



## The impact of COVID-19 on youth mental health: A mixed methods survey

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### ABSTRACT

The COVID-19 pandemic has presented profound disruptions to young people at a critical period of psychosocial development. The current study aimed to explore the perceived negative and positive impacts of the COVID-19 pandemic on young people's mental health and wellbeing across a spectrum of clinical needs. A cross-sectional online survey including both quantitative and qualitative responses captured positive and negative impacts of COVID-19 across 593 young people with and without mental health care needs. Findings revealed high levels of clinical depression (48%), anxiety (51%), and loneliness in both samples. Approximately 75% of young people in primary mental health care services, and over 80% in the general population, reported a negative impact on work, non-work activities and mental health and wellbeing. Open-ended responses reflected positive impacts in the domains of greater capacity for self-care and reflection due to the decreased pressures of daily life. Negative impacts reflected worsening mental health, disruptions to key developmental milestones regarding relationships with self and others, and limited capacity for self-care. Together, these data highlight the critical need for early intervention support for the psychosocial impacts experienced by young people due to the pandemic, particularly among those with existing mental health care needs.

### 1. Introduction

The COVID-19 pandemic and associated health measures reshaped the lives of people worldwide, with profound implications for mental health and wellbeing. Early adulthood is the peak vulnerability period for mental ill-health, with 75% of mental disorders emerging during this time (Kessler et al., 2007). Young people experience higher levels of loneliness and social isolation (Smetana et al., 2006), are less likely to have stable employment (Achdut and Refaeli, 2020), and are still forming their decision making and emotion regulation skills (Ahmed et al., 2015). These factors may have contributed to the disproportionate impact of the pandemic on young people (Santomauro et al., 2021), particularly among those with existing mental health difficulties (Power et al., 2020; Danese et al., 2020). Understanding this impact is a key global research priority to inform the response to the pandemic (Holmes

et al., 2020).

Population-based surveys in high-income (Pierce et al., 2020) and low to middle income countries (Kola et al., 2021) have demonstrated a worsening in mental health during the pandemic, however few have explored the impact on youth specifically (Power et al., 2020). A UK study found a 5.2% increase in the incidence of mental disorders amongst those aged 5–22 years between 2017 and 2020 (Newlove-Delgado et al., 2021). A longitudinal survey of Australian adolescents (13–16 years) found small increases in depression, anxiety, and lower life satisfaction during the pandemic compared to the 12 months prior (Magson et al., 2021). Another Australian survey of young people aged 12–25 years revealed high levels of distress that were consistent with that observed pre-pandemic (Headspace, 2020a). In populations of youth with mental health conditions, the pandemic has contributed to worsening mental health and increased challenges accessing services

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(Headspace, 2020b; McGorry, 2021; Young Minds, 2020).

Whilst surveys have quantified the negative impact of COVID-19 on young people, currently little is known about the nature of this impact beyond broad mental health and functioning measures, nor the firsthand experiences of mental health difficulties of young people during the pandemic. A detailed understanding of both the magnitude and nature of these experiences is required to ensure that responses are adequately informed by the realities of the pandemic for youth (Danese et al., 2020). To address these gaps, the current study aimed to capture a qualitative and quantitative snapshot of mental health using a cross-sectional survey in two distinct populations of youth during the pandemic and associated restrictions: (1) current users of youth mental health services; and (2) young people in the general population.

## 2. Method

### 2.1. Study design and context

The current study formed part of the BRACE project, which involved an online survey examining the impact of COVID-19 on the mental health and wellbeing of young Australians, telehealth service quality (reported in Nicholas et al., 2021), and the potential for technology to support youth mental health care (reported in Bell et al., 2022). Throughout the manuscript we use COVID-19 to refer to the disease, pandemic, and government health measures (i.e. lockdowns). The survey was administered during Australian Government-mandated restrictions in response to COVID-19. Between mid-March and mid-May 2020, country-wide COVID-19 measures restricted people from leaving their primary residence, with the exception of: i) education or employment, if unable to work from home; ii) seeking or providing care; iii) exercise; and iv) shopping for groceries and other essentials. From July to the end of October 2020, the Victorian state government re-instituted the same restrictions (Victorian Government, 2020).

This paper reports primary findings on the mental health and wellbeing of young people using youth mental health services and in the general population. Young people were recruited through two sources, social media and via an SMS through their mental health service. The procedure for each described separately below. The survey completed by the general population included additional items about social media and self-harm during the pandemic (reported in Bailey et al., 2022). The study was approved by Melbourne University Human Research Ethics Committee (approval numbers: 2,057,299 and 2,056,793) and Melbourne Health Human Research Ethics Committee (reference number: QA2020096).

### 2.2. Procedure

The survey was administered through the online software Qualtrics.

#### 2.2.1. General population

Young people aged 16 to 25 from the general population were recruited via targeted advertisements on Facebook and Instagram posts between June and October 2020. Between June and August, the survey was advertised to young people throughout Australia, however between August and October advertisements targeted Victorian young people, as during these months COVID-19 lockdown measures were localised to this region.

The social media advertisement included a link to study information, from which interested young people could access the detailed participant information and consent form. Following consent, participants completed a screening questionnaire to confirm eligibility (aged 16–25 years and residing in Australia), and those eligible then completed the survey. No identifying information was collected from participants, however, upon survey completion, participants had the option to enter a draw to win one of three iPads. Those who entered the draw were directed to an additional survey on which their email address was

collected, this could not be linked to their survey responses.

