BRIEF REPORT

COVID-19 Fear, Mental Health, and Substance Use Among Israeli University Students

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The outbreak of the coronavirus pandemic (COVID-19) has a significant impact on the well-being of people and nations worldwide, with major public health, economic, social and safety implications (Nicola et al. 2020). The policies enacted to cope with the outbreak differ among and within countries; however, there are common response measures such as social distance, lockdown, and stay-at-home (Lin 2020; Pakpour and Griffiths 2020). Moreover, the vast majority of day-to-day activities such as work and education have become online efforts with uncertain effects on the physical and mental health among people of all ages.

Health authorities have recognized the probable deterioration of mental health conditions due to COVID-19 (WHO 2020a). For example, 24.9% of Chinese college students experienced some level of anxiety (Cao et al. 2020); and considerable stress, anxiety, and depression have been reported among the general population in China (Wang et al. 2020). Similar findings are evident in other locations (Harper et al. 2020; Sorokin et al. 2020). Taking a different methodological approach, Knipe et al. (2020) analyzed trends in Google searches which indicated a rise of fear and excessive searches for self-care.

Fear, as a multi-faceted factor, may be one of the most significant underlying elements that could lead to impairment of mental health conditions and well-being (Kumar and Nayar 2020). Given the prominent role that fear seems to have during COVID-19, Ahorsu et al. (2020) developed The Fear of COVID-19 Scale (FCV-19S), a 7-item unidimensional scale which assesses the severity of fears related to COVID-19. This instrument has been shown to have satisfactory psychometric characteristics and validity in multiple populations around the world (Alyami et al. 2020; Reznik et al. 2020; Sakib et al. 2020; Satici et al. 2020; Soraci et al. 2020). The current study reports the validation of the Hebrew version of this scale among medical and allied health students from a major university in the southern region of Israel who are and will be on the front-line addressing health-related and mental health–related consequences of COVID-19 and future disasters.

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Methods

The study protocol was approved by the Institutional Review Boards of both the School of Social Work and the Faculty of Health Sciences at Ben Gurion University of the Negev (BGU). The Qualtrics software platform was used for this online survey. The main instrument was the seven-item FCV-19S (Ahorsu et al. 2020). The levels of agreement with FCV-19S statements are evaluated by a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher total scores correspond with more COVID-19 fear. The survey instrument was translated from English to Hebrew and back translated by lecturers from BGU to ensure uniform content and vocabulary. The translation method used is consistent with that described by the World Health Organization for research purposes (WHO 2020b).

In order to assess the criterion validity of the scale, we sought to examine changes in respondents' psycho-emotional state during the period of self-isolation and/or quarantine. Thus, respondents were asked whether during the previous month they have felt, as a result of COVID-19 situation, more depressed, exhausted, lonely, nervous, or angry. Optional answers were yes and no.

Two additional questions were used to examine the negative impact of the COVID-19; and, respondents were asked to rate their level of agreement with the following statements: "I fear my university studies will be negatively affected by COVID-19," and "I am experiencing excess stress and anxiety due to the impact of COVID-19 on my social and family life." Similar to FCV-19S, the 5-point Likert scale for answers ranged from 1 (strongly disagree) to 5 (strongly agree). Descriptive statistics, correlation analysis, one-way ANOVA, t test, and chi-square test were used. Cronbach's alpha and McDonald's omega were used for reliability analysis. To test whether FCV-19S may be considered as having one or two dimensions, separate models of confirmatory factor analysis (CFA) were performed. All statistical analyses were conducted using SPSS, version 25 with AMOS module and JASP, a free and open-source program for statistical analysis supported by the University of Amsterdam (JASP 2020).

Results

This survey included 370 participants, 20.8% ($n = 77$) male, 78.1% ($n = 289$) female, and 1.1% ($n = 4$) other; also, 67.4% of the respondents reported being secular, 42.6% religious. As shown in Table 1, which presents the background characteristics of the sample, the mean age of the respondents was 25.2 years (SD = 3.1).

For the total sample, the mean value of the FCV-19S was 14.95 (SD = 4.80), median = 14.0, with a range of 7 to 32. The distribution of the FCV-19S values is shown in Fig. 1. The scale showed good Cronbach's alpha and McDonald's omega measure of internal consistency or reliability (0.842 and 0.852, respectively). Table 2 shows summary statistics for each scale item in the FCV-19S, including the percentage of respondents who chose the lowest or highest value in the Likert scale.

