



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Short Communication

Not all worries were created equal: the case of COVID-19 anxiety

Y. Maaravi^{a, *}, B. Heller^b^a The Adelson School of Entrepreneurship, Interdisciplinary Center (IDC), Herzliya, Israel^b Baruch Ivcher School of Psychology, Interdisciplinary Center (IDC), Herzliya, Israel

ARTICLE INFO

Article history:

Received 25 May 2020

Received in revised form

11 June 2020

Accepted 15 June 2020

Available online 22 June 2020

Keywords:

COVID-19

Anxiety

STAI

Optimism bias

Prominence effect

ABSTRACT

Objectives: The objective of this study was to investigate possible differences in COVID-19–related anxiety based on previous theories in social psychology.

Study design: Cross-sectional online questionnaire delivered via the crowdworking platform.

Methods: Four-hundred and seven (120 men and 287 women) adults (aged >18 years) from the United Kingdom answered the State-Trait Anxiety Inventory ‘in light of the COVID-19 situation’, followed by three health and three financial anxiety items.

Results: Our findings imply that women are more anxious than men, people are more anxious about others than about themselves, their anxiety about relatives is higher than about strangers, and anxiety about health is higher than about financial issues.

Conclusions: We suggest that these preliminary findings should be further investigated to help policymakers improve both their treatment of pandemic-related anxiety and their messages.

© 2020 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.

Introduction

In just a few months, COVID-19 had spread to most countries. Thus far, millions have been infected, hundreds of thousands killed, and billions suffer the economic consequences. Indeed, the World Health Organization announced a global emergency.¹ Not surprisingly, many suffer from COVID-19–related anxiety,² as has been documented using new psychological measures.³ Current research indicates that coronavirus-related anxiety resembles situational anxiety, in that it may be related to more severe health consequences such as alcohol/drug coping, negative religious coping, extreme hopelessness, and suicidal ideation.⁴ Thus, scientists should investigate the different components of COVID-19–related anxiety and help policymakers improve treatment and adjust their measures (including guidelines and messages) accordingly.

We build on previous theories in psychology to investigate four possible differences in COVID-19–related anxiety. First, women's scores on both explicit and implicit anxiety measures are generally higher than those of men.⁵ This implies that women may be more susceptible to stressful situations, and consequently, men and

women should possibly be treated and addressed differently. Second, a robust finding in psychology is the optimism bias: people perceive themselves as less likely than others to suffer from misfortunes such as car accidents or illness.⁶ This ‘it won't happen to me’ approach can be problematic when it comes to people's adherence to authorities' health guidelines. Third, research has shown that people are more anxious about their significant others' risk in comparison with both their own (optimism bias)⁷ and that of strangers (due to greater psychological distance).⁸ Finally, research has shown that health matters are perceived as more salient and consequently influence judgments more than financial issues (i.e. the prominence effect).⁹

The current research

Participants (120 men and 287 women, all adults aged older than 18 years) were recruited through a crowdworking platform (‘Prolific’) and were paid to answer an online questionnaire.

General anxiety

To measure the state of anxiety, we used the state items of the widely used State-Trait Anxiety Inventory (STAI).¹⁰ These 20 items measure anxiety by aggregating the results of all the items into one index. Items include statements such as ‘I feel nervous’ and ‘I feel calm,’ which participants rated on a scale of 1 (‘Not at all’) to 4

* Corresponding author. Adelson School of Entrepreneurship (ASE), Interdisciplinary Center (IDC), Ha'Universita St 8, Herzliya, 4610101, Israel. Tel.: +972 9 9527684. 972-54-7206320 (mobile).

E-mail address: myossi@idc.ac.il (Y. Maaravi).

('Very much so'); the higher the total score, the more generally anxious the participant may be. Here, they were asked to rate the statements 'in light of the COVID-19 situation'.

Specific anxiety

To measure health- and economic-specific anxiety, participants rated the degree to which they experienced each type of anxiety in light of COVID-19 across six items: two self-focused, two relative-focused, and two country-focused (i.e. strangers) items. The statements were designed based on the STAI to maintain consistency and, as such, were rated using the same scale. Examples include 'Please rate the degree to which you experience anxiety regarding each of the following: my financial state (self-focused economic); the state of my relatives' health (relative-focused health).' The sequence of all 26 anxiety items (general and specific) was randomized.

Results

Men vs. Women

Independent-samples t-tests compared anxiety measures between men and women (descriptive statistics for all variables can be found in Table 1). There was a significant difference in STAI index scores between men and women, $t(405) = -6.65, P < 0.001$. This pattern repeated itself in health-related anxiety regarding the self ($t(405) = -2.64, P = 0.008$), close relatives ($t(405) = -4.56, P < 0.001$), and strangers ($t(405) = -5.75, P < 0.001$). The same pattern was found for economic anxiety regarding close relatives ($t(405) = -2.14, P = 0.033$) and strangers ($t(405) = -2.32, P = 0.021$). Interestingly, men and women did not differ significantly in economic anxiety regarding the self ($t(405) = -1.01, P = ns$). These results suggest that women do indeed report greater anxiety than men, even in times of a global pandemic.

