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The association between COVID-19 WHO non-recommended behaviors with psychological distress in the UK population: A preliminary study

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Abstract

The novel Coronavirus COVID-19 has led the WHO to warn of the risk of potentially disruptive behaviors. However, the association between maladaptive actions and mental health has not been empirically assessed. A national study of 1293 participants from the UK recorded location, underlying medical conditions and non-recommended behaviors along with psychological distress. Elevated psychological distress was associated with living in London, underlying medical conditions and practicing non-recommended behaviors. Findings suggest that medical authorities should address the association between psychological distress and adoption of potentially maladaptive behaviors.

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Introduction

The novel pandemic COVID-19 emerged in the UK during late January, 2020¹. While the World Health Organization (WHO) has released guidelines for recommended behaviors, they have also suggested a list of health myths around Covid-19 that can lead to false sense of safety and increased risky behavior². However, no empirical study to date has been conducted on the associations between the WHO non-recommended behaviors and psychological distress. Previous studies showed the association between the COVID-19 with psychological distress in the general population^{3,4}. Understanding this may be crucial for comprehending the psychological drivers of maladaptive behaviors and its negative impact on health outcomes. We examine the association between psychological distress, location (London the epicenter of COVID-19, versus elsewhere), underlying health conditions associated with increased mortality from covid-19 and the adoption of non-recommended behaviors with psychological distress.

Methods

We conducted a national sample of the UK population using an internet panel (n = 1293) using a random and stratified sampling. All the participants from whom we drew our sample had access to the Internet. The panel was created including respondents from across the UK, with recruitment procedures following those established by the ICC/ESOMAR International Code on Market and Social Research⁵. Participants were recruited between March 30 to April 2, 2020. The study was approved by the Institutional Review Board of the first author. Each participant signed an electronic informed consent form. The mean age of these participants was 51.51 years (SD = 14.75, range = 18-75), 53.3% were female (n = 689), 27.2% (n = 352) reported having a background medical condition (Hypertension, Diabetes, Cardiovascular disease, Chronic respiratory disease, Chronic Obstructive Pulmonary Disease (COPD), Cancer) 12.1% (n=157) were living in London, at the time the epicenter of COVID-19.

Non-recommend behaviors index were measured by five items selected from the WHO MythBusters list². We omitted items that reflected behaviours rather than those assessing more general beliefs or knowledge (e.g. "The coronavirus disease (COVID-19) is caused by bacteria", "5G mobile networks spread COVID-19") or were not relevant to the UK situation (e.g. "The new coronavirus can be transmitted through mosquito bites"). The five items selected were: 1. "I am taking some vitamins to help protect me from COVID-19" coded as '0' for "No" and 1 for "Yes", 32.6% (n = 421) answered "Yes. 2. "I have taken alternative medicines to keep me safe from COVID-19" coded as '0' for "No" and 1 for "Yes", 12.7% (n = 164) answered "Yes. 3. "I am taking antibiotics to help protect me from COVID-19" coded as '0' for "No" and 1 for "Yes", 6.4% (n = 83) answered "Yes. 4. "I am using hand dryers after washing my hands in order to kill the 2019-nCoV" coded as '0' for "No" and 1 for "Yes", 14.5% (n = 187) answered "Yes. 5. "I use or expose my body to ultra-violet lamp in order to kill the 2019-nCoV" coded as '0' for "No" and 1 for "Yes", 6.0% (n = 77) answered "Yes. We created an index which is a summation of the aforementioned maladaptive behaviors ranging from 0 to 5.

Psychological distress was measured using the six-item K6 scale⁶, which included items on feeling nervous, hopeless, restless/fidgety, depressed, everything was an effort, and worthless in the last 30 days. Scores ranged from 0 to 24, with 13 or higher indicating elevated psychological distress². Cronbach α was satisfactory for K6 (0.897).

A multivariate logistic regression used elevated psychological distress ($K6 \geq 13$) as the outcome measure with the following variables entering the equation: 1. Demographics (age, sex, background illness, region). 2. Non-recommended behaviors index. Each category in the index was compared to the reference group (zero non-recommended behaviors). For each variable we calculated odds ratio (OR) and 95% C.I. using SPSS version 25 (IBM).

Results

Elevated psychological distress was found in 16.6% of the sample ($n = 215$). Elevated psychological distress was associated with being a woman (OR = 1.438 (95% CI: 1.049-1.973); $p = .024$), suffering from a background illness (OR = 1.490 (95% CI: 1.037-2.141); $p = .031$), living in London (OR = 1.686 (95% CI: 1.027-2.770); $p = .039$), practicing non-recommended behaviors - one maladaptive behavior (OR = 2.114 (95% CI: 1.477-3.025); $p < .001$), two maladaptive behaviors (OR = 2.487 (95% CI: 1.479-4.185); $p = .001$), three maladaptive behaviors (OR = 3.336 (95% CI: 1.543-7.215); $p = .002$), four maladaptive behaviors (OR = 4.103 (95% CI: 1.244-13.529); $p = .020$) and five maladaptive behavior (OR = 3.262 (95% CI: 1.708-6.229); $p < .001$). Lower psychological distress was associated with older age (OR = .967 (95% CI: .956-.978); $p = < .001$). See Table 1 for more information.