According to CFA criteria (Xia and Yang 2019), our CFA models showed weak fit indices for both the unidimensional and two-dimensional hypotheses for FCV-19S. Unidimensional CFA fit indices were as follows: CFI (comparative fit index) = 0.837; TLI (Tucker–Lewis Index) = 0.829; and RMSEA (root mean square error of approximation) = 0.146. The two-dimensional CFA fit indices were as follows: CFI = 0.937; TLI = 0.865; and, RMSEA = 0.107.

Table 1 Student Demographic Characteristics

	$N = 370$
Gender, % (n)	
Male	20.8 (77)
Female	78.1 (289)
Other	1.1 (4)
Age, mean (SD)	25.2 (3.1)
Median	25.0
Range	18–56
Religious, % (n)	
Not religious	67.4 (248)
Religious	32.6 (120)
Major field of study, % (n)	
Social work	46.6 (170)
Medicine	35.6 (130)
Other allied health disciplines (e.g., nursing and physiotherapy)	17.8 (65)

Although non-significant, a weak correlation was found between the age of the respondents and fear ($r = 0.048$). A significant difference was found regarding COVID-19 fear based on student gender—females reported higher levels of fear, on average, than males (22.03 vs. 18.99 respectively; $t_{338} = 3.787$, $p < .001$). One-way ANOVA showed COVID-19 fear difference based on respondents' major field of study (e.g., medicine and social work) ($F_{2,338} = 5.052$; $p = .007$). Bonferroni post hoc test showed a significant difference of the mean COVID-
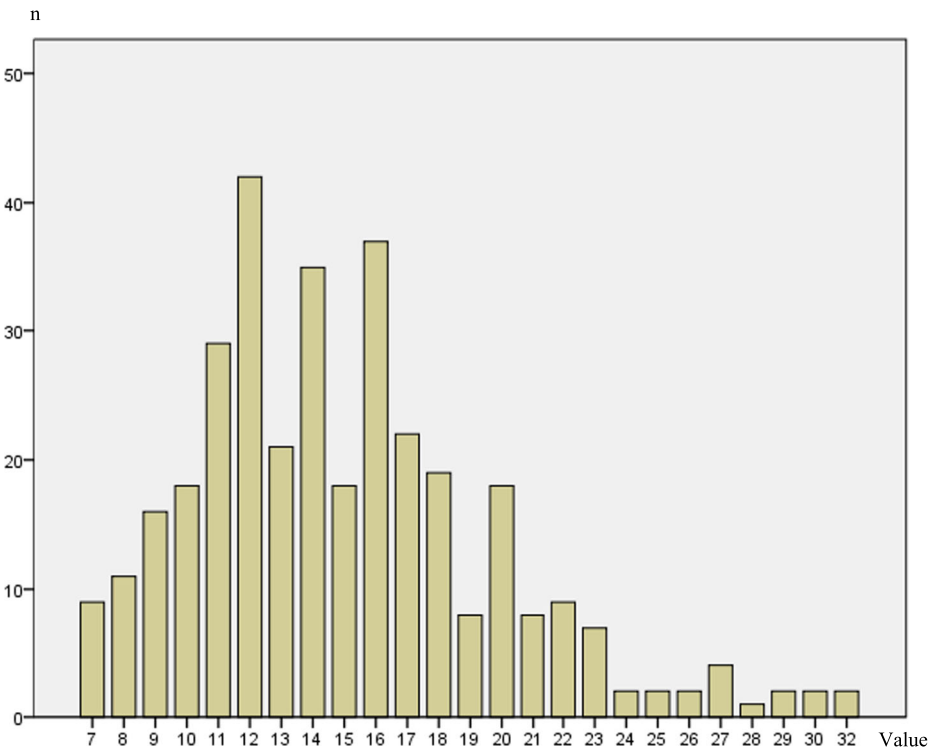

