

## How Messages about COVID-19 May Have Affected People's Sense of Threat and Mental Health

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### Abstract

COVID-19 has had profound effects on many physical, mental and social aspects of health. This study examined people's fears and concerns about the virus, their experiences of being subjected to expert opinion and media portrayals of suffering from the virus, experiences of lockdown, and hopes and doubts for the future. We also examined how these relate to symptoms of depression, anxiety and stress. 180 participants completed an online survey exploring the themes of the study. Results suggest that in addition to concerns of catching the virus themselves, participants were more concerned with passing it on to others. People found information provided by experts at times contradictory and confusing. There was a strong endorsement that the media exploited suffering and while there was a high desire to move to a more compassionate 'caring and sharing world', there were strong doubts that this would happen or that politicians would be able to navigate to that. More research is needed on how to present information about high levels of threat, tragic events and processes in order to avoid adding to, rather than reducing mental health difficulties, and generating unhelpful behaviours.

**Keywords:** COVID-19; Anxiety; Stress; Depression; Media; Politicians

### Introduction

The rapid spreading of COVID-19 around the world brought with it physical and psychological stresses that have an impact on mental health [1,2]. These range from the fear of the virus itself, fear of spreading the virus (e.g. to family and friends), changes in social behaviour (e.g. social distancing and face mask use) and the effects of efforts to control the spread as with lockdown. While lockdowns dampen the curve of the spread, they increase isolation, depression, anxiety and stress [1,3,4], which can have a range of (neuro) physiological effects [5]. They have also been associated with experiences of social disconnection and loneliness [2,6] and entrapment [1]. There is now considerable evidence that experiences of entrapment are strongly linked to mental health problems [7,8] and suicide [9].

Other sources of stress is the language, information and concepts people are subjected to about traumatic events like a virus, conveying risks to self and loved ones. Emerging threats, such as viruses and bioterrorism, are known to be overreported in the media compared to common threats to public health, such as smoking and physical inactivity (Bomlitz & Brezis, 2008)[10]. The way risk information is conveyed can have a profound effect on how people experience it, feel (un)

and react to it. [10] noted that the media is constantly conveying information of various forms of threat. The degree to which such threats appear personally relevant has major impacts on increasing negative affect and reducing positive affect. Clearly, COVID-19 carries very high threat and very high personal relevance. Indeed, Olagoke et al. (2020)[12] reported that perceived vulnerability to COVID-19 mediated 34.4% of the positive association between news exposure and depressive symptoms. In a time where people are constantly connected to the media via the internet, problematic smartphone-use has also been associated with COVID-19 anxiety in China (Elhai et al., 2020)[13]. However, as [11] note in their study and review, there is actually very little research on styles of messaging. [12] note: During this pandemic, the messaging has also had a negative impact in reinforcing the “you’re alone or isolated” theme. For example, the term “social distancing” has been a constant call-to-action on TV, radio, and social media versus the more appropriate term “physical distancing,” adding to the perception of isolating oneself socially (p.55).

[13] review discussions around the term *social distancing* suggested in February 2020, which was quickly regarded as unhelpful by the World Health Organisation and other agencies with a recommendation that it should be changed to *physical* distancing. However, as these researchers note, once a concept like this catches on, it is very difficult to change it. Therefore, greater attention needs to be given to the messaging conveying personal threats and suggestions or requirements for coping. In reality, we needed to find ways to *relate safely* and stay supportive with each other, especially because these concepts imply avoidance rather than new forms of ‘safe’ engagement, which given the problem of loneliness would seem essential [2]. [14,15] recommended the use of the term *safe relating*. The practical processes of this would involve maintaining a certain physical distance, wearing face masks and so forth, but the psychology is rooted in creating safeness and supportiveness, not (emotional) distance.

