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Validity and reliability of the Arabic Fear of COVID-19 Scale in Lebanese people during the pandemic

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ABSTRACT

While global attention is drawn to the somatic consequences of COVID-19, its psychological impact including fear and worry should be considered. A cross-sectional study was conducted in Lebanon, to cross-culturally adapt and validate the Fear of COVID-19 Scale (FCV-19S) into the Arabic language among the Lebanese population. The study encompassed 712 Lebanese participants. Results showed that the A-FCV-19S has high internal consistency ($\alpha = .849$). The exploratory factor analysis extracted a two-factor model explaining 68.428% of the total variance. As for the convergent validity, the A-FCV-19S total score significantly correlated with the HSCL-anxiety and HSCL-depression ($r = .550$ and .452, p-value $< .0001$ respectively). Thus, the findings indicate that the A-FCV-19S has acceptable psychometric properties and, therefore, it is a valid and reliable measure that can be used to evaluate and monitor the fear of COVID-19 among the general Lebanese population.

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Fear; COVID-19; psychological impact; psychometrics; Lebanon

Introduction

Coronavirus disease of 2019 (COVID-19) started initially from Wuhan, China in December 2019 and, since then, it has been spreading throughout an increasing number of countries to become the global limelight (Lipsitch et al., 2020). COVID-19 is defined as a transmissible, infectious disease, having a long incubation period and with commonly known clinical symptoms that comprise fever, fatigue, pain, dry cough, and dyspnoea (D. Wang, Hu, et al., 2020). To contain this outbreak, governments around the world started strict measures; including social reaction, quarantine, and distancing (Atashi et al., 2023; Huang et al., 2023; C.-Y. Lin, 2020; E. Liu & Arledge, 2022; Pakpour & Griffiths, 2020; Prasiska et al., 2022; Tang et al., 2020). Nowadays, while the world is still fighting the outbreak, vaccination was found the most cost-effective tool to control the transmission of the virus (Fiolet et al., 2022). However, knowing its extraordinary spreading characteristics (Goyal et al., 2020), the number of patients with COVID-19 continued to rise (Akhmerov & Marban, 2020), as well as the mortality rates (Asmundson & Taylor, 2020). Nevertheless,

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its psychological consequences are becoming vivid and unprecedented (Alimoradi et al., 2021; Alimoradi, Lotfi, et al., 2022; Alimoradi, Ohayon, et al., 2022; Pakpour & Griffiths, 2020), thereby threatening the mental health of humans (Ornell et al., 2020). Several studies investigated the psychological impact of COVID-19 on different societies, stating that anxiety, depression, stress (Cao et al., 2020; Kar et al., 2020; Lei et al., 2020; C. Wang, Pan, et al., 2020) along with fear (Colizzi et al., 2020; C.-Y. Lin, 2020; N. Liu et al., 2020; Patil et al., 2021; Rajabimajd et al., 2021) are some of the most reported problems during this outbreak, with fear being one of its central features (Colizzi et al., 2020).

The fear of infection has been stated in many previous epidemics and pandemics, as a common response among people when endangered by a contagion (Asmundson & Taylor, 2020), and the pandemic emergence of COVID-19 is no different. Fear is defined as a disagreeable emotional state that is typically prompted by the perception of threatening stimulus (de Hoog et al., 2008). The accelerated levels of fear during COVID-19 are due to its innovation and people being concerned for their health, how badly the current outbreak might evolve, and being in contact with others who might be possibly infected (Ahorsu et al., 2020; C.-Y. Lin, 2020). Such fear has also led to irrational ways of thinking among people (Ahorsu et al., 2020), including negative control over disease (Nathiya et al., 2020) and emotional distress that can be also associated with compulsory behaviours (M.-W. Lin & Cheng, 2020). These behaviours can be demonstrated by the committing of suicide by individuals who were not even contaminated by the virus (Goyal et al., 2020; Mamun & Griffiths, 2020). Adding to that, fear of COVID-19 influenced job attributes by decreasing job satisfaction and enhancing career anxiety (Rajabimajd et al., 2021). Consequently, assessing fear of COVID-19 during this crucial situation is important in order to accommodate efforts and to achieve the main goal of having a community free of COVID-19.