#### 2.2.2. Primary mental health services

Young people from youth mental health services were recruited via an SMS that was sent to all young people (aged 12–25) who had an appointment scheduled between March 23 and May 28, 2020, at four Orygen headspace centres (primary youth mental health services) in Melbourne, Victoria. Young people aged 12–25 were identified via the appointment calendars of the participating youth mental health services. On May 28, 2020, an anonymous online survey link was sent via SMS to all those with appointments, with a reminder SMS sent two weeks later. The SMS included a link which took young people to the participant information and consent form. Consenting young people then completed the survey.

### 2.3. Measures

The survey was created specifically for the BRACE project in consultation with young people and youth mental health clinicians. Measures related to the current study aimed to understand the positive and negative impact of COVID-19 on youth mental health and wellbeing via standardised and non-standardised quantitative questionnaires and open-ended qualitative responses.

#### 2.3.1. Depression and anxiety

The PHQ-4 (Kroenke et al., 2009) is a 4 item self-report screening questionnaire for clinical depression and anxiety. Items are rated on a four-point Likert scale from 0 (not at all) to 3 (nearly every day). Total scores range from 0 to 6, with higher scores indicating greater levels of depression and anxiety. A score of 3 or greater on the 2 item depression subscale indicates probable depressive disorder, and a score of 3 or greater on the 2 item anxiety subscale indicates probable anxiety disorder for adults and young people in primary care settings and in the general population (Richardson et al., 2010). Young people in the general population were asked about mental health diagnosis via a self-report question 'Have you ever received a diagnosis of a mental health condition?'. Those answering yes were asked to detail the diagnosis.

**2.3.2. Loneliness.** The ULS-8 (Hays and DiMatteo, 1987) is an 8 item shortened version of the UCLA Loneliness Scale. Items are rated on a four-point Likert scale from 1 (never) to 4 (always). Total scores range from 8 to 32, such that a higher total score indicates greater levels of loneliness and isolation. The scale is reliable and valid in youth populations (Roberts et al., 1993).

**2.3.3. Impact on mental health, wellbeing and functioning.** A three-item measure was created for this survey to assess broad domains of functioning (work and non-work) and mental health. Each item was rated on a 7-point scale from 1 (very negative) to 7 (very positive). Items included:

What impact, if any, has COVID-19 had on your study and/or employment/carers role? What impact, if any, has COVID-19 has on your non-work life? What impact, if any, has COVID-19 had on your mental health?

#### 2.3.4. Positive and negative impact open response items

Two open-ended response items were included to capture qualitative experiences of both positive and negative impacts of COVID-19 on respondents' mental health and wellbeing.

- (1) In your own words, what have been the main negative impacts of COVID-19 on your mental health and wellbeing, if any?
- (2) In your own words, what have been the main positive impacts of COVID-19 on your mental health and wellbeing, if any?

## 2.4. Data analysis

Quantitative data were analysed using descriptive statistics in SPSS 22.0. Independent t-tests and chi-square test of independence were used to examine differences between populations on mental health outcomes.

Qualitative data were analysed using thematic analysis following Braun and Clarke (2006) methodology. First, for each question, three study team members (IB, JN, AB) independently read through participant responses to familiarise themselves with the data set and performed open coding to create categories based on reoccurring responses. Agreement was reached regarding coding categories through meetings to compare and discuss first-stage categories. The remaining responses were coded into the agreed upon categories by one author (AB). Inter-coder reliability was performed by IB and JN independently coding a randomly selected 20% of the sample for each qualitative question. Percentage agreement was 83.7% and 82.9% for positives and negatives of COVID-19, respectively. The team then met to discuss the coded responses before organising the results into broader themes. To further ensure validity and rigour within the analysis, beyond displaying acceptable intercoder agreement (Miles and Huberman, 1994), the team-based approach allowed for triangulation. Codes were determined by consensus among the researchers at every step of the analysis and reporting (Tracy, 2010). Organisation of codes into themes was also done via discussion, collaboration, and consensus between the coders, with the input of an experienced qualitative researcher (SB).

This study was conducted at the University of Melbourne's Centre for Youth Mental Health at Orygen, the world's largest youth mental health research and policy organisation. Orygen focuses on the mental health of young people, recognising this is a critical period in which mental health experiences, intervention, and support can have lifelong impacts. This context, together with the mental health research and practice (IB) backgrounds of study leads (IB and JN), contributed to a clinical focus in the design of the qualitative questions (i.e. a focus on mental health and wellbeing). Similarly, each coder had a background in mental health, and thus brought a clinical viewpoint to the coding and thematic analysis of participants experiences of the pandemic. All coders were white, identified as female, and resided in Victoria during coding.

## 3. Results

Seven hundred and sixty-seven young people started the surveys and 593 (77.3%) completed all mental health measures. As detailed in Table 1, participants predominantly identified as female (67.3%), lived with family (72.8%), and were studying full-time (66.1%). The mean age was 20.17 years (SD = 3.35). Among young people recruited from the general population, approximately half (50.5%) reported they had received a diagnosis of a mental health condition, most commonly depression and anxiety.

