

The Impact of Perceived Vulnerability to Disease and Social Isolation on Mental Wellbeing

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Abstract

In-light of the COVID-19 outbreak, the UK government has enforced a number of nationwide and local lockdowns to tackle the COVID-19 outbreak. Due to limited existing research, the current study aimed to explore the impact of social isolation and perceived vulnerability to disease on an individual's well-being during the covid-19 pandemic. 29 male (N = 10) and female (N = 19) participants took part in a questionnaire based study distributed through social media. A regression analysis identified that 65% of a person's mental wellbeing could be predicted by both social isolation (-.786) and perceived vulnerability to disease (-.386). Findings have important implications for understanding and improving the general public's wellbeing during the COVID-19 pandemic, as discussed subsequently.

Key Words: COVID-19, Mental Wellbeing, Social Isolation, Vulnerability to Disease, Questionnaires, Quantitative, Regression.

Introduction

In March 2020, the UK Government announced that all UK citizens will be required to stay home in social isolation to tackle the COVID-19 outbreak, with many businesses and venues closing and public gatherings ending.

The term social isolation refers to the voluntary or involuntary, physical or psychological distancing of an individual from their social network, desired or required relationships with others (Biordi & Nicholson, 2013; Barry, 2002). COVID-19 is increasingly recognised as a serious, worldwide and ongoing public health concern. Despite the UK Government enforcing the need for citizens to stay home, there has been little research on the psychological effects of lockdown on the general public.

Several past studies have explored the impact of social isolation and perceived vulnerability to disease on mental wellbeing separately, but the impact of these factors combined on mental wellbeing remains unclear. It is important research explores the widespread concern about the infectiousness of the virus, including peoples' perceived vulnerability to disease and whether the prevalence of the new virus has heightened the effects of social isolation on mental wellbeing.

Previous research suggests those who perceive themselves as more vulnerable to disease are likely to react more sensitively and aversively to pathogenic stimuli (Prokop & Kubiato, 2014; Miller & Maner, 2012). Furthermore, a study conducted by Ey, Klesges, Patterson, Hadley, Barnard and Alpert (2000) found cultural differences in perceptions of risk, but no gender differences. Therefore, there remains a lack of clarity surrounding the relationship between perceived vulnerability to disease and mental wellbeing. In contrast, many more published studies describe the impact of social isolation independently on mental wellbeing. Research suggests that, as social isolation increases, mental wellbeing decreases, which is particularly prevalent in elderly people (Greaves, & Farbus, 2006).

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The current study aimed to investigate this relationship, hypothesizing there will be a negative relationship between perceived vulnerability to disease, social isolation and mental wellbeing.

Methodology

Design

The current study utilized a correlational-experimental; within-subjects design. 29 male (N = 10) and female (N = 19) individuals participated (mean age 21 years, 1 month; Standard deviation: 5.49)

Sampling

Participants were recruited through online social media using opportunity sampling, with questionnaires distributed through Instagram and Snapchat within the first UK COVID-19 lockdown between 27th March – 30th April 2020. Recruiting through social media ensured a wide reach and that individuals of any age could participate safely from their own homes.

Materials

Three validated questionnaires were used: the Perceived Vulnerability to Disease Scale (Duncan *et al.*, 2009), the Nottingham Health Profile Social Isolation subscale (Ryan, 2012) and the Warwick-Edinburgh Mental Well-being Scale (Stewart-Brown & Janmohamed, 2008).

Ethics

The present study posed little to no psychological or physical harm to any participant and a debrief provided relevant COVID-19 support links and information. This study had ethical approval as part of a module assignment and individuals participated anonymously, with options to withdraw and to skip questions if needed.

Results

Questionnaire responses were scored using the sum of each survey and data was imported into SPSS for cleaning. Descriptive statistics can be seen in Table 1 that highlights the negative relationship between the variables. As mental wellbeing decreased, both levels of social isolation and vulnerability to disease tended to increase.