Several psychometric fear scales have been developed to assess the person's fear of many different aspects, including the fear of having a specific health disease, such as dementia (Lee & Jung, 2020), hypoglycaemia (Anarte Ortiz et al., 2011), cancer (Simard & Savard, 2009) and many other illnesses. Although generic measures can be used to evaluate fear emanating from COVID-19, one assessment tool was developed to target specific symptoms of this virus; itis the Fear of COVID-19 Scale (FCV-19S). The FCV-19S was initially developed in Iran by Ahorsu et al. to evaluate fear of COVID-19 among Iranian individuals (Ahorsu et al., 2020). The scale depicted acceptable psychometric properties including high reliability, good validity, and stable unidimensional structure upon assessing fear originating from COVID-19 (Ahorsu et al., 2020). These properties were proven to show robustness across several populations and countries and thus demonstrated its usefulness as a valid instrument to assess fear of COVID-19 during the pandemic period (C.-Y. Lin et al., 2021). Furthermore, due to the importance of assessing fear and worries during the critical situation of COVID-19 emergence, the FCV-19S was translated into several languages including Japanese, Spanish, Chinese, Arabic, and English (Alimoradi, Lin, et al., 2022; Alimoradi, Ohayon, et al., 2022; Alyami et al., 2021; Chang et al., 2020; C.-Y. Lin & Pakpour, 2023; Martínez-Lorca et al., 2020; Midorikawa et al., 2021). Furthermore, it was also validated among different countries including Italy, Eastern Europe, Bangladesh, Saudi Arabia, and Turkey (Alyami et al., 2021; Reznik et al., 2021; Sakib et al., 2022; Satici et al., 2021; Soraci et al., 2022; Wakashima et al., 2020; Winter et al., 2023).

With this in mind, it's important to mention that, so far, Lebanon and other Arab countries are suffering from the spread of COVID-19 (Mikhael & Al-Jumaili, 2020); and, till now, we do not have a validated Lebanese Arabic tool to appraise fear. The test has been validated in Saudi Arabia (Alyami et al., 2021); however, Lebanon and the Arabic Gulf region use different colloquial languages. So, it is imperative to establish a standardised Arabic version of the FCV-19S among the Lebanese population. This will help evaluate fear as one of the psychological possessions of COVID-19, and thus support healthcare providers in the implementation of the required measures or interventions to reduce the negative consequences of fear. Therefore, this study aims to cross-culturally adapt the FCV-19S into the Lebanese Arabic language and examine its psychometric properties, including validity and reliability among the Lebanese population.

Materials and methods

Translation and cross-cultural adaptation of the FCV-19S

The guidelines recommended for the cross-cultural adaptation of health status measures (Beaton et al., 2000) were followed during the translation and cross-cultural adaptation of the FCV-19S; the process included the following stages.

Forward and backward translation

Two independent Lebanese native speakers achieved the forward translation of the FCV-19S from the English language to the Arabic language. The first was a psychologist with clinical experience in the field of phobia management, and the second was a sworn translator without any medical background. Translators were asked to use a simple and suitable language for the Lebanese population of different ages. Through a consensus process, the two forward translators and a recording observer met via Skype. They discussed and compared the two translated versions to resolve discrepancies and thus propose a unified Lebanese Arabic version of the FCV-19S.

To ensure that the translated Lebanese Arabic version is equivalent to the original version, back-translation procedure was conducted by two blinded independent English native speakers. Both back-translated versions were compared to the original English version of the FCV-19S to ensure that the scale items are appropriately decoded.

Expert committee

A proficient review committee consisting of the translators, a general physician, a psychiatrist, and two clinical psychologists met virtually to develop the pre-final version of the questionnaire. After consolidating all the translated versions and resolving translation incongruities, a preliminary final Lebanese Arabic version of the FCV-19S (A-FCV-19S) was established.

Pre-test

To assert the comprehensibility and clarity of the scale items, the A-FCV-19S Scale was conducted on 36 Lebanese individuals (20 females and 16 males). The participants were chosen randomly, each one received an online version of the scale and was asked to reply to the questions and record the time needed. The participants involved in pre-

testing were not included in the main sample of the study. Subsequently, each of them was contacted to discuss the clarity of the 7-items scale. They reported that the content is understandable, and no further changes needed to be added to the scale.