### 3.1. Mental health

Overall, 231 (48.4%) of young people met criteria for depression and 243 (50.9%) for anxiety according to the PHQ-4. Within primary services 62.7% of young people met criteria for depression and 59.1% for anxiety. Within the general population, 44.1% met criteria for depression, 48.5% for anxiety.

An exploratory analysis of differences rates of depression and anxiety in the general population between those from Victoria and those from other Australian states was performed. A Chi-square test for independence (with Yates Continuity Correction) indicated a significantly higher proportion of Victorian young people met clinical criteria for depression in the general population compared to the general population participants from other Australian states ( $\chi^2(1, n = 359) = 4.21, p = .04$ ). Of general population young people from Victoria, 48.2% met criteria for depression, compared to 36.0% of young people from other states. A similar test for anxiety likewise found that a significantly higher

**Table 1**

Characteristics of sample, general population ( $n = 364$ ), primary youth mental health services ( $n = 229$ ).

	General population n(%) <sup>S</sup>	Primary mental health services n(%) <sup>S</sup>
Age M(SD)	21.05 (2.94)	18.77 (3.48)
Gender		
Female	257 (70.6)	142 (62.0)
Male	76 (20.9)	63 (27.5)
Transgender	1 (0.3)	10 (4.4)
Non-binary	15 (4.1)	7 (3.1)
Unspecified	15 (4.1)	7 (3.1)
Aboriginal or Torres Strait Islander	8 (2.2)	4 (1.7)
Current living situation		
Living with parents, caregivers, or siblings	241 (66.2)	191 (83.4)
Living with friends	33 (9.1)	3 (1.3)
Living with romantic partner	35 (9.6)	11 (4.8)
Living in shared accommodation	26 (7.1)	9 (3.9)
Living alone	27 (7.4)	14 (6.1)
Homeless or couch surfing	0	1 (0.4)
State of residence		
ACT	10 (2.7)	0
New South Wales	42 (11.5)	0
Northern Territory	1 (0.3)	0
Queensland	19 (5.2)	0
South Australia	10 (2.7)	0
Tasmania	21 (5.8)	0
Victoria	246 (67.6)	229 (100)
Western Australia	11 (3.0)	0
Employment status <sup>§</sup>		
Full time student	213 (58.5)	126 (55.0)
Part time student	42 (11.5)	15 (6.6)
Hours of study each week M (SD)	25.09 (12.17)	22.14 (17.96)
Full-time paid employment	64 (17.6)	13 (5.7)
Part-time paid employment	123 (33.8)	34 (14.8)
Hours of work each week M (SD)	23.36 (13.36)	19.72 (12.75)
Unpaid worker as a parent or carer	6 (1.6)	1 (0.4)
Currently unemployed	51 (14.0)	72 (31.4)

proportion of general population young people from Victoria met criteria for anxiety (53.1%) than those from other states (37.7%;  $\chi^2(1, n = 359) = 6.733, p = .009$ ).

### 3.2. Loneliness

Mean loneliness across the samples during COVID-19 was 20.72 (SD = 4.92). Young people from primary services had significantly higher levels of loneliness ( $M = 21.92, SD = 4.79$ ) compared to those in the general population ( $M = 19.97, SD = 4.85; t(591) = 4.79, P < .001$ ).

An analysis of loneliness scores of young people in the general population found a significant difference between those with and without a self-reported mental health condition ( $t(228) = 5.51, P < .001$ ). Young people with a mental health condition reported significantly higher levels of loneliness ( $M = 21.24, SD = 4.38$ ) than those without ( $M = 18.49, SD = 4.97$ ).

### 3.3. Impact of COVID-19

Across domains of work and study, non-work life, and mental health, participants overwhelmingly perceived the impact of COVID-19 as negative (Fig. 1). The proportion of young people who reported that the pandemic had a negative impact was consistent across the three aspects of their lives examined. In the primary service population, 75.6% reported a negative impact on their work or study, 74.7% on their non-work life, and 75.6% on their mental health. In the general population, negative impacts were reported slightly more often across work

