RESEARCH ARTICLE

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The validation of the Arabic version of the Coronavirus-2019 Phobia Scale (C19P-SA) and individual differences in coronaphobia experiences among an Arabic population

Abdelsalam Alnaddaf[1] | Mustafa Baloğlu[2]

[1]Department of Physical Education, College of Sport Sciences, Mutah University, Mut'ah, Jordan

[2]Department of Special Education, College of Education, Hacettepe University, Ankara, Turkey

Correspondence
Mustafa Baloğlu, Department of Special Education, College of Education, Hacettepe University, College of Education, Ankara, Turkey.
Email: baloglu@hacettepe.edu.tr and baloglu@hotmail.com

Abstract

The current study adapted the Coronavirus 19 Phobia Scale into Arabic and tested the psychometric properties of the adapted version on 469 Arabic-speaking individuals (mean age = 29.57 years old; SD = 10.39; range = 9–71 years old). After confirmatory analysis found supporting evidence for the four-factor structure, consequent analysis on convergent and discriminant validity and reliability of the Arabic version are also supported. A 2 × 2 between-groups factorial multivariate analysis of variance was used to investigate individual differences in coronaphobia. Results show that there is no significant interaction effect between gender and marital status, λ = 0.973, F (8,460) = 1600, p = 0.121, partial η^2 = 0.014; however, the main effect for gender is statistically significant, λ = 0.925, F (4,464) = 9.367, p < 0.001, partial η^2 = 0.075, power = 1.000, where women score higher than men on all coronaphobia factors. In addition, the main effect for marital status is also significant, λ = 0.923, F (4,464) = 4.701, p < 0.001, partial η^2 = 0.039, power = 0.998, where singles score higher than married couples on only two coronaphobia factors: Psychological and economic. Based on the findings, we conclude that the effects of coronaphobia have similarities across nations as well as differences unique to the Arabic populations.

1 | INTRODUCTION

The coronavirus disease 2019 (COVID-19) started in Wuhan, China, and was later declared as a pandemic by the World Health Organization (WHO) in March of 2020 (WHO, 2020). The unprecedented pandemic quickly became a threat to the entire world, created chaos, and caused horror that affected various life affairs. As of May 2021, 426,384 people had been infected, 7072 people had in Saudi Arabia; 722,754 infected, 9203 died in Jordan; 240,927 infected, 14,091 in Egypt; and 514,670 infected, 9091 in Morocco (Wordometer, 2021) among some of the Arabic-speaking nations. As these numbers indicate, serious problems exist in this part of the world, even though preventive measures are put into effect to control the spread of the virus, including but not limited to, wearing muzzle face, self-isolation equipped with excess food, contact tracing, social restrictions, traveling restrictions, and lockdowns (Abd ElHafeez et al., 2021; Alyami et al., 2020; Juchnowicz et al., 2021; WHO, 2020).

The fear of COVID-19 and preventive health measures imposed by governments around the world have had dire economic consequences, including a drastic decline in the industrial, agricultural, trade, and tourism sectors, which affected the social, emotional, and psychological human spheres of lives dramatically to the extent that the world before coronavirus is not the same afterward (Alshayban et al., 2020; Alyami et al., 2020; Fenwick et al., 2021; Xiong et al., 2020; Yildirim et al., 2021). These social and psychological impacts include fear of lack of food, stress, tension, anxiety, depression, frustration, phobia, dysfunction of the nervous system, and uncertainty which appeared in an escalating and significant way during the outbreak of the corona pandemic (BinDhim et al., 2020; Juchnowicz et al., 2021).

The presence of these grave psychological effects urged experts and academics to research and evaluate these effects to help develop successful mechanisms and means to mitigate the catastrophic effects of the pandemic (Alsudias & Rayson, 2020; Yildirim et al., 2021). Moreover, the need for research stems from the importance of realizing how people deal with the pandemic and understanding procedures taken by the governments and authorities. These are essential to manage and alleviate people's fears and help them solve their economic, social, and emotional complications, and ensure the wellbeing and continuity of lives in tranquility and security (Javakhishvili et al., 2020; WHO, 2020).