Self vs. others

Paired-samples t-tests compared the health and economic anxiety measures between the self and others – relatives and countrymen (i.e. strangers). There was a significant difference between self-focused health-related anxiety and both relative- and stranger-focused anxiety: $t(406) = -17.65, P < 0.001$ and $t(406) = -10.67, P < 0.001$, respectively. This pattern repeated itself when comparing self-focused economic anxiety and both relative- and stranger-focused anxiety: $t(406) = -4.11, P < 0.001$ and $t(406) = -6.52, P < 0.001$, respectively. Specifically, these results suggest that individuals worry about the economic and health status of others more than about their own (i.e. the optimism bias).

Table 1
Means of general and specific anxiety measures across sexes.

	STAI ^a	Health ^b			Economic ^b		
		Self	Relatives	Strangers	Self	Relatives	Strangers
Women	54.64 (11.40)	2.49 (1.02)	3.40 (0.76)	3.16 (0.77)	2.37 (1.06)	2.61 (1.02)	2.79 (0.88)
Men	46.32 (11.72)	2.20 (0.99)	3.01 (0.87)	2.67 (0.83)	2.25 (1.03)	2.38 (1.01)	2.56 (0.96)
Overall	52.18 (12.09)	2.41 (1.02)	3.29 (0.81)	3.02 (0.82)	2.33 (1.05)	2.54 (1.02)	2.72 (0.91)

Note: standard deviations appear in parentheses. STAI, State-Trait Anxiety Inventory.

^a On an aggregate scale ranging from 20 to 80, composed of 20 items.

^b On a scale of 1 ('Not at all') to 4 ('Very much so').

Importantly, because we conducted multiple comparisons, we applied Bonferroni-adjusted significance tests for pairwise comparisons for the previous and all subsequent analyses and achieved statistical significance of $P < 0.05$.

Close relatives vs. strangers

Paired-samples t-tests were conducted to compare relative-focused and stranger-focused (i.e. 'your country') health and economic anxiety. There was a significant difference between relative-focused health anxiety and stranger-focused health anxiety, $t(406) = 5.87, P < 0.001$, which supports the psychological distance hypothesis. Interestingly, this pattern was reversed in economic anxiety: relative-focused anxiety was smaller than stranger-focused anxiety, $t(406) = -3.04, P = 0.002$. A possible explanation may be that relatives may rely on the financial state of the participant for supporting them, but they do not rely on the state of the participant's health for medical support.

Health vs. economic anxiety

Paired-samples t-tests were conducted to compare self-, relative-, and stranger-focused anxiety measures between health and economic items. There was a significant difference between relative-focused health anxiety and relative-focused economic anxiety, $t(405) = 13.51, P < 0.001$. This pattern repeated itself in stranger-focused measures ($t(406) = 6.11, P < 0.001$) but was not significant in self-focused measures ($t(406) = 1.24, P = 0.215$). In other words, these results suggest that individuals experience greater health anxiety than economic anxiety when it regards others. In contrast, they worry about their own health and economic status to the same degree. These results may be due to optimism bias, which causes individuals to be overly optimistic about themselves across domains.

Conclusion

The current research explored the differential levels of anxiety reported amid the COVID-19 pandemic. Our findings imply that women are more anxious than men, people are more anxious about others than about themselves, their anxiety about relatives is higher than about strangers, and anxiety about health is higher than about financial issues.

We suggest that these preliminary findings should be further investigated to help policymakers improve both their treatment of pandemic-related anxiety and their messages and guidelines (e.g. emphasize the risk to relatives more than to the self).

Author statements

Ethical approval

This study received the institution's ethical committee approval for this research.

Funding

None declared.

Competing interests

None declared.

Data availability statement

The data that support the findings of this study are openly available at https://osf.io/tch7j/?view_only=dbd592545607427c967b8bfd9a1b65d8.

References

1. Sohrabi C, Alsafi Z, O'Neill N, Khan M, Kerwan A, Al-Jabir A, Iosifidis C, Agha R. World Health Organization declares global emergency: a review of the 2019 novel coronavirus (COVID-19). *Int J Surg* 2020;**76**:71–6.
2. Lin CY. Social reaction toward the 2019 novel coronavirus (COVID-19). *Social Health Behav* 2020 Jan 1;**3**(1):1.
3. Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The fear of COVID-19 scale: development and initial validation. *Int J Ment Health Addiction* 2020;**27**:1–9. <https://doi.org/10.1007/s11469-020-00270-8>.
4. Lee SA. Coronavirus Anxiety Scale: a brief mental health screener for COVID-19 related anxiety. *Death Stud* 2020 Jul 2;**44**(7):393–401.
5. Egloff B, Schmukle SC. Gender differences in implicit and explicit anxiety measures. *Pers Individ Differ* 2004 Jun 1;**36**(8):1807–15.
6. McKenna FP. It won't happen to me: unrealistic optimism or illusion of control? *Br J Psychol* 1993;**84**(1):39–50.
7. Ghassemi M, Bernecker K, Brandstätter V. "Take care, honey!": people are more anxious about their significant others' risk behavior than about their own. *J Exp Soc Psychol* 2020;**86**:103879.
8. Trope Y, Liberman N. Construal-level theory of psychological distance. *Psychol Rev* 2010;**117**(2):440.
9. Tversky A, Sattath S, Slovic P. Contingent weighting in judgment and choice. *Psychol Rev* 1988;**95**(3):371.
10. Ortuno-Sierra J, Garcia-Velasco L, Inchausti F, Debbane M, Fonseca-Pedrero E. New approaches on the study of the psychometric properties of the STAI. *Actas Esp Psiquiatr* 2016;**44**(3):83–92.