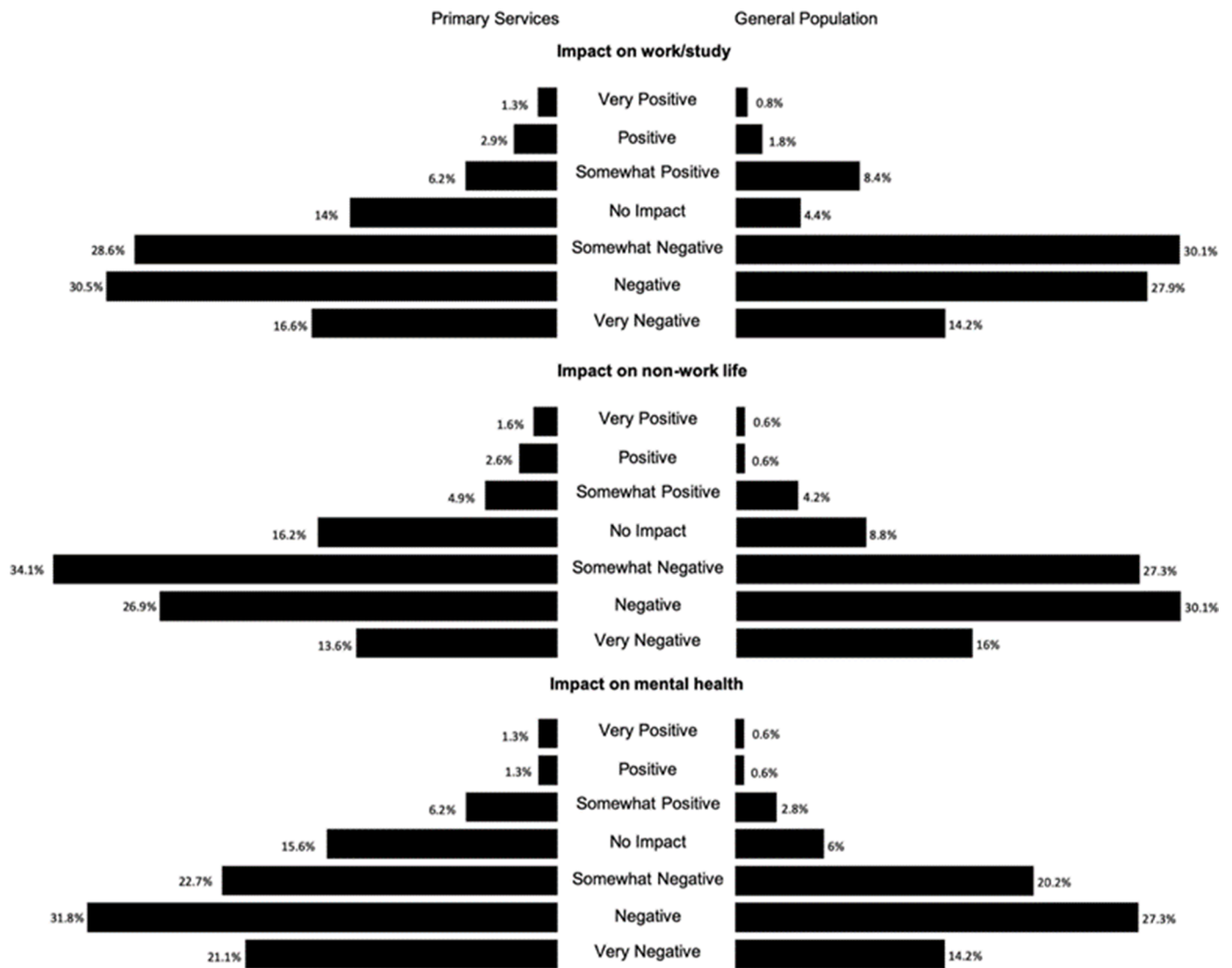


Fig. 1. The impact of COVID-19 on the work and study, non-work life, and mental health of young people in primary services and the general population.

and study, non-work life, and mental health, at 82.4%, 83.8%, and 86.0% respectively.

### 3.4. Qualitative analysis

Of the 767 young people who started the surveys, 557 (72.6%) provided qualitative data related to the negative and positive impacts of COVID-19 on their mental health and wellbeing, 240 (77.9%) from primary mental health services and 317 (69.1%) from the general population. A breakdown of the numbers and proportion of young people that provided negative impacts, positive impacts, or both, are displayed in Table 2. Themes identified from the data are described below and displayed as a thematic map in Fig. 2.

**Table 2**  
Proportion of samples reporting negative and positive impacts from COVID19.

Type of open response	Primary services	General population	Whole sample
Negative impacts only	65 (27.1%)	45 (14.2%)	110 (19.7%)
Positive impacts only	12 (5.0%)	6 (1.2%)	18 (3.2%)
Both positive and negative impacts	163 (67.9%)	266 (83.9%)	429 (77.0%)

#### 3.4.1. Negative

Five themes capturing negative impacts were identified: social isolation; interpersonal tension; worsening mental health; existential and developmental crisis; and, unable to perform self-care.

**Social isolation.** Many young people reported “feeling distant from everyone and being alone all the time” as a negative impact of COVID-19. Social isolation included “being unable to see friends”, “missing family”, and “isolation from normal social interactions that have been apart [sic] of routine”, as well as missing incidental encounters “interaction with people” or defuse encounters such as “social interaction with colleagues”. Feelings of loneliness, boredom, sadness, withdrawal, and difficulties with motivation, were commonly described consequences of social disconnection. For some, social isolation meant “not being able to see people who I rely on for mental support”, limiting an important coping and self-care strategy. Socialising was not only seen as a valuable and meaningful activity, but also an important distraction from becoming “too ‘in my own head’”. Whilst many young people reported relying on technology to remain connected, they also described it as “just not the same”, with some finding it difficult to support meaningful connections via technology, which meant “some friendships/relationships fizzled a bit”.