With increasing research on the COVID-19 pandemic, studies focused on designing measurement tools to assess the emotional and psychological complications related to COVID-19 (Chandu et al., 2020; Cortez et al., 2020; Nikčević & Spada, 2020). For example, Ahorsu et al. (2020) designed a unidimensional scale (the COVID-19 Anxiety Syndrome Scale) that consists of seven items and to measure the fear levels due to COVID-19. This scale has satisfactory psychometric properties and is translated to different languages (e.g., Alyami et al., 2020). In addition, Taylor et al. (2020) designed a 36-item COVID Stress Scales (CSS) to measure stress among people with anxiety disorders during the pandemic. This scale includes danger and contamination fears, fear about economic consequences, xenophobia, compulsive checking and reassurance-seeking, and traumatic stress symptoms. Developed in Canada and the United States, the CSS shows reliability and validity properties. Feng et al. (2020) designed the COVID-19-related psychological distress in healthy public (CORPD) to assess suspicion, anxiety, and fear. The 14-item scale and two dimensions have significant structure validity and acceptable internal consistency reliability. Finally, Arpaci et al. (2020) developed the COVID-19 Phobia Scale (C19P-S), which has 20 items and four subscales: Psychological, Somatic, Economic, and Social. This scale has significant validity and reliability and translated into different

languages such as English, Korean, Russian, Japanese, and French (Arpaci et al., 2021; Bilgic et al., 2021; Seong et al., 2021).

However, limited research has been conducted in the Arab countries, which makes it difficult for governments to make decisions, understand people's needs, help solve their problems, and prepare the process based on scientific data (Alkhamees et al., 2020; BinDhim et al., 2020). Consequently, the lack of research and ongoing, intertwined, and hazardous effects of the corona pandemic show an urgent need for research in the Arab world using standardized measures and tools. None among the existing tools was translated into Arabic language or used in the Arab countries, except the fear of COVID-19 Scale (Ahorsu et al., 2020), which was adapted and used in Saudi Arabia by Alyami et al. (2020). Therefore, there is an urgent need in the Arab countries to develop or adapt and use a multidimensional scale to assess the psychological, somatic, social, and economic impact of the pandemic. Thus, the purpose of this study was to develop a psychometrically sound assessment instrument for assessing the levels of coronaphobia for the Arabic-speaking populations and describe the coronaphobia levels of an Arabic-speaking population.

2 | METHODS

2.1 | Sample

The C19P-SA will be used in the Arabic populations; therefore, the population of the study was people whose native language was Arabic. As a result of the convenient sampling method used, the sample included 469 people from various cities and regions of Jordan (mean age = 29.57 years old; SD = 10.39; range = 9–71 years old). In the group, 25.2% responded that they had been infected with COVID-19 (n = 118) and 9.2% had a chronic disease (n = 43). Table 1 shows the descriptive statistics on the demographic variables collected in this study. Data were obtained by an online survey platform (Qualtrics). Participants took part in the study willingly without any compensation. The research was approved by the university's Institutional Review Board (26.03.2020-E.9480).

2.2 | Measures

2.2.1 | The COVID-19 Phobia Scale (C19P-S)

The scale is both a paper-pencil and online administered instrument with 20 items. The scale items are rated on a 5-point Likert scale and form four distinct but related subscales: Psychological, Somatic, Social, and Economic (Arpaci et al., 2020). The original scale has adequate psychometric properties in several languages, such as English (Arpaci et al., 2021), Indonesian (Anggraeni et al., 2021), Korean (Bilgic et al., 2021), and Persian (Khosravani et al., 2021). Additional adaptations into Arabic, Chinese, German, Greek, French, Japanese Russian, and Spanish are currently in process.