Study design and participants

This is a cross-sectional study conducted during the month of April 2020 in Lebanon, eligible subjects were Lebanese individuals (males and females) over 18 years of age and being able to comprehend the Lebanese-Arabic spoken language. A total of 712 participants were conscripted from online advertisements, blogs, and social media. For the factor structure evaluation, the total sample was randomly bifurcated into two equal samples ($n = 356$). A socio-demographic questionnaire addressing age, gender, geographic region, marital status, educational level and employment status was filled by the participants along with the A-FCV-19S, and the Hopkins symptom checklist-25. All questionnaires were filled out online by each of the participants.

Sample size calculation

To estimate the sample size required for the study, an online Raosoft sample size calculator was used. Based on the estimation of the United Nations that the Lebanese population is 6,825,250 persons (United Nations, 2019), an anticipated response of 50%, a confidence level of 95%, and a 5% margin of error, the required sample size should be of at least 385 participants. Knowing that the suggested ratio of total subjects to scale items is 5:1 (Floyd & Widaman, 1995), our final sample comprised 712 participants exceeding the required sample size.

Study measurements

The Fear of COVID-19 Scale. The scale was developed by Ahorsu et al. in March 2020 to detect the fear of COVID-19 among individuals living in Iran (Ahorsu et al., 2020). The main purpose of its development is to counterpart efforts of clinicians to attain the holistic goal of preventing the spread of COVID-19, and thereby having a society free of this virus (Ahorsu et al., 2020). When assessed within the general Iranian population, the scale showed acceptable psychometric properties and a stable unidimensional structure (Ahorsu et al., 2020). However, other studies stated that the scale has a bifactor construct (Caycho-Rodríguez et al., 2022; Moreta-Herrera et al., 2022). The scale comprises seven items, where the participant is asked to indicate the level of his agreement on each item by using a Likert scale of five points ranging from 1 (strongly disagree) to 5 (strongly agree) (Ahorsu et al., 2020). The total score ranges between 7 and 35 and it is obtained by summing up the responses, with higher scores indicating greater fear of COVID-19 (Ahorsu et al., 2020). The Lebanese Arabic version was used in this study.

Hopkins Symptom Checklist-25. The Hopkins Symptom Checklist (HSCL) was initially created in 1948 by Cornell Medical Index (Wider, 1948) to assess common psychoneurotic complaints of outpatients (Lipman et al., 1965). This scale is available in several versions in which the items array from an amount of 25–90 (Derogatis et al., 1974). The HSCL-25 is a brief self-report screening test that emphasises the existence of anxiety and depression symptoms (Hesbacher et al., 1980). This shortened version has been validated within

several populations and translated into several languages including Arabic (Mahfoud et al., 2013). It consists of 25 questions, each one of them has four response selections (1 = not at all, 2 = a little, 3 = quite a bit, and 4 = extremely) (Winokur et al., 1984). The total score of the scale is obtained by summing up the 25 responses and obtaining their average. However, two separate sub-scores can be obtained for both anxiety (first 10 items) and depression symptoms (last 15 items) (Winokur et al., 1984). The cut-off for the total score of the English version is 1.75 – as reported by the initial authors (Winokur et al., 1984). Whereas for the Lebanese population, a cutoff of 2.1 for the Depression Subscale and 2 for the Anxiety Subscale were reported; as for the internal consistency it was .92 for the HSCL-25 and .88 and .85 for the Depression and Anxiety Subscales respectively (Mahfoud et al., 2013).

Ethical considerations

The study protocol was approved by the scientific committee of the Health Rehabilitation and Research (HRIR) Center, and all participants were asked to sign an online informed consent explaining the aim of the study and emphasising that their participation is voluntary. Investigators and field workers ran the study following the research ethics laid down in the Declaration of Helsinki of the World Medical Association Assembly (Williams, 2008).

Statistical analysis

Data entry and analysis were completed using the statistical software; SPSS version 26.0 ("IBM SPSS Statistics for Windows", 2019). Regarding descriptive statistics, means and standard deviations (SD) were used to describe continuous variables, and frequency with percentages to state categorical variables. Cronbach's alpha was calculated, with coefficients above .7 indicating good internal consistency; it was calculated for the whole sample of 712 participants.