[16] explored various COVID-19 activities and coping behaviours in 55,000 participants during 11 weeks of lockdown between March and May 2020. They found that outdoor activities and gardening were associated with wellbeing whereas time spent following the news predicted declines in mental health and wellbeing. They note many other factors are important too, but research suggests the media can have a threat-focused negativity bias, because of commercial concerns [17-19]. This is captured in the well-known media motto of ‘if it bleeds it leads’ (Pooley, 1989) but can overwhelm and distort people’s abilities to evaluate appropriate risk and enact adaptive coping [20]. Examples include media interviewing and reporting on people shortly after having lost a relative and in the state of high distress and grief during the pandemic. This reporting is *not balanced* by other tragic interviews of people who, for example die early from breast cancer or other conditions and or by reporting that in the UK in 2021, there were 604,045 deaths registered up until December 25th [25](ONS, 2021).

[23] used a technique called ‘sentiment mining’, to assess articles published in the New York Times between 1945 and 2005, and a selection of articles and broadcasts from 130 countries between 1979 and 2010. Across the board the focus become steadily more negative over time. The negative news coverage is commonly directed at people’s emotions [24] and the sensationalism of events [25]. In another study, [26] presented participants with the same story but framed differently. They found that stories framed negatively led to misrepresentation of risk and an increase in feeling fearful, anxious, depressed, isolated and paranoid. [27] also found that media negative reporting can increase fear, discrimination, and stigma due to misinformation and unfounded rumours.

There is now growing evidence that media reporting of *specific events* and processes can directly influence how the public conceptualise and think about problems (e.g. climate change; [28]) and for some threats it can lower mood and can increase anxiety hyperarousal and learned helplessness [29,30]. [31] presented subjects with three types of news bulletin, neutral, positive and negative. Those who watched the negative, more threatening news bulletins showed increases in anxiety and lower mood and also tended to catastrophise and experience more personal worry. In their review, [32] found that repeated media exposure to a specific community crisis resulted in heightened stress responses. [33] found that adolescent’s exposure to negative images of the Sichuan earthquake of 2008, along with other peoples (e.g. teachers) reactions was linked to increased chances of experiencing PTSD symptoms after six months. This has also been referred to as ‘emotion contagion’ and Wheaton et al. (2021)[39] reported that higher susceptibility to emotion contagion was associated with more OCD, depression, anxiety and stress symptoms. [34] found that repeated indirect exposure to the Boston marathon bombings via the media was more highly associated

with acute stress, than direct exposure. In a subsequent analysis of 4,675 people measured two to four weeks after the event, and then again after an interval of six months, [35] found that "both the quantity and the visually graphic nature of media exposure to a community trauma were independently associated with subsequent mental health and functional impairment" (p. 119). Exploring the impacts of COVID-19, using three representative samples of 6,514 individuals across the 10 days, [36] also found that: "Acute stress and depressive symptoms increased significantly over time as COVID-19 deaths increased across the United States. Pre-existing mental and physical health diagnoses, daily COVID-19-related media exposure, conflicting COVID-19 information in media, and secondary stressors were all associated with acute stress and depressive symptoms (p.1)".

While it is, of course, essential that clinical advisors, politicians and the media provide accurate and useful information to help people evaluate risks appropriately and adjust their behaviour safely, there seems little research on how to actually do that [11]. [37] have high-lighted the fact that in many situations of advising people around risk, while appealing to threat and fear may direct their attention to the issue, it may not result in desired behaviours. Evidence suggests that without caution the media, (for commercial reasons) and politicians (for political ones) can present information that can easily tip people into experiencing an inappropriate and unhelpful elevation of risk and fear that can have long term consequences or in some people trigger denial and dissociative defences.

