☐ Yes, but only if the child is very young  
☐ Yes, regardless of the age of the child  
☐ No

- ☐ Don't know  
☐ Refuse to answer

63. Based on what you know or believe, does exposure to someone else's smoke causes serious illness in an adult non-smoker?

- ☐ Yes  
☐ No

- ☐ Don't know  
☐ Refuse to answer

64. In the last 6 months, how often have you received useful information about smoking cessation, smoking inside the home or smoking around children from family and friends?

- |  |   |
|--|---|
| <input type="checkbox"/> Never               | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Once or twice       | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> Several times       |   |
| <input type="checkbox"/> Often or very often |   |

65. Thinking of all the people who are present in your life, would you say:

- |  |   |
|--|---|
| <input type="checkbox"/> All of them smoke tobacco   | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Most of them smoke tobacco  | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> A few of them smoke tobacco |   |
| <input type="checkbox"/> None of them smoke tobacco  |   |

**SECTION V. Smoking cessation attempts [do not administer section if respondent is never-smoker Q56=Not at all]**

*In the following section I will ask you some questions about any attempts you had to quit smoking, and your experience with them.*

66. Before learning about your last pregnancy, did you use to smoke?

- ☐ Yes ☐ Don't know  
☐ No (skip to question 68) ☐ Refuse to answer

67. During your last pregnancy, did you smoke as much as before, reduce the number of cigarettes or quit smoking entirely?

- ☐ Smoked the same as before learning about the pregnancy ☐ Don't know  
☐ Reduced the number of cigarettes ☐ Refuse to answer  
☐ I quit smoking entirely

68. In the last 12 months, have you tried to stop smoking?

- ☐ Yes -----> ☐ Same as Q67 quit attempt ☐ Don't know  
☐ No ☐ Refuse to answer

69. Thinking about the last time you tried to quit, for how long did you stop smoking? (Refer here to any quit attempt, even if the respondent did not quit in the last 12 months)

- ☐ Months ☐ Don't know  
☐ Weeks ☐ Refuse to answer  
☐ Days  
☐ Less than 1 day  
☐ I have never tried to quit smoking (Skip to question 73)

70. Thinking about your last quit attempt, what motivated you to quit?

- ☐ Don't know  
☐ Refuse to answer

71. How much support did you receive from the people around you, in your last quit attempt?

| Relationship                  | A lot of support         | Some support             | A little support         | Not at all               | Don't know               | Refuse to respond        |
|-------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Partner / husband             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Your own parents              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Your partner's parents        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Your children                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Your siblings                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other members of your family  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Your friends                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Your family doctor            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Another healthcare specialist | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

72. Have you **ever** used any of the following to try to stop smoking tobacco? (*Mark all that apply*)

- |   |   |
|---|---|
| <input type="checkbox"/> Counseling or a quit line                                  | <input type="checkbox"/> Don't know       |
| <input type="checkbox"/> Nicotine replacement therapy such as nicotine patch or gum | <input type="checkbox"/> Refuse to answer |
| <input type="checkbox"/> Prescription medication                                    |   |
| <input type="checkbox"/> E-cigarettes   |   |
| <input type="checkbox"/> Other: _____   |   |

## SECTION VI. Smoking in the home

*In this next section, I would like to ask you some questions about smoking in your home.*

73. Which of the following best describes the rules about smoking inside your home?

- ☐ Smoking is allowed inside of your home
- ☐ Smoking is generally not allowed inside your home, but there are some exceptions
- ☐ Smoking is never allowed inside your home
- ☐ There are no rules about smoking inside your home
- ☐ Don't know
- ☐ Refuse to answer

74. How often does anyone smoke inside your home, during **summers** or when it is hot outside? (*inside the home, we mean any enclosed space, including the kitchen, hallways or the bathroom*)

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Less than monthly
- ☐ Never
- ☐ Don't know
- ☐ Refuse to answer

75. How often does anyone smoke inside your home, during **winters** or when it is cold outside? (*inside the home, we mean any enclosed space, including the kitchen, hallways or the bathroom*)

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Less than monthly
- ☐ Never
- ☐ Don't know
- ☐ Refuse to answer

**IF Question 74=Never AND Q75=Never, skip to question 84**

76. When smoking occurs inside your home, how often do you...

|  | Never                    | Rarely                   | Often                    | Always                   | Don't know               | Refuse to answer         |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| ... open windows or doors when smoking                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ... smoke under the kitchen fan or other ventilation systems | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ... close doors to keep smoke from spreading to other rooms  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

77. Who smoked at least one cigarette inside your home, in the last month? (please refer to any cigarettes smoked indoors, including in the kitchen, bathrooms or hallways, with or without windows open)

- ☐ Myself
- ☐ My partner and/or husband
- ☐ My children
- ☐ My mother
- ☐ My father
- ☐ My mother-in-law
- ☐ My father-in-law
- ☐ My siblings
- ☐ My partner's siblings
- ☐ Other family members
- ☐ Other persons who are not family members
- ☐ Don't know
- ☐ Refuse to answer

78. Could you please estimate how many cigarettes have been smoked in each of the following places of your home, in the last week?