Discussion

Previous studies indicate a positive association between anxiety and avoidant, non-recommended behaviors, such as keeping children out of school⁷ or self-medicating during an influenza outbreak of avian influenza AH7N9⁸. In our study, elevated psychological distress was highest amongst women, those with a background illness, those at the original epicenter of the outbreak (London) and those who practice at least one and above non-recommended behaviors. These maladaptive behaviors may increase the burden on the health system either by the side effects of self-medications that may require further medical attendance, or by providing a false sense of safety that can increase risky behaviour and thereby the likelihood of contracting COVID-19.

We recognize several limitations to our research. Our study was cross-sectional and, although we recruited respondents from a wide range of ages, our responses were self-reported. We had no information on past psychological conditions. We did not consider additional psychological consequences of anxiety such as stereotyping and prejudice, reported during SARS⁹ and recently during COVID-19¹⁰. Although our sample is older than many internet panels, and our median age of * higher than that of the UK overall (40.5), our sample was restricted to the approximately 77% of the population aged over 18¹¹.

In sum, to our knowledge is the first study to empirically examine the association between non-recommended behaviors during COVID-19 and psychological distress. Findings suggest that authorities should address the risk of enhanced mental toll of these maladaptive behaviors over

time' and reduce anxiety in order to reduce unnecessary or costly actions. These results add a new perspective to the growing evidence being accumulated regarding the mental health aspects of the COVID-19 crisis^{12,13}.

Further studies should monitor the impact of location and maladaptive behaviors on distress as the focus of the infection may shift over time. Future studies should also examine the long-term effect of the COVID-19 crisis especially among those who practice non-recommended behaviors, and the potential increase of burden on health and mental health systems.

References

1. Hunt for contacts of coronavirus-stricken pair in York. The Times website. <https://www.thetimes.co.uk/article/hunt-for-contacts-of-coronavirus-stricken-pair-in-york-dh363qf8k>. Accessed April 16, 2020.
2. Coronavirus disease (COVID-19) advice for the public – MythBusters. World Health Organization website. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters>. Updated March 31, 2020. Accessed April 16, 2020.
3. Qiu J, Shen B, Zhao M, Wang Z, Xie B, Xu Y. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations *Gen Psychiatr.* 2020; 33: e100213.
4. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. *Int J Environ Res Public Health.* 2020; 17: 1-25.
5. ESOMAR. ESOMAR market research 2005: ESOMAR industry report. ESOMAR, 2006.
6. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, Howes MJ, Normand SLT, Manderscheid RW, Walters EE, Zaslavsky AM. Screening for serious mental illness in the general population. *Arch Gen Psychiatry.* 2003; 60: 184-189.
7. Rubin GJ, Amlot R, Page L, Wessely S. Public perceptions, anxiety, and behaviour change in relation to the swine flu outbreak: cross sectional telephone survey. *BMJ.* 2009; 339: b2651.
8. Goodwin R, Sun S. Early responses to H7N9 in southern mainland China. *BMC Infect Dis.* 2014; 14: 8.
9. Washer P. Representations of SARS in the British Newspapers. *Soc Sci Med,* 2004; 59: 2561–2571.

10. Combating bias and stigma related to COVID-19: How to stop the xenophobia that's spreading along with the coronavirus. The APA website. <https://www.apa.org/topics/covid-19-bias>. Updated March 25, 2020. Accessed April 16, 2020.

11. Office of National Statistics, UK.

12. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*. 2020; In press.

13. Holmes EA, O'Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiatry*. 2020; in press.

Table 1: Participant Characteristics, COVID-19 Related Aspects and Behaviors

Demographics	Mean	SD	UK sample (n = 1293)		Adjusted OR (95% CI)	P value
			N	%		
Age, Years	51.51	14.75			.967 (.956-.978)	<.001
Sex, Female			689	53.3	1.438 (1.049-1.973)	.024
Suffer from background illness, Yes			352	27.2	1.490 (1.037-2.141)	.031
Region						
London, Yes			157	12.1	1.686 (1.027-2.770)	.039
WHO non-recommend behaviors index						
0 ^a			782	60.5		
1			310	24.0	2.114 (1.477-3.025)	<.001
2			100	7.7	2.487 (1.479-4.185)	.001
3			35	2.7	3.336 (1.543-7.215)	.002
4			13	1.0	4.103 (1.244-13.529)	.020
5			53	4.1	3.262 (1.708-6.229)	<.001

^a = Reference category.

*p ≤ .05; **p ≤ .01; ***p ≤ .001

We declare no conflict of interest or otherwise.

The paper is a purely academic research.

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