**Interpersonal tension.** While many young people were feeling isolated,



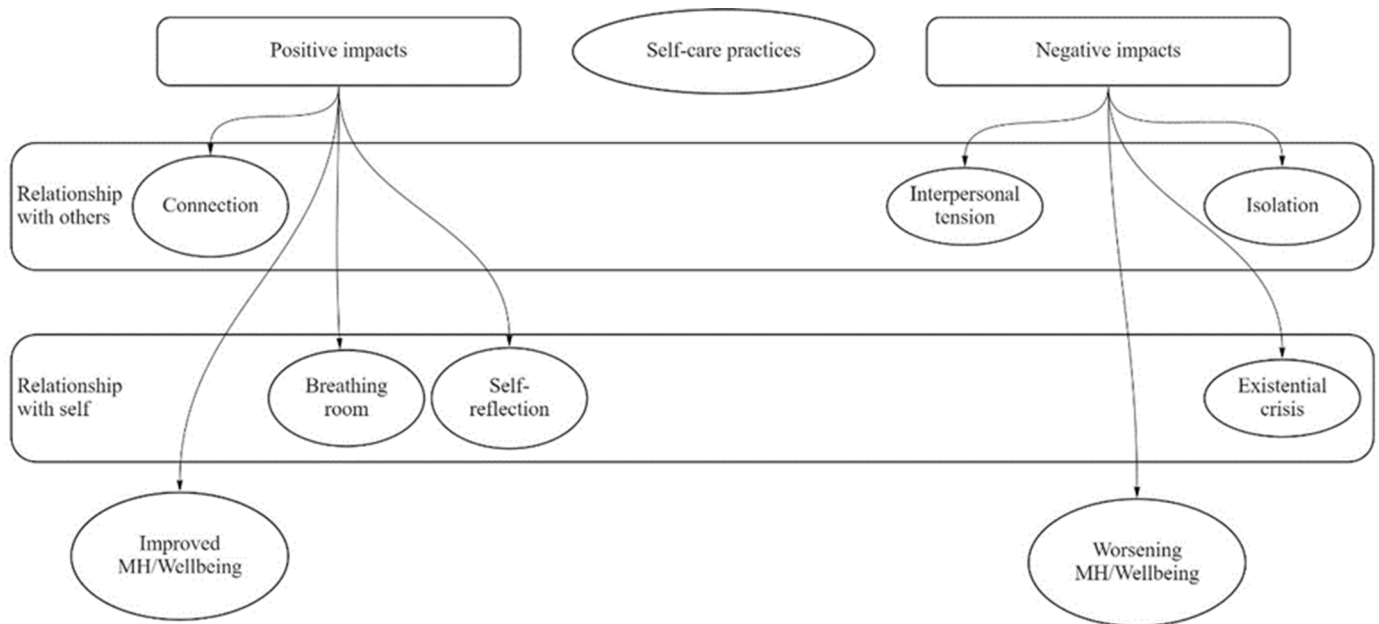


Fig. 2. Thematic map.

for others, the pandemic had “posed significant pressures on relationships... due to spending too much time together and becoming irritable”. This increase in interpersonal tension arose as many participants described being “trapped” at home with family or housemate tensions “causing strain on our relationship”. This resulted in frustration and conflict for some, with regular arguments, emotional distance, and “feeling on edge all the time” reported. A few young people also described frustration over losing their independence when living with family, which contributed to the strain on the relationship. Among young people with mental health difficulties, some found the family home an unhelpful environment for self-care and coping, in which they felt “like I’m not allowed to talk about mental health problems I’m having” or that their family would not understand their experience. Others reported “hiding how I feel” or being unable to voice their experiences out of fear they would be misunderstood.

**Worsening mental health.** Many young people reported a negative impact on their mental health. Participants described a range of symptoms consistent with depression and anxiety such as low motivation and mood, sleep disruption, sadness, difficulties concentrating, excessive worry, guilt, and hopelessness. Some reported existing symptoms were “seriously exacerbated”, and played a role in relapses or “haulted [sic] recovery”. In fewer cases, participants reported the onset of worsening of severe symptoms, including trauma intrusions, disordered eating, paranoia, self-harm, and suicidal ideation.

Several factors related to the pandemic appeared to drive this decline, including social isolation, disruptions to work or study (including financial stress, job loss, and difficulties working/studying from home), an inability to escape triggers such as family conflict, a lack of purpose or motivation, and concern about the broad and personal implications of the pandemic. Adjusting to these conditions was challenging and appeared to precipitate “feeling uncertain about the future” and “feeling like I don’t have as much control over the direction of my life”. Isolation and boredom and feeling “stuck”, “trapped” and “suffocated” were common in the context of being “at home all the time”, contributing a “lack of direction and lack of motivation” or a perceived lack of purpose. These concerns tended to manifest in rumination and worry, and to “grow and often exaggerate negatively”. Having “less options” and not being able to use “environments as a form of distraction or even motivation” such as socialising, working or studying, were related to negative

thinking, as well as general difficulty accessing existing self-management strategies.

**Existential and developmental crisis.** Some young people reflected that life was “at a standstill” and that “time is slipping away”. This existential anxiety often arose through uncertainty concerning how the pandemic would impact their progression and goals, as described by one young person;

“The sense of stillness and stagnation in life also feeds negativity about the future, we’re unable to visualise what tomorrow will be like, we feel we don’t have the power to make it better for ourselves or in a larger sense as the virus has cast uncertainty about both the near and distant future of our world.”

Young people described being in periods of developmental transition prior to the pandemic, including completing studies, pursuing a career, forging new relationships, and developing independence. The pandemic initiated “a quarter life crisis”, in which this development was disrupted, leaving them “worried for my future”, doubtful about their long-term prospects, and questioning their ambitions and “goals in life”. Unpredictability of the future made some feel they had “wasted time” pursuing goals that were no longer viable, and others experienced inertia and indecision, impacting motivation. Outside of impacts to personal trajectories and goals, this uncertainty about the future was also felt regarding “the state of the world”.