| Kitchen                               | Living room                           | Bedrooms                              | Bathroom                              | Balcony or porch                      |
|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| <input type="checkbox"/> None         | <input type="checkbox"/> None         | <input type="checkbox"/> None         | <input type="checkbox"/> None         | <input type="checkbox"/> None         |
| <input type="checkbox"/> 1-5          | <input type="checkbox"/> 1-5          | <input type="checkbox"/> 1-5          | <input type="checkbox"/> 1-5          | <input type="checkbox"/> 1-5          |
| <input type="checkbox"/> 6-10         | <input type="checkbox"/> 6-10         | <input type="checkbox"/> 6-10         | <input type="checkbox"/> 6-10         | <input type="checkbox"/> 6-10         |
| <input type="checkbox"/> 11-20        | <input type="checkbox"/> 11-20        | <input type="checkbox"/> 11-20        | <input type="checkbox"/> 11-20        | <input type="checkbox"/> 11-20        |
| <input type="checkbox"/> more than 20 | <input type="checkbox"/> more than 20 | <input type="checkbox"/> more than 20 | <input type="checkbox"/> more than 20 | <input type="checkbox"/> more than 20 |

☐ Don't know   ☐ Refuse to answer

79. Can you estimate how much time, in an average day, your (youngest) child is present when someone smokes in the same room with him/her?

- ☐ 8 hours or more  
☐ 4-7 hours  
☐ 1-4 hours  
☐ Less than 1 hour  
☐ Not at all
- ☐ Don't know  
☐ Refuse to answer

80. Have you ever considered completely banning smoking in your home?

- ☐ Yes, but I have never tried it  
☐ Yes, and I have also tried it  
☐ No, I have never considered it
- ☐ Don't know  
☐ Refuse to answer

81. If you decided to make your home smoke free (completely banning smoking), how easy or difficult would you find it to implement, given your current living situation?

- ☐ Extremely easy  
☐ Easy  
☐ Difficult  
☐ Extremely difficult
- ☐ Don't know  
☐ Refuse to answer

82. What do you see or expect as the main barriers or the main problems in making your home smoke-free?

---

☐ Don't know   ☐ Refuse to answer

83. If you decided to make your home smoke free (completely banning smoking), how supportive would the persons around you be?

- ☐ Extremely supportive  
☐ Supportive  
☐ Unsupportive  
☐ Extremely unsupportive
- ☐ Don't know  
☐ Refuse to answer
- Skip to question 87**



84. Has anyone **ever** smoked indoors in your home, even years ago?

☐ Yes

☐ No (skip to question 87)

☐ Don't know

☐ Refuse to answer

85. When did you stop smoking in your home?

\_\_\_\_\_ ☐ months ago ☐ years ago

☐ Don't know

☐ Refuse to answer

86. What was the reason for changing smoking rules in your home?

(do **not** read options and mark all that apply)

☐ Pregnancy or the birth of a new baby

☐ Health event in the family (i.e. family member getting ill)

☐ Family structure rearrangements (i.e. smoker moving out)

☐ Someone from the family quitting smoking

☐ Other reason: \_\_\_\_\_

☐ Don't know

☐ Refuse to answer

## SECTION VII. Emotional health, social support and perceived capabilities

*Within this last section, I will ask you some questions about your emotional health, the support you receive from the persons around you, as well as how you evaluate the overall quality of your life.*

87. Over the last 2 weeks, how often have you been bothered by the following problems?

|   | Not at all               | Several days             | More than half the days  | Nearly every day         | Don't know               | Refuse to answer         |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Feeling nervous, anxious or on the edge     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Not being able to stop or control worrying  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Little interest or pleasure in doing things | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Feeling down, depressed, or hopeless        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

88. The next questions will focus on the support you receive in your day to day life, and how often you feel you receive support when you need it.

|  | Always                   | Most of the time         | Some-times               | Never                    | Don't know               | Refuse to answer         |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Do you feel you generally receive enough support from your family and friends for yourself and your child/children?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Do you feel you are generally able to talk to (or confide in) people around you, about things that you feel are important?                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Do you feel there are people around you to help with daily practical things, when needed? ( <i>such as looking over your child or help with shopping</i> ) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Do you feel there are people around you to support you emotionally, when you feel upset or overwhelmed?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Do you feel there are people around you to support you financially when needed?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Do you feel there are people around you to support you with information or advice about child health or child rearing, when needed?                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

89. This final set of questions refers to the things in life that you feel you are able or free to do. I will read a set of statements and please state how much you agree or disagree with each of them (please rate them with: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree).

|  | Strongly agree           | Agree                    | Disagree                 | Strongly Disagree        | Don't know               | Refuse to answer         |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| I am able to make structural changes in the home I live in, such as improvements or renovations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I am able to influence how people behave in the home I live in.                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I am free to decide how to live my life.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I am free to decide how to raise my children.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I can't impose on guests not to smoke in my home.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I don't feel I can express myself freely in the home I live in.                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I am able to influence decisions taken in the home I live in.                                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I can influence how money is spent in my home.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I can live a healthy and happy life in the home I live in.                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I can offer my children a healthy environment to live in.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

90. How would you rate your overall quality of life?

- ☐ Very poor
- ☐ Poor
- ☐ Neither poor, nor good
- ☐ Good
- ☐ Very good

- ☐ Don't know
- ☐ Refuse to answer

**Thank you for taking the time to answer to these questions!**