2.2.2 | The State Anxiety Inventory (SAI)

The SAI was developed to measure transitory-emotional reactions and is a part of the State-Trait Anxiety Inventory (Spielberger et al., 1970). Twenty items measure feelings of apprehension, tension, nervousness, and worry about the current situation (i.e., state anxiety). A 4-point Likert scale, ranging from "*Not at All* (1)" to "*Very Much So* (4)," asks respondents to rate the degree to which each item indicates their current feelings. Higher scores indicate higher levels of transitory anxiety. Abdel-Khalek (1989) provided validity and reliability information on the Arabic version of the SAI.

TABLE 1 Descriptive statistics (N = 469)

	n	%
Gender		
Man	254	54.2
Woman	215	45.8
Marital status		
Married	155	33
Single	249	53.1
Other	65	13.9
Any chronic disease (other than COVID)		
Yes	43	9.2
No	426	90.8
Diagnosed with COVID19		
Yes	118	25.2
No	351	74.8
Lost someone close due to COVID-19		
Yes	304	64.8
No	165	35.2
Education		
No formal education	1	0.2
Primary school	2	0.4
Secondary school	8	1.7
High school degree	17	3.6
College degree	329	70.1
Graduate degree	112	23.9

Abbreviation: COVID-19, coronavirus disease 2019.

2.3 | Procedure

First, three Arabic-speaking-bilingual language experts independently translated the original 20 items to Arabic. Second, another group of five Arabic-native-bilingual experts examined the translated items for translation accuracy and cultural suitability. Third, three different Arabic-native-bilingual experts back-translated the Arabic items back to the original. Fourth, the back-translated and original items were compared and evaluated for linguistic and contextual fit by three Arabic-native-bilingual experts; thus, a draft of the Arabic version was achieved and administered to a small group of Arabic-speaking natives as a pilot study. Based on the feedback received during the pilot study, a few corrections were made. Finally, a set of demographic questions and the Arabic version of the COVID-19 Phobia Scale (C19P-SA; see supplement A) was administered to the sample using an online survey system (Qualtrics).

Data were screened for the assumptions of parametric statistics. Normality, homogeneity of variances, and linearity assumptions for each cell were tested at univariate, bivariate, and multivariate level. To test four

dependent variables (i.e., Psychological, Somatic, Social, and Economic) simultaneously, a between-subjects factorial multivariate analysis of covariance was used with a non-orthogonal design.

3 | RESULTS

3.1 | Reliability

Cronbach's alpha coefficient for the 20-item Arabic version is 0.92, internal consistencies for the subscales ranged from 0.752 to 0.824 (see Table 2). Cronbach's alpha coefficient for State Anxiety Inventory (SAI; Spielberger et al., 1970) is 0.92. The analyses show that data are normally distributed (Table 2). Descriptive statistics of the study variables are in Table 2.

3.2 | Convergent and discriminant validity

The Arabic version was investigated in terms of convergent validity and discriminant validity (Table 3). Results show that average variance extracted and composite reliability coefficients indicate acceptable convergent validity and discriminant validity evidence, respectively. Additionally, convergent validity evidence is found by significant correlations among the factors ($p < 0.01$).

TABLE 2 Descriptive statistics and reliability coefficients for the study variables ($N = 469$)

Study variables	Mean	SD	Skewness (SE = 0.113)	Kurtosis (SE = 0.225)	α
Psychological ($n = 6$)	17.91	5.11	0.205	0.013	0.824
Somatic ($n = 5$)	9.83	3.30	0.776	1.002	0.771
Social ($n = 5$)	13.53	3.88	0.219	0.067	0.752
Economic ($n = 4$)	9.52	3.10	0.416	0.056	0.769
State Anxiety ($n = 20$)	41.10	11.99	−0.042	−0.034	0.918

Note: In parentheses are a number of items in each respected scale.
Abbreviations: SE, standard error; SD, standard deviation.