To assess the construct validity of the A-FCV-19S, the main sample ($n = 712$) was split into two equal samples (n = 356) to perform exploratory and confirmatory factor analysis. Sampling adequacy was assessed via the Kaiser-Meyer-Olkin (KMO) measure alongside Barlett's Test of Sphericity. Exploratory Factor Analysis (EFA) was conducted using the analysis of the main components with Varimax rotation to sightsee the factor structure of the A-FCV-19S. Eigenvalues greater than 1 and visual inspection of the scree plot were considered to determine the number of factors retained in the scale. Confirmatory Factor Analysis (CFA) further ensured the appropriateness of the obtained structure of the scale. Maximum likelihood method was established to explore the Goodness-of-fit based on the following fit indices: $X^2/df < 5$, root-mean-square error of approximation (RMSEA) < .06, the comparative Fit Index (CFI) > .90, the Goodness-of-Fit Index (GFI) > .90, and the Adjusted Goodness-of-Fit Index (AGFI) > .90 (Hu & Bentler, 1999). Additionally, Binary logistic regressions were performed to estimate the associations between binary demographics, pandemic-specific variables, and the A-FCV-19S. Non-parametric Spearman's correlation was used to evaluate the convergent validity of the A-FCV-19S. All the included statistical tests were two-sided with a level of .05 set as significant.

Results

Sample characteristics

The demographic characteristics, as well as the employment status and exposure during the pandemic, are represented in Table 1. Overall, 712 Lebanese participants were enrolled in this study, of which 61.8% were females. The mean age was 31.01 ± 11.16, with the minimum being 18 and the maximum being 69 years. Participants were recruited from different Lebanese districts. Regarding their marital statuses, married and single subjects were approximately equal with percentages of 48.6 and 48 respectively. As for the educational level, it varied across participants, where the vast majority of 76.8% had a high educational level (university and post-graduate studies). As for the employment 40.6% were unemployed and 9.5% had lost their jobs due to the COVID-19 lockdown. It is worth being noted that 2.7% reported direct contact with an infected patient. For the measurement scores, the sample had a mean average of 15.67 ± 5.11 on the A-FCV-119S, demonstrating mild symptoms of fear from COVID-19 across the Lebanese population.

Table 1. Sociodemographic characteristics of participants.

	Frequency (*n*)	Percentage (%)
Gender		
Female	440	61.8
Male	272	38.2
Geographic region		
Beirut	245	34.4
Mount Lebanon	202	28.4
South	175	24.6
Baalbeck-Bekaa	67	9.4
North	23	3.2
Marital Status		
Married	346	48.6
Single	342	48
Divorced	17	2.4
Widowed	7	1
Educational level		
University	391	54.9
Post graduate	156	21.9
High school	67	9.4
Vocational	50	7
Middle	42	5.9
Elementary	6	0.9
Employment status		
Employed	351	49.3
Unemployed	289	40.6
Lost job due to COVID-19 lockdown	68	9.5
Retired	4	0.6
Direct contact with COVID-19 patient		
Yes	19	2.7
No	693	97.3
	Mean ± SD[a]	
Age	31.01 ± 11.16	
A-FCS-19S[b]	15.67 ± 5.11	
HSCL-25[c] (total)	1.52 ± 0.47	
HSCL-Anxiety	1.42 ± 0.43	
HSCL-Depression	1.59 ± 0.54	

[a]Standard deviation.
[b]The Lebanese Arabic version of Fear of COVID-19 Scale.
[c]Hopkins Symptoms Checklist-25.

Psychometric properties of the A-FCV-19S

Reliability testing

The reliability testing of the A-FCV-19S (Table 2) was evaluated among the total sample of 712 subjects indicated high internal consistency and inter-relatedness among the seven items constituting the A-FCV-19S, with an alpha value of .849. Furthermore, the seven items of the scale showed fair corrected-item to total correlation coefficients that ranged between .490 and .691, signifying their pertinence to the total scale. Moreover, no change in Cronbach's alpha was shown in the case of item deletion; alpha coefficients ranged from .815 to .844.