**Unable to perform self care.** Young people described disruptions to routines and “not being able to leave the house to study and do the things I normally would to maintain mental health”. Restrictions curtailed self-care options, which for some left them feeling they had “only my bad habits to resort to in times of poor mental health rather than escaping outside of home”. Routines were described as important for maintaining mental health and wellbeing, particularly physical activity, healthy eating, and socialisation. A reinforcing feedback loop, “I lack motivation when I don’t do it’s just a constant cycle”, was described by young people, whereby a lack of productivity and motivation arising through lack of routine drove feelings of hopelessness and low self-esteem, which perpetrated feelings of depression and a further lack of motivation. For some with existing mental health care needs, attending appointments was described as an important way of managing their mental health that was more difficult

to access remotely during the pandemic. Some also described that the “*coping tools and strategies I may have normally used to manage my mental health have been less available*” and other challenges implementing treatment strategies, such as exposure work or practicing therapeutic skills.

#### 3.4.2. Positive

Four positive impact themes were identified: breathing room; connection with others; self-reflection; and increased wellness and self-care.

**Breathing room.** Young people reported having more time and fewer expectations, contributing to feelings of reduced pressure. Young people felt they had the ability to “*slow down and take time for myself*” and linked this to an ability to “*control my schedule more flexibly and have more time to do the things I want to do*”. For some young people, having “*more time to do things*” caused them to “*stop engaging in a lot of time wasting activity... This has left more room to be productive in the time I have*”. Increased intentionality around the use of time meant many young people reconnected with “*hobbies and learn[ing] a lot new skills*”. When discussing hobbies, there was an emphasis on being creative and ‘healthier’, with activities such as cooking, reading, spending time with family and friends, and increased focus on activities to improve wellbeing, fitness, or mental health. Finally, for a few this reduction in pressure was also felt financially, resulting from “*not going out or spending money so much, I have been able to save a lot of money*” or “*extra money from the gov [ernment]*”.

**Connection with others.** Some young people described an increased connection with the people in their lives through being “*able to spend more time with*” their partners or family. Some experienced a greater appreciation of relationships, and described them as becoming “*deeper*” or “*closer*”, while for others this led to “*figuring out who the people I really want to spend my time with are*”. Young people reported that “*catching up with friends has been very intentional and planned*” as technology facilitated social connections.

A few young people perceived an increase in connection with community through shared experience, because “*everyone is going through this*”. For a few young people, this shared experience led them to “*finally feel like people actually understand what it feels like to have mental health problems*”, from both the community and individuals in their lives.

**Self-reflection.** Many reported a sense of increased self-awareness, re-evaluation of priorities, or a change in perspective, due to increased time for self-reflection. At its simplest, time for self-reflection enabled young people to “*slow down and get to know myself more*” or learn “*to be okay with being alone with myself*”. Others felt they began to “*appreciate things previously that I had taken for granted*”. Perspective changes commonly concerned the value of participants’ relationships with others and plans for the future. Interestingly, time for self-reflection was considered a luxury, that otherwise they did not have the “*time or justification for*”. This positive introspection and self-exploration, enabled young people to gain a better understanding of personal needs or desires;

*“I think I have become more resilient, and learnt to value smaller parts of my life that I didn’t before. I’ve become better at recognising when I need to take time to do things that I enjoy and make me happy, and have learnt more about what I do enjoy.”*

Often, this time to reflect on needs was closely related to gaining a better understanding and for many a sense of increased control or management of their mental health.

**Increased wellness and self-care.** Some young people reported a positive impact on their mental health and wellbeing as a result of the pandemic. As indicated above, for many this was linked to time spent in self-

reflection, which led to young people becoming “*more self-aware of my needs of my mental health are and how to get them*”. For a small number of young people, this reflection promoted help-seeking, while for others, help-seeking was made easier because of “*telehealth availability, psychologists and psychiatrists have been highly accessible*”. The reduced sense of pressure and stress (breathing room), was also a source of improved mental health. Reduced expectations and commitments “*relieved pressure from doing too much and spending time with people*”, gave young people “*guilt-free time to recharge by myself*”, and reduced exposure to triggers or stressors, most commonly social situations. While reduced exposure was beneficial to their mental health at the time, some acknowledged that this might not be “*positive in the long run*”.

Many young people also described being able “*to fit more self-care activities into my day*” or “*dedicate more time to my wellbeing*”. Common self-care activities were diet and exercise, healthier routines, increased sleep, and greater attention to needs and practices important for mental wellbeing. Increased self-care was often attributed to having “*had a lot of time to take care of myself and work on overcoming*” mental health symptoms or on having “*had time to reflect on how I need to start managing my mental health better*”, both of which were described as positive themes above (breathing room and self-reflection).

## 4. Discussion

This study aimed to gain an in-depth understanding of the impact of COVID-19 on the mental health and wellbeing of young people. Quantitative findings indicated high levels of depression, anxiety, and loneliness amongst both clinical and non-clinical populations. Qualitative results portrayed predominantly negative themes relating to social isolation and interpersonal tension, and worsening mental health. Themes pertaining to positive impacts emphasised the benefits of time and space from the stressors of daily life, more opportunities for self-reflection, self-care, connecting with others, and an increased sense of wellness. Together, these results portray a nuanced picture of the impact of the pandemic on the mental health and wellbeing of youth.