One of the processes that can help coping is our ability to turn to others, trust them and be open to their compassion. It is important therefore that we do not create social contexts that consciously and unconsciously indicate that others are a source of threat rather than helpfulness. Recognising that other people will risk their lives for you (as in COVID-19 health workers) is an important message for sense of connectedness. Indeed, in a recent international study in 21 countries, [38] found that being frightened of being open to the compas-sion from others impacted people's fear of the virus and psychological distress. In addition to focusing on the helpfulness of others, it is important for there to be an emergence of hope. This has been presented in terms of our ability to recognise our interconnectedness and interdependency, the outflowing of compassionate behaviour in communities and the desires to create a better world [39]. Writing in the *Lancet*, Professor of Public Health, [40] urged that compassion should be the focus for a future healthcare system which values our interdependency and desire to create good and effective healthcare and social justice for all human beings. Hopes that a more cooperative way of living can address problems such as climate change and social injustice have also appeared in the media, although these have been on the wane recently and there are serious inhibitors to them too [45].

### Aims of the study

This study sought to explore a number of specific areas related to people's experience of COVID-19. These were:

1. Direct threat of COVID-19.
2. Responses to 'experts' and media coverage.
3. Desires but also doubts of moving towards a more compassionate world.
4. Experiences of lockdown.

Their relationships with depression, anxiety and stress were also examined.

### Methods

#### Design

This was a cross-sectional self-report questionnaire-based design using quantitative measures. The data was gathered between July and November 2020.

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### Participants

participants were invited to participate in an online survey (hosted on Qualtrics) via email and social media. Following the removal of three participants who supplied incomplete data, the final sample comprised of 180 adults (146 female and 34 male), aged 18 - 71 years old ( $M = 44.5$  yrs,  $SD = 13.80$ ). Most participants ( $n=149$ ) resided in the UK; 11 from Europe; 8 from Australia; 9 from North America and 3 from Asia. Ethical approval was obtained from a UK University Ethics Committee.

### Measures

Consenting participants provided their gender, age and country of residence and completed questions based on five themes. All questions offered a specific statement that the participant rated on a 1 to 9 point Likert scale from "not at all" to "very much". These questions were derived from common reflections people made during the pandemic.

### COVID-19 related items

For example

To what extent are you frightened of:

1. Getting COVID-19?

Not at all 0 1 2 3 4 5 6 7 8 9 Very much.

2. Getting COVID-19 because of what it might do to you?

Not at all 0 1 2 3 4 5 6 7 8 9 Very much.

3. Dying from COVID-19?

Not at all 0 1 2 3 4 5 6 7 8 9 Very much.

4. Getting COVID-19 because of passing it onto other people?

Not at all 0 1 2 3 4 5 6 7 8 9 Very much.

The first set of questions related to (the example above of) fears of the virus and included: fear of contracting the virus; effects of the virus; dying from the virus; passing it to others.

The second set of questions related to people's experience of listening to 'expert opinions' and included: finding them informative and believable; confusing; contradictory; alarming and anxiety inducing; reassuring; and if people simply turned off from listening to them.

The third set of questions related to people's reactions to hearing personal stories of COVID-19 deaths and included: how upsetting they found them; consoling; anxiety-inducing; depression-inducing; anger-inducing; want to turn off from them; feel the media is exploiting the pain of others.

The fourth set of questions related to a post-COVID future and hope-doubts for a better world. These questions included: fear of relating to others when lockdown is eased; to see the world become more compassionate, caring and sharing; if the world will actually change to be more caring and sharing; the probability of slipping back into 'old ways'; if politicians will be able to lead us to a more compassionate society/world.

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**Lockdown measures**

We also derived a set of questions to measure people’s experience of lockdown. Using the same Likert scoring scale, items covered: agreement with lockdown measures; want measures to be eased; feel trapped in the home; wanting to escape and get far away, feel anx-iious and restless; feel more connected with others; feel more isolated and lonely; have access to outside space like a garden; children are more anxious and restless because they want to get out; feel your children are being harmed by not being in school and socialising.