Table 1:
Descriptive statistic for investigated variables

Variable	<i>M</i>	95%CIs		<i>SD</i>
		<i>Lower</i>	<i>Upper</i>	
Mental Wellbeing Total	44.24	40.88	47.60	8.84
Perceived Vulnerability to Disease Total	61.41	56.72	66.12	12.34
Social Isolation Total	37.59	24.17	51.02	35.29

(Appendix 7)

All linear regression assumptions were met and there were no violations of multicollinearity, homoscedasticity, with all variables having a linear relationship and a normal distribution.

A linear regression analysis was calculated to identify the impact of Perceived Vulnerability to Disease (VTD) and Social Isolation (SI) (independent variable 1 and independent variable 2 respectively), on an individual’s Mental Wellbeing (MW).

The variance of mental wellbeing explained by the two contributing factors was 65.6% ($R^2=.656$). Moreover, the confidence interval limits were moderate, indicating that the results were 95% confident the population slope is between -0.125 and 0.566 ($F(2,26)=24.78$, $p < .001$).

Upon further inspection, it can be seen that social isolation is the predominant factor in this explanation ($r(-.786)= .29$, $p=.0001$), in comparison to perceived vulnerability to disease ($r(-.386)= .29$, $p=.019$).

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In addition to the regression analysis, model parameters were calculated to identify the regression coefficients, as seen in Table 2.

Table 2
Regression Coefficients for Individual Variables

Variable	<i>B</i>	SE(B)	β	<i>t</i>	Sig
Perceived Vulnerability to Disease	-.143	.085	-.200	-1.68	.105
Social Isolation	-.184	.030	-.736	-6.19	<.0001

Discussion

The current study is one of few studies to demonstrate a relationship between social isolation and perceived vulnerability to disease on mental wellbeing on members of the general public during the COVID-19 pandemic. Findings suggest 65.5% of a person's mental wellbeing can be explained by social isolation and perceived vulnerability to disease. This has important implications for understanding how pandemic lockdown measures may negatively impact wellbeing.

While social isolation was the predominant factor contributing to mental wellbeing in the current study, the impact of vulnerability to disease is also an important factor which should be further researched. For example, this relates to the fear of going to medical locations, such as hospitals for fear of falling unwell, known as Noscomephobia (Sharafi, Rezaei, Sobhani & Golvardi, 2014). The wider applications of these implications are vast, for example, for those who may develop this fear after the mandatory lockdown has ceased, may need personal adaptations, for example, a phone appointment for the doctors or home hospital visits if needed. Importantly, this might lead to individuals during or shortly after lockdown not seeking urgent medical care or visiting their GP when needed.

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Moreover, findings also provide implications for the transition out of local or national lockdowns. For example, as this period of mandatory social isolation might be relaxed, those who have been isolating may experience feelings of depression, anxiety and prolonged loneliness (National Academies of Sciences, Engineering, and Medicine, 2020). This suggests there may be an increase in need for mental healthcare services during these times.

While the study provided important findings, there are some limitations which could be addressed if replicated, such as increasing the participant size and obtaining a cross-cultural sample to gauge the impact of responses from different countries. A longitudinal design may also highlight how general public's general health and wellbeing changes as a result of while moving in and out of local and national lockdowns. Likewise, qualitative approaches could be used in either a retrospective or prospective manner to support the key findings presented here.

Conclusion

The current study suggests social isolation has a large impact on mental wellbeing, but that perceived vulnerability to disease is an important factor influencing the wellbeing of the general public during lockdowns related to the COVID-19 pandemic. The present study contributes to the wider research field as it explores the effects of both social isolation and perceived vulnerability to disease on mental wellbeing, as opposed to focusing on these variables in isolation. To further understand the impact of the Government-advised social isolation period on the general public, more in-depth study in this area is strongly recommended.

Word Limit: 1,313 (1,578 including references)

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