Half of participants met clinical criteria for both probable depression (48%; 63% within primary services, 41% in the general population) and anxiety (51%; 59% in primary services, 49% in general population). These rates are based on criteria from the Patient Health Questionnaire (PHQ-4; Kroenke et al., 2009), which is a commonly used screening measure for clinical depression and anxiety. Whilst this measure has been validated for screening purposes, this does not represent a formal clinical diagnosis. Further, there was no timepoint prior to the pandemic in which these rates could be compared, therefore it is not possible to determine whether these rates represent an *increase* within this sample. However, equivalent data from studies conducted prior to the pandemic show that these rates are higher than both the prevalence of clinical disorders and emotional distress in a similar populations prior to the pandemic (Slade et al., 2009) and global prevalence estimates for depressive and anxiety disorders (Polanczyk et al., 2015). These rates are also higher than adult populations during the early months of the pandemic, estimated to be around 15 – 25% (36–46% for those with a diagnosed mental disorder) experiencing moderate to severe anxiety or depression (Dawel et al., 2020; Fisher et al., 2020) and the small increase reported in adolescents by Magson et al. (2021). Our higher rates may be due to: (1) the predominance of respondents from a region that had comparatively harsh restrictions; (2) a high proportion of self-reported mental disorder diagnosis (50% of sample compared to approximately 25% in the general population; Slade et al., 2009); (3) the study being conducted through a youth mental health organisation, thus attracting respondents with mental ill-health; and (4) the survey occurring slightly further into the pandemic than prior studies, allowing a longer period for the impacts to accumulate.

The finding that young people recruited from the general population within Victoria reported higher rates of clinical depression and anxiety compared to other states is likely explained by the difference in COVID-

19 transmission rates, and subsequent response between states. During the time the survey was conducted, Victorian young people were differentially impacted by COVID-19 infection control policy, spending a greater proportion of time limited in their ability to leave their home and unable to attend school or socialise with others. The negative impact of these restrictions was clearly described within the qualitative findings, and many attributed this to worsening mental health. This finding echoes that of an Australian survey of adults (Fisher et al., 2021) conducted during the same time period, that found those residing in Victoria were more than twice as likely to experience clinical depression and anxiety compared to other states, which the authors interpreted as a result of lockdown restrictions. A prior survey of the same population found that the degree to which restrictions were seen as having a negative impact on daily life was a significant predictor of depression and anxiety (Fisher et al., 2020). Given young people are a demographic who are already more vulnerable to the mental health impacts of the pandemic (Santomauro et al., 2021), those who have spent more time in restrictions may be in greater need of mental health support.

Over 75% of young people in primary services, and 80% in the general population, reported a negative impact of the pandemic on their work or study, non-work life, and mental health. These high rates of functional impairment are consistent with COVID-19 youth surveys conducted globally (Achdut and Refaeli, 2020; Hawke et al., 2020; Newlove-Delgado et al., 2021), and in Australia (HeadSpace, 2020a, 2020b; Magson et al., 2021; Mission Australia, 2020), and supported by our qualitative findings. Loneliness was also high, in line with international (Palgi et al., 2020) and national (Lim et al., 2020) findings. Notably, young people in the current sample who self-reported a mental disorder diagnosis had higher levels of loneliness, consistent with pre-pandemic data (Lim et al., 2019).

Qualitative findings provide a more nuanced depiction of the impacts of the pandemic on youth. Most young people (77%) reported both positive and negative impacts. Positive impacts reflected a greater capacity for self-care and reflection due to the decreased pressures of daily life. These themes are consistent with findings from similar populations in other high-income countries (Hawke et al., 2020), however these benefits may reflect the privilege of these nations, highlighting the need for research in low-income countries. Negative themes painted a starker picture, highlighting how disruptions to normal functioning and social connection have contributed to worsening mental health. On the surface, the pattern of negative impacts reflected symptoms of depression, anxiety and stress, or worsening of specific symptoms of pre-existing mental ill-health. A more detailed examination revealed a clinical picture characterised by a lack of motivation and drive to pursue goals and ambitions, largely attributed to an inability to control and progress at this important life stage, as well as clear barriers to enacting existing self-management strategies.

From a developmental perspective, these results are unsurprising. Disruptions to milestones of growth, such as education attainment, social network formation, and gaining independence, can have significant and lasting impacts on developmental trajectory (Brenner et al., 2020). In particular, social network formation and bonds with others is highlighted consistently in our findings and the broader literature as a profound impact of COVID-19 (Brenner et al., 2020; Rogers et al., 2021). Our participants consistently described experiencing isolation, disconnection from friends, and limited access to social support, ultimately disabling important coping strategies. The broader literature reinforces the importance of forming social bonds to healthy development in adolescence (Qualter et al., 2010; Stanton-Salazar and Spina, 2005; Van Harmelen et al., 2017). Thus, disruption to social development is a significant negative impact of COVID-19 on youth (Araújo et al., 2021; Benner et al., 2020; Fegert et al., 2020; Loads et al., 2020; O'Reilly et al., 2020). Themes relating to disruptions in self-relations were also evident. In some cases, this was positive, enabling time and space for self-reflection and self-care, however this domain also captured the existential challenges and uncertainty young people have faced,

particularly regarding their sense of agency and control. Development of the sense of self and agency form important aspects of growth during adolescence (Hansen and Jessop, 2017), and shifts in this process are common after experiencing trauma (Liao Siling et al., 2021).