**Depression, Anxiety and Stress Scale (DASS-21; [47])**

To explore the degree to which some of these domains were linked to depression, stress and anxiety, the 21-item version of DASS was presented. Participants rated how much each of 21 statements applied to them over the past week on a 4-point Likert scale from 0 to 3 (0 = Did not apply to me at all, 3 = Applied to me very much, or most of the time). Statements included ‘I was aware of dryness of my mouth’, ‘I tended to over-react to situations’ and ‘I couldn’t seem to experience any positive feeling at all.’ The DASS-21 subscales have Cronbach’s alphas of .94 for Depression, .87 for Anxiety and .91 for Stress [48].

**Data analysis section before results section:**

**Data analysis**

Data was analysed using SPSS version 26. Data was checked for normality and outliers. Skewness and kurtosis values ranged within acceptable levels and no statistically significant violations were found [49]. Means, standard deviations and correlations were conducted. For the questions comprising individual items, frequency analysis was conducted and percentages were reported.

Severity	Depression	Anxiety	Stress
Normal	134 (74.4%)	153 (85%)	159 (88.3%)
Mild	22 (12.2%)	10 (5.6%)	15 (8.3%)
Moderate	21 (11.7%)	14 (7.8%)	6 (3.3%)
Severe	3 (1.7%)	3 (1.7%)	0

**Table 1:** Total number of participants (and percentage) according to depression, anxiety and stress severity rating.

No participants scored in the extremely severe range for any of the measures.

Table 2-6 give the means and standard deviations for all items and correlations with the mental health variables of depression, anxiety and stress of the DASS for each question. To examine the association between media exposure, lockdown measures and mental health, correlations were generated.

Getting COVID-19	Effects of COVID-19	Dying from COVID-19	Giving it to others
4.61 (2.61) Anxiety .25*** Stress .20**	5.05 (2.89) NS	3.87 (3.09) Anxiety .18* Stress .15*	6.50 (2.35) Dep .27*** Anxiety .25*** Stress .33***
* Correlation is significant at the .05 level (2-tailed); ** Correlation is significant at the .01 level (2-tailed); ***Correlation is significant at the .001 level (2-tailed).			

**Table 2:** Fear of COVID-19.

Informative/believable	Confusing	Contradictory	Alarming/anxiety	Reassuring	Turning off
5.34 (2.35) N/S	4.57 (3.02) Dep .20** Stress .19**	5.75 (2.84) Dep .17* Stress .17*	3.63 (2.93) Dep .29*** Anxiety .21*** Stress .31***	4.13 (2.64) Dep -.20** Anxiety -.15*	3.34 (3.08) Dep .16*
* Correlation is significant at the .05 level (2-tailed); ** Correlation is significant at the .01 level (2-tailed); ***Correlation is significant at the .001 level (2-tailed)					

Table 3: Experiences of expert opinion.

Upsetting	Consoling	More anxious	More depressed	More angry	Turn off	Exploitative
7.67 (2.22) Dep .20** Stress .18*	3.13 (2.15) N/S	5.84 (2.69) Dep .28*** Anxiety .34*** Stress .41***	5.51 (2.71) Dep .45*** Anxiety .28*** Stress .45***	5.66 (2.97) Dep .23** Stress .29***	5.49 (3.02) Dep .19** Stress .18**	6.60 (2.95) Dep .22** Stress .15*
* Correlation is significant at the .05 level (2-tailed); ** Correlation is significant at the .01 level (2-tailed); ***Correlation is significant at the .001 level (2-tailed)						

Table 4: Experiences of media stories.

Worry about interacting with others after lock down	Desire for a more compassionate society	Believe that change will happen	Return to old ways	Politicians able to lead change
5.86 (2.77) Stress .21**	9.19 (1.71) N/S	3.97 (2.43) N/S	8.02 (2.18) N/S	2.17 (1.55) N/S
** Correlation is significant at the .01 level (2-tailed)				

Table 5: Post COVID-19 world change.