Validity testing

Construct validity. The construct validity of the A-FCV-19S, EFA was applied over the 7-items of the scale in sample 1 of 356 subjects (Table 3). A KMO measure indicated the appropriateness of carrying out an EFA. It signified good and adequate sampling (KMO = .830), with a significant Bartlette's Test of Sphericity ($\chi 2 = 1079.947$, df = 21, *p*-value < .00001). EFA and the scree plot inspection (Figure 1) confirmed the extraction of the two-factor model comprising the 7-items of the A-FCV-19S. Factor 1 included items 1, 2, 4, and 5 and was labelled "fear and worry". Whereas factor 2 included items 3, 6, and 7 and was labelled "somatic symptoms of fear". The two-factor model accounted for 68.960% of the total variance, with factors 1 and 2 conveying 52.866% and 16.094% of the variance respectively. As for the factor loadings, they were adequately high for six items ranging from .713 to .849 and moderate for one item (.683). Moreover, communalities varied from fair to high (.588–.814), thus emphasising the contribution of the different items to the whole scale (Worthington & Whittaker, 2006).

By following EFA and implementing the structure obtained, a CFA was employed on sample 2 ($n = 356$). Using maximum likelihood estimation, the two-factor structure of the A-FCV-19S showed good fit with the data (X^2/df = 3.760, RMSEA = .048 (95% CI of .043–.080), CFI = .963, GFI = .973, AGFI = .941). Figure 2 shows the factor loadings of the standardised regression coefficients ranging from .674 to .767 for factor 1 and from .646 to .839 for factor 2. Likewise, the different parameters were significantly correlated within the two-factors, supporting the relatedness of the items to their corresponding factor.

Table 2. Reliability analysis of the A-FCV-19S ($n = 712$).

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. I am most afraid of coronavirus-19.	12.941	19.116	0.623	0.825
2. It makes me uncomfortable to think about coronavirus-19.	12.689	18.937	0.599	0.830
3. My hands become clammy when I think about coronavirus-19.	14.094	22.161	0.490	0.844
4. I am afraid of losing my life because of coronavirus-19.	13.386	18.842	0.627	0.825
5. When watching news and stories about coronavirus-19 on social media, I become nervous or anxious.	12.934	17.606	0.691	0.815
6. I cannot sleep because I'm worrying about getting coronavirus-19.	14.046	20.846	0.623	0.828
7. My heart races or palpitates when I think about getting coronavirus-19.	13.987	20.389	0.654	0.823

Table 3. Exploratory factor analysis of the A-FCV-19S ($n = 356$).

Items	Factor 1	Factor 2	Communalities
1. I am most afraid of coronavirus-19.	0.837		0.711
2. It makes me uncomfortable to think about coronavirus-19.	0.803		0.663
5. When watching news and stories about coronavirus-19 on social media, I become nervous or anxious.	0.713		0.663
4. I am afraid of losing my life because of coronavirus-19.	0.683		0.588
7. My heart races or palpitates when I think about getting coronavirus-19.		0.849	0.841
6. I cannot sleep because I'm worrying about getting coronavirus-19.		0.830	0.775
3. My hands become clammy when I think about coronavirus-19.		0.777	0.814
Eigenvalue	3.701	1.127	
Percentage of explained variance	52.866	16.094	

Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalisation.

Convergent validity. To assess the convergent validity of the scale, associations between demographics, pandemic-specific characteristics, and A-FCV-19S were examined. Binary logistic regression was evaluated and reported in Table 4. The female gender was significantly associated with higher rates of fear (OR = 1.11, 95% CI 1.07-1.15, p-value < .0001) as compared to male subjects. Marital status was also positively associated with fear of COVID-19, so that single subject manifested higher rates of fear (OR = 1.01, 95% CI 0.99–1.04, p-value = .034) than married subjects. Furthermore, low educational level (not reaching college) and being unemployed were positively correlated with fear (OR = 1.08, 95% CI 1.02-1.09, p-value = .001; OR = 1.04, 95% CI 1.01–1.07, p-value = .003, respectively).