The impacts highlighted by young people in this survey were numerous, broad, highly contextualised, and often manifested as barriers to effectively mitigating existing psychosocial stressors. External circumstances shaped differences in the valence of young people's experiences, such as the strengthening of familial bonds or an increasingly unsafe home environment, emphasising the importance of context in understanding the different trajectories of response young people will have to the pandemic. These trajectories are linked to a range of pre-existing factors including individual characteristics, developmental processes, support resources, and sociocultural factors (Trickey et al., 2012; Prati and Pietrantonio, 2009). Research has also highlighted factors predicting pandemic resilience, including social support, meaning making, and maintaining outdoor and physical activity (Blanc et al., 2021). This echoes the literature on post-traumatic growth, where social support, acceptance, and optimism predict positive growth following trauma (Prati and Pietrantonio, 2009). Many of these factors were present in our positive impact themes particularly a meaning making and connection with others. Hence, whilst young people clearly experienced multiple negative impacts, leaving them more vulnerable to poor outcomes, strengths and protective factors are also reflected in our findings.

#### 4.1. Clinical implications

The negative impacts of the pandemic reflected in both the quantitative and qualitative findings highlight the significant disruption this experience has presented to the developmental trajectories of young people. These findings also reflect the breadth of these impacts and the important role of circumstance in influencing different outcomes. Key clinical implications point towards a need for considering, and in some case targeting, these circumstances within the context of early intervention. Whilst evidence shows that not all young people exposed to highly stressful or traumatic circumstances develop mental illness, timely access to appropriate evidence-based care which is matched to the level of need is critical for promoting resilience and preventing progression towards more severe mental ill-health amongst youth (Danese et al., 2020; Power et al., 2020).

The current findings emphasise several areas of relevance for early intervention, particularly the importance of psychosocial interventions including education and occupational support. Also of clear relevance was the prominent role of social isolation and loneliness as a driver of mental health symptoms, as well as broader existential concerns and uncertainties regarding personal goals and agency. At a stage where many were transitioning from school to work and post-secondary education, many young people expressed concerns about what the future held for them. In contrast, they also conveyed numerous strengths that could be drawn on to support their recovery. Young people had excellent insight into how to support themselves through the complexity of these developmental years and recognised the disruption COVID-19 has caused. Capitalising on previous coping and social support practices (including fostering connections with social networks), as well as any positive experiences during COVID-19, should be explored and strategies for rebuilding future plans should be supported.

Importantly, the current research reflects the impacts and experiences of young people within the context of a high-income country. Research has emerged on impacts from low and middle income countries (Kola et al., 2021), which has shown similarly high rates of mental distress exacerbated by social, economic and cultural factors, particularly poor access to services. To address unmet needs in these regions of the world, there have been calls to for global action centring on provision of an appropriate mental health care system and addressing systemic inequalities and social determinants (see Kola et al., 2021).



#### 4.2. Limitations

This study had several limitations. The primary limitation concerns the representativeness and generalisability of the current sample, particularly the lack of pre-pandemic comparison data to contextualise the quantitative data, as well as a lack of follow up data to determine the long-term impacts. Additionally, the cross-sectional methodology does not allow inferences regarding causation. The Australian sample limits generalisation globally, particularly given the local context was characterised by low rates of COVID-19 transmission combined with relatively strict government-enforced control strategies. As previously mentioned, whilst rates of depression and anxiety were measured using a validated scale, these do not reflect formal diagnoses and therefore may not be fully accurate. Another limitation concerns the slightly different time period in which the survey was completed across the two populations, whereby some participants (i.e. Victorian young people) within the general population had experienced more time under COVID-19 restrictions when they completed the survey compared to the primary mental health sample. The experiences of COVID-19 and associated impacts for these Victorian young people may therefore differ, as reflected by the higher rates of clinical depression and anxiety. Finally, as young people in the general population were not asked whether they were receiving services, some overlap between groups is possible.

#### 5. Conclusion

The current study provides an in-depth examination of the impact of COVID-19 on Australian youth. Findings outline that young people are experiencing high levels of depression, anxiety and loneliness, and report negative impacts of the pandemic on their mental health, well-being and functioning. A diverse range of impacts across both positive and negative domains were found, with context playing a key role in shaping different response trajectories. Whilst many young people will remain resilient to these impacts and may recover without professional support, the high rates of distress and nature of the impacts highlight the value of ensuring that early intervention services are readily accessible, particularly to young people in areas with more restricted lockdown responses. To address widespread barriers to access and unmet need for these services in Australia and beyond, sector reform and service expansion will be required, including drawing on digital alternatives (Nicholas et al., 2021; Bell et al., 2022; Torous et al., 2021), to ensure young people can successfully navigate the profound disruption of COVID-19 (McGorry, 2021).

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#### Author contributions

IHB and JN conceptualised of the study, developed the methodology, conducted the primary mental health survey (with support from SA and AT), analysed the data (alongside AB), and drafted the manuscript with input and feedback from all co-authors. AB conducted the qualitative synthesis alongside IHB and JN, with input from SB. EB, AB and JR conducted and led the general population survey with support from IHB and JN. PM contributed to write up and interpretation of results. SA and AT provided supervision.

#### Declaration of Competing Interest

The authors state they have no conflict of interest to disclose

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