Agree with lock down	Ease Measures	Feeling trapped	Wanting escape	Feeling anxious/restless	More connected
5.47 (2.81) Dep -.18* Anxiety .-15*	2.69 (2.73) Stress .16*	2.58 (2.96) Dep .48*** Anxiety .25*** Stress .39***	3.12 (3.16) Dep .47*** Anxiety .26*** Stress .42***	3.09 (3.10) Dep .47*** Anxiety .28*** Stress .38***	3.18 (2.64) Dep -.34*** Stress -.18**
* Correlation is significant at the .05 level (2-tailed); ** Correlation is significant at the .01 level (2-tailed); ***Correlation is significant at the .001 level (2-tailed)					

Table 6a: Experiences of lockdown.

More isolated	Government messages	Outside space/ garden	Children anxious/ restless	Children harmed by lack of school and socialising
3.57 (3.26) Dep .47*** Anxiety .28*** Stress .38***	3.58 (2.99) Dep .27*** Stress .19**	7.49 (2.99) N/S	4.19 (2.88) N/S	5.15 (3.09) N/S
* Correlation is significant at the .05 level (2-tailed); ** Correlation is significant at the .01 level (2-tailed); ***Correlation is significant at the .001 level (2-tailed)				

**Table 6b:** Experiences of Lockdown continued.

**Discussion**

This study sought to explore a range of experiences related to COVID-19 itself, media messaging and lockdown. In regard to the overall levels of depression, anxiety and stress, the vast majority experienced no major problems.

**The fears of COVID-19.** Although anxiety and stress were significantly linked to fears of contracting the virus and dying from it, there were moderate fears of contracting the virus but lower fears of dying from it. Presumably, individuals started to understand the fact that, although they can become infected, the risk of dying for the majority of the population is low. What is particularly noteworthy however, is the higher fear of ‘passing it to others.’ There may be two reasons for this. One could be a sense of guilt. The other could be a genuine concern for others. The strongest correlations with depression, anxiety and stress were with passing the virus to others.

**Expert opinions.** Participants viewed expert opinions as moderately informative and believable but also, at times, confusing and contradictory. They were experienced as moderately reassuring and only mildly generated a turning-off from the messages in participants. There were significant correlations between depression and how confusing, contradictory and alarming expert opinions were experienced and turned-off from. Anxiety and stress were also linked to participants finding messages alarming.

**Experiences of the media.** While there were minimal experiences of finding media messages consoling, there were higher endorsements of finding media messages upsetting, provoking anxiety, depression and anger, with the tendency to turn off from them. There was also a belief that the media were exploiting the suffering of others. This fits with the views: ‘if it bleeds it leads’ and ‘trading in tragedy.’ As can be seen from Table 4, people’s ongoing experiences of depression and stress were significantly correlated with these experiences.

**Post COVID-19 changes.** Participants acknowledged some worry about getting back to normal social interactions with others. There was an extremely high endorsement of a desire for a more compassionate society, but very low expectations that it would happen. there was a high level of agreement that we would return to our old ways and a very low expectation that politicians would be able to lead us to a more compassionate society. The lack of trust in politicians to be able to pursue the common good is a serious concern.

**Lockdown.** There was moderate agreement with lockdown, which was mildly negatively-correlated with depression and anxiety. For the other questions, endorsements were in the low range. As expected, feeling trapped, anxious and isolated and wanting to escape were all highly correlated with depression and, to a lesser extent, anxiety and stress. Feeling connected had negative correlations with depression and stress. In other words, feelings of connectedness appeared to be strong buffers against depression and

anxiety his perhaps highlights, again, the importance of language in these contexts and that the term social distancing may have been a bad choice.