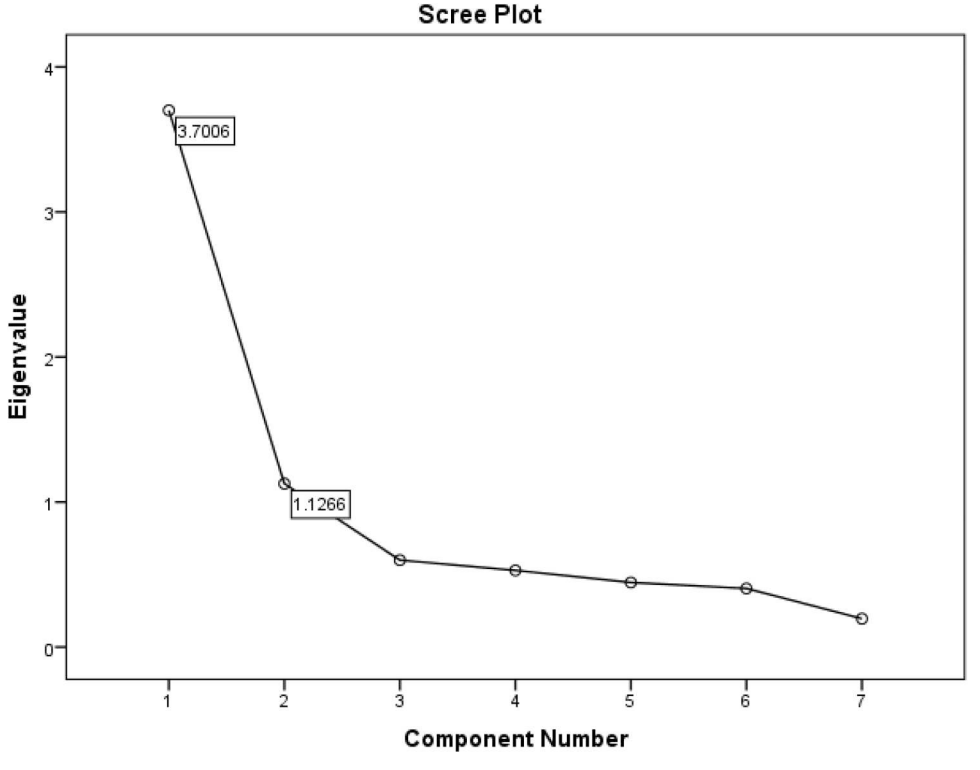

Figure 1. Scree Plot representing the two-factor model of the A-FCV-19S.

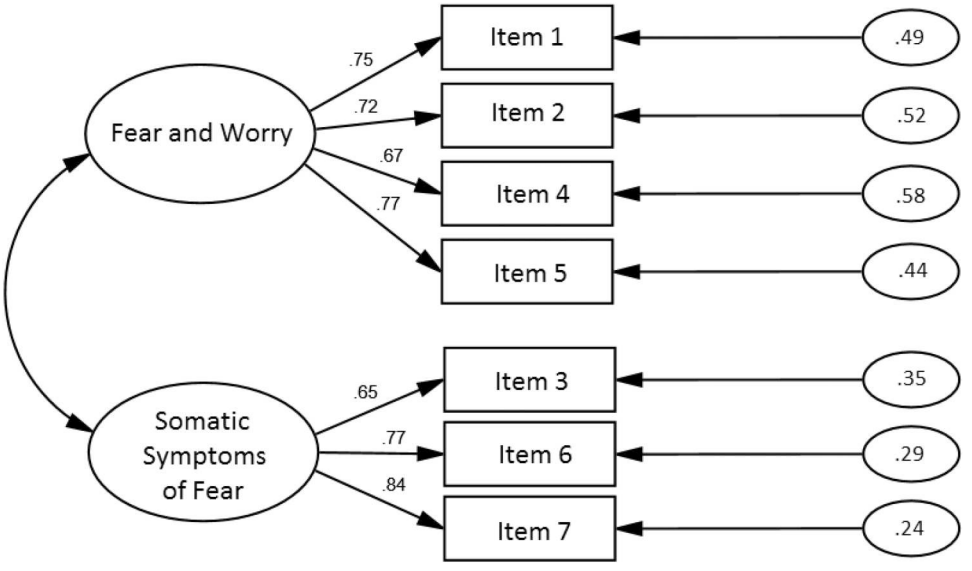

Figure 2. Confirmatory factor analysis for the A-FCV-19S ($n = 356$). Note: One-way arrows reflect the factor loadings corresponding to each item. Two-way arrows indicate correlation between factors. The coefficients in the circles stand for the error variable of each item.