Fig. 1 Distribution of COVID-19 Fear Responses

Table 2 Summary Statistics for FCV-19S Scale Items

Items	Mean (SD)	Skewness	Kurtosis	Minimum value selection, % (n)	Maximum value selection, % (n)
I am afraid of COVID-19	3.09 (0.99)	− 0.28	− 0.72	5.5 (19)	3.8 (13)
It makes me uncomfortable to think about COVID-19	2.97 (1.15)	− 0.25	− 1.00	12.7 (44)	5.2 (18)
My hands become clammy when I think about COVID-19	1.33 (0.66)	2.31	5.98	74.9 (260)	5.2 (18)
I am afraid of losing my life because of COVID-19	1.64 (0.84)	1.48	1.85	56.1 (194)	0.9 (3)
When watching news and stories about COVID-19 on social media, I become nervous or anxious	2.86 (1.20)	− 0.08	− 1.06	15.6 (54)	6.9 (24)
I cannot sleep because I worry about getting COVID-19	1.42 (0.78)	2.13	4.50	71.6 (247)	0.6 (2)
My heart races or palpitates when I think about getting COVID-19	1.59 (0.94)	1.64	1.97	64.3 (222)	1.2 (4)

19 fear value between medical and social work students only (13.86 vs. 15.63 respectively, $p < .01$). No significant difference was found regarding COVID-19 fear based on religiosity status.

Table 3 presents the differences of the mean fear values between respondents who reported a change in their psycho-emotional state and respondents who reported no change. As evident in the findings, respondents who reported being more depressed during the previous month had a higher mean score on the FCV-19S than respondents reporting no change (24.38 vs. 19.19, respectively; $p < .001$). Similarly, significant differences were found for all other conditions (exhaustion, loneliness, nervousness, and anger; all $p < .001$). In addition, there was a significant positive correlation between the FCV-19S fear values and the answers to the additional questions related to university studies and social and family life ($r = 0.503$; $p < .001$). Greater concern and anxiety of the respondents about the effects of COVID-19 on university studies and on social and family life corresponded to higher values on the FCV-19S.

Table 3 Because of COVID-19, during the last month, have you felt more

	COVID-19 fear value, mean (SD)	df	t	p value
Depressed		332	8.396	< .001
Yes (n = 136)	24.38 (6.07)			
No (n = 198)	19.19 (5.17)			
Exhausted		331	6.722	< .001
Yes (n = 176)	23.29 (6.23)			
No (n = 157)	19.05 (5.15)			
Lonely		332	6.876	< .001
Yes (n = 210)	22.96 (6.04)			
No (n = 124)	18.53 (5.14)			
Nervous		331	12.013	< .001
Yes (n = 134)	25.42 (5.78)			
No (n = 199)	18.57 (4.58)			
Angry		331	7.225	< .001
Yes (n = 124)	24.15 (6.01)			
No (n = 209)	19.54 (5.41)			

Discussion and Conclusion

Worldwide, efforts are moving toward addressing the multitude of factors affected by COVID-19. Understanding and mitigating human fear including that linked to physical and mental health are a major concern and focal point for intervention. The present study is the first to test the validity of the Hebrew version of the FCV-19S, using both Cronbach's alpha, McDonald's omega, and CFA (unidimension and two dimension) on a sample of Israeli medical and allied health service students. Our findings, similar to those reported by Alyami et al. (2020), suggest there is an insufficient ground for concluding if the FCV-19S has one or two dimensions. Nevertheless, the present study shows the FCV-19S to be a valid tool that differentiates respondents by their level of fear and establishes relationships between fear and other psycho-emotional states of respondents. The results additionally evidence the variation of fear by gender and major field of study, particularly medicine and social work.

The information generated by this survey and other studies drawing on FCV-19S (Ahorsu et al. 2020; Bitan et al. 2020; Reznik et al. 2020) should be used in applied ways. For example, such findings have relevance for education, training, and intervention purposes with front-line health and social service personnel and students to promote personal resilience and the ability to manage mental health and substance misuse that may arise from COVID-19 conditions. In turn, such skills may be passed on by such service providers to patients, family members, and community confronted with COVID-19 conditions now and other disasters to be addressed in the future. Based on disaster intervention experience, tip sheets of relevance should be considered and made available to health and social service personnel, online and in print, for distribution to at-risk populations to mitigate stress, anxiety, and prevention of harmful behavior (Findley et al. 2016; Arcaya et al. 2020; Stephenson 2020). Clearly, continued research is needed about the utility of FCV-19S and its ability to contribute useful information about impact of COVID 19 and other pandemics on the health and well-being of people.

About limitations, these findings are preliminary taken at one point in time across Israeli university students in front-line service professions. Additional studies are needed to determine the long-term effects of COVID-19 across locations, over time and population groups.

Compliance with Ethical Standards

The study protocol was approved by the Institutional Review Boards of both the School of Social Work and the Faculty of Health Sciences at Ben Gurion University of the Negev (BGU).

Conflict of Interest The authors declare that they have no conflict of interest.

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