### Conclusion

In general, people's fears about COVID-19 centred (a little) more on infecting other people, rather than themselves. They found the personal stories and reports of deaths in the media upsetting and exploitative of other people's pain, and this was associated with higher rates of depression, anxiety and stress. This is also reflected by [16] who found that time being spent following the news was associated with reductions in wellbeing and mental health, presumably partly because of content and presentation style. Although, people agreed with lockdown measures, the feelings of entrapment and isolation resulting from lockdown were associated with depression, anxiety and stress. The data suggests that reporting on personal stories of tragedies and deaths during the pandemic was harmful to mental health. During this public health crisis and with the anticipated mental health pandemic set to follow [44], news producers should be mindful of the impact their presentation of the news can have on individuals f, both the helpful and unhelpful effects. It is very easy for the media and politicians to stimulate people by threat into behaving unhelpfully and non-compassionately.

The way risk information is conveyed can have a profound effect on how people experience it and feel supported. For example, as mentioned earlier, phrases like *social distancing* carry very different psychological meaning and stimulate different processing systems compared to phrases such as *safe relating* [17,18]. As another example, the UK government was very keen to deliver its COVID-19 directives in a stern headmaster-like, authoritarian and threatening voice-tone to *protect the National Health Service and save lives* [51]. While well-intended, to the best of our knowledge, there has been no research to explore how effective that was, the physiological systems it stimulated, and whether over time people became insensitive to it. Valuable insights could be gained by comparing other ways of engaging people in the desired behaviours (e.g. more diversity of messaging and messengers, and different voice tones and focus). While some people are very influenced by threat, other people are less so and possibly use denial. It may be those people who are most at risk of behaving dangerously [52]. It is possible that varying the messages to target different subgroups of the population was necessary. In addition, rather than only focusing on threat messages, we could focus on different emotional tones with more friendly and empathic recognition of the sacrifices necessary, with 'gratitude' for people's sacrifices as a motivator [53]. As [54] noted: 'Gratitude expressions increase prosocial behaviour by enabling individuals to feel socially valued' (p. 946). There was nothing about feeling socially valued for complying with severe restrictions on freedom. An example of how to achieve this might be to invite vulnerable people to thank others for their sacrifices of freedom of movement and enabling them to survive.

Another area that has shown to be problematic is the information given on the risk of blood clots from the AstraZeneca vaccine, without also highlighting the fact that all medicines have side effects. In a *New York Times* article called "*Western Warnings Tarnished COVID Vaccines the World Badly Needs*," [55] brought attention to the fact that the threat of blood clots has "jeopardized inoculation campaigns far beyond the United States, undercutting faith in two sorely needed shots and threatening to prolong the coronavirus pandemic in countries that can ill afford to be choosy about vaccines". Media portrayals of emerging threats can indeed have far-reaching and damaging consequences, many of which we are presently unaware of.

### Limitations of the study

This research is obviously limited in terms of the selection and numbers of people sampled and the methodology used. Hence, it is only a pilot that invites more robust research. However, it supports key issues raised by other researchers [1]. These include needing far more research on how to present information to the general public about the nature of risk over any particular issue (in this case a pandemic), to promote adaptive rather than unhelpful behaviours, and that that risk increases people's vulnerability to mental health



problems. Focusing on how to relate safely (which goes beyond issues of the pandemic); how to be grateful to each other for the sacrifice we are making, how to point towards a future of interconnectedness and 'rebirth and hope' and how to be inspired by the extraordinary speed of vaccine development and science, may all be more valuable than relying on threat alone. Hence, concern must be given to why and how sufferers are treated in the media, and how scientists present information that can appear alarming when taken out of a context of scientific understanding of research. More research needs to focus on the emotional tones and textures of messages with a more nuanced empathic understanding of their impact, particularly when information about health risks are highly personally relevant and where coping behaviours (lockdowns) increase vulnerability to mental health problems. Concern must be given to how people generate defensive counter-arguments and conspiracy theories. More research is required on how to promote ethical and prosocial behaviour in such contexts rather than relying on threat. Finally, while democracies value free press, there should also be discussion about the way in which emerging problems are reported on, considering that a threatening undertone may be used to inform or shape people's opinions but also inhibits societal learning and encourages belief in unhelpful conspiracy theories [56].

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