The convergent validity of the A-FCV-19S was also estimated by studying the correlation between the scale, its two extracted factors, and the HSCL-25 (Table 5). Non-parametric Spearman correlations were measured between the A-FCV-19S and HSCL-25 total scores, as well as with the scores of HSCL-Anxiety and HSCL-Depression Subscales. The results depicted significant positive correlation between fear of COVID-19, anxiety ($r = .550$, p-value $< .0001$) and depression ($r = .452$, p-value $< .0001$). In addition, positive correlations were indicated between the two-factors and the HSCL-25 Scale. Factor 1 expressing "fear and worry" of participants represented significant correlation with anxiety ($r = .445$, p-value $< .0001$) and depression ($r = .384$, p-value $< .0001$). Factor 2 expressing "somatic symptoms of fear" also showed positive significant correlations with anxiety (r

Table 4. Binary logistic regression between demographics, pandemic-specific correlates and fear of COVID-19.

Factors	OR[a] (95% confidence Interval)	p-value
Gender (Female)	1.11 (1.07 to 1.15)	< 0.0001*
Age (≥ 50)	0.99 (0.97 to 1.02)	0.92
Marital Status (Unmarried)	1.01	
(0.99 to 1.04)	0.034*	
Education level (< College)	1.08 (1.02 to 1.09)	0.001*
Employment status (Unemployed)	1.04 (1.01 to 1.07)	0.003*
Direct contact with COVID-19 patient (Yes)	0.82 (0.79 to 0.92)	0.57

[a]Standard deviation.
*p-value < .05 is considered significant.

Table 5. Convergent validity of the A-FCV-19S.

Scores correlation	HSCL-25[a] total score	HSCL-Anxiety	HSCL-Depression
A-FCV-19S[b] total score	0.512	0.550	0.452
	p-value < 0.0001	*p*-value < 0.0001	*p*-value < 0.0001
Factor 1: fear and worry	0.427	0.445	0.384
	p-value < 0.0001	*p*-value < 0.0001	*p*-value < 0.0001
Factor 2: somatic symptoms of fear	0.356	0.402	0.304
	p-value < 0.0001	*p*-value < 0.0001	*p*-value < 0.0001

Note: Non-paramentric Spearman correlation, *p*-value < .05 is considered significant.
[a]Hopkins Symptoms Checklist-25.
[b]The Lebanese Arabic version of Fear of COVID-19 Scale.

= .402, *p*-value < .0001) and depression (r = .304, *p*-value < .0001). Similar patterns of correlation were shown among the A-FCV-19S and its sub-factors so that the highest correlations were scored with the Anxiety Subscale.

Discussion

This study aims to translate and cross-culturally adapt the Lebanese Arabic version of FCV-19S, along with the evaluation of its psychometric properties, among the Lebanese population. Through a rigorous procedure, the FCV-19S was successfully translated and cross-culturally adapted to the Arabic language. The attained Lebanese-Arabic version of the questionnaire was revealed to be comprehensible and clear; results extracted from this study provided evidence about the psychometric properties including validity and reliability of the Arabic version of the FCV-19S.

In the present study, estimates of the reliability of the A-FCV-19S – expressed using Cronbach's alpha – showed high internal consistency with an alpha value of .849. Consistent with the original Iranian study, the results of this study replicated what they had reported ($\alpha = .82$) (Ahorsu et al., 2020). Likewise, the different validation studies conducted in Italy, Eastern Europe, Bangladesh, Saudi Arabia, and Turkey reported alpha coefficients ranging between .81 and .88 (Alyami et al., 2021; Reznik et al., 2021; Sakib et al., 2022; Satici et al., 2021; Soraci et al., 2022). Similar to their findings, the 7-items of the A-FCV-19S depicted fair corrected item-total correlation and demonstrated that the deletion of any item will not influence the total homogeneity of the scale.

Based on this study, the EFA of the A-FCV-19S extracted two robust factor models that explained jointly 68.960% of the total variance. These two-factors were labelled as "fear and worry" and "somatic symptoms of fear". The CFA confirmed the obtained two-factor structure, with all the goodness-of-fit indices meeting the recommended cut-off values. Correspondingly, these results were parallel to the Eastern European version supporting the two-factor dimensionality of the scale (Reznik et al., 2021). It is important to mention that the two-factors extracted from the Lebanese Arabic and the Eastern European versions comprised the same items. Moreover, when compared with the original Iranian scale, Italian, Saudi Arabian, Bangla, and Turkish versions indicated a unidimensional structure in their versions of the FCV-19S (Ahorsu et al., 2020; Alyami et al., 2021; Sakib et al., 2022; Satici et al., 2021; Soraci et al., 2022). Such inconsistency in the factor structure may be accounted for by the variations in the socio-demographic and clinical variables of the different samples studied. Also, in an Ecuadorian sample, FCV-19S demonstrated a bifactor structure (one general factor and two specific factors); the factor loadings of the specific factors ranged

between – .12 and .46 (Moreta-Herrera et al., 2022). When compared with the factor loadings of the A-FCV-19S, they ranged between .65 and .84, representing a high contribution of the items to the two-factor model. Furthermore, communalities corresponding to the 7 items of the A-FCV-19S ranged from fair to high, highlighting that no items should be extracted or removed from the scale. That is why the different versions of the FCV-19S, including the Lebanese Arabic scale, are confirmed to include the same number of items. This study signified the convergent validity of the A-FCV-19S; statistically significant positive correlations were proved with the HSCL-25 and its Anxiety and Depression Subscales. Therefore, higher scores on A-FCV-19S implied higher scores on the HSCL-25 total, HSCL-anxiety and HSCL-depression. Taking this background into consideration, it can be concluded that the results of this study provide acceptable evidence in supporting the fact that the A-FCV-19S is a valid and reliable tool to evaluate the psychological consequences originating from COVID-19 among the Lebanese population.

Fear originating from COVID-19 was associated with several demographics and pandemic-specific correlates. The results showed that females are more susceptible to fear when compared to men; these findings replicate those of other studies indicating that the female gender is more liable to stress and other mental health problems (Seedat et al., 2009; Tolin & Foa, 2006; Weissman et al., 1996). It was also evident that single subjects depicted higher levels of fear; this fact resonates what other studies reported demonstrating that being unmarried is an important risk factor for the evolving mental and emotional disorders due to associated feelings of loneliness and having poorer social support (Inaba et al., 2005; Yan et al., 2011). Harmoniously with other published articles confirming that persons with low education levels are more vulnerable to mental illness, an inverse association between educational level and fear was revealed in this study (Araya et al., 2003; Aye et al., 2020). In addition to that, elevated levels of fear were observed in unemployed subjects, corresponding with the findings of previous studies (Araya et al., 2003; Weissman et al., 1996). One possible explanation for that is that people without work suffer from low monthly income – or even poverty – and, thus, will not have access to healthcare services.

Although the prominent results, this study was affected by some limitations, first participants were recruited randomly from the general Lebanese population without having any information regarding their psychological backgrounds, this, of course, reduced the possibility of targeting clinical validity – including estimation of sensitivity, specificity, and optimal cut-offs of the A-FCV-19S. In addition to that, the self-reporting characteristics of this scale accelerate the likelihood that the individual's responses may be affected by his/her social or personal aspects. Not to mention that additional studies should be conducted in different Arabic countries to guarantee the reproducibility of our findings. However, it's important to state that to the best of our knowledge, this study is the first cross-sectional one to translate, cross-culturally adapt and validate a specific fear measure (FCV-19S) to the Lebanese society. Accordingly, the A-FCV-19S could be a supportive element of assessment and management of the general population not only during COVID-19, but also in the face of any forthcoming epidemics of infection.

Conclusion

Reliability, as well as construct and convergent validity of the Lebanese Arabic version of the FCV-19S, displayed statistically protruding results, allowing this version to show

robust psychometric properties in a sample of Lebanese subjects. Noting that, the use of such scale can help in targeting persons with fear symptoms during pandemics and thus reduce fear symptoms among these persons. Consequently, it can be concluded that the A-FCV-19S is a valid and reliable fear-specific instrument that can be used to assess and monitor the psychological problems deriving from COVID-19 among Lebanese individuals of both genders.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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