TABLE 3 Convergent and discriminant validity

	CV	DV	Psychological	Somatic	Social	Economic
Psychological	0.829	0.454				
Somatic	0.741	0.370	0.630*			
Social	0.741	0.366	0.780*	0.651*		
Economic	0.767	0.454	0.652*	0.664*	0.681*	
State anxiety			0.399*	0.419*	0.384*	0.428*

Abbreviations: CV, Convergent validity coefficients: DV, Discriminant validity coefficients.
*$p < 0.001$.

TABLE 4 Model fit indices for the measurement models and the structural model

Fit Indices	Psychological	Somatic	Social	Economic	StructuralModel	Reference Values
GFI	≥0.986	≥0.994	≥0.989	≥0.997	≥0.915	≥0.90
AGFI	≥0.966	≥0.958	≥0.945	≥0.984	≥0.886	≥0.80
NFI	≥0.977	≥0.988	≥0.974	≥0.994	≥0.899	≥0.90
CFI	≥0.986	≥0.992	≥0.979	≥0.998	≥0.934	≥0.90
TLI	≥0.977	≥0.959	≥0.930	≥0.994	≥0.920	≥0.90
IFI	≥0.986	≥0.992	≥0.979	≥0.998	≥0.934	≥0.90
RMSEA	≤0.055	≤0.070	≤0.088	≤0.032	≤0.060	≤0.08

Abbreviations: AGFI, Adjusted Goodness of Fit; CFI, Comparative Fit Index; GFI, Goodness of Fit Index; IFI, Incremental Fit; NFI, Normed Fit Index; RMSEA, Root Mean Squared Error of Approximation; TLI, Tucker-Lewis Fit Index.

3.3 | Structural validity

Structural validity of the Arabic coronavirus-19 phobia model was tested by confirmatory factor analysis (CFA), which confirmed the model, $\chi^2(df = 157, N = 469) = 422.521$, $\chi^2/df = 2.691$, $N = 469$, $p < 0.001$. Table 4 shows various indices for the model fit. Figure 1 shows the loadings of the model's four factors. As the figure shows, variance accounted for by the factors ranged from 0.44 to 0.61.

3.4 | Causal comparative between-groups analyses

The 2 × 2 between-groups factorial multivariate analysis of variance (MANOVA) was investigated for the main effect of gender and marital status and interaction effect between gender and marital status on the C19P-SA subscales. Before the multivariate analyses; normality, homogeneity, linearity, and multicollinearity were tested A nonorthogonal design was used with SPSS MANOVA (SPSS Inc., 2000). The homogeneity of variance-covariance assumption was violated, further investigations indicated that the violation of this assumption was not problematic (Tabachnick & Fidel, 2020).

Results show that there is no significant interaction effect, $\lambda = 0.973$, $F (8,460) = 1600$, $p = 0.121$, partial $\eta^2 = 0.014$. However, MANOVA shows that the main effect for gender is statistically significant, $\lambda = 0.925$, $F (4,464) = 9.367$, $p < 0.001$, partial $\eta^2 = 0.075$, power = 1.000, where women score higher than men on all factors, psychological, $F (1,467) = 18.154$, $p < 0.001$, partial $\eta^2 = 0.037$; somatic, $F (1,467) = 14.288$, $p < 0.001$, partial $\eta^2 = 0.030$; social, $F (1,467) = 3.492$, $p = 0.048$, partial $\eta^2 = 0.008$, economic, $F (1,467) = 22.383$, $p < 0.001$, partial $\eta^2 = 0.046$. In addition, the main effect for marital status is also statistically significant, $\lambda = 0.923$, $F (4,464) = 4.701$, $p < 0.001$, partial $\eta^2 = 0.039$, power = 0.998. Singles score higher than married couples on two factors: Psychological, $F (2,466) = 5.305$, $p = 0.005$, partial $\eta^2 = 0.022$ and economic, $F (2,466) = 13.149$, $p < 0.001$, partial $\eta^2 = 0.053$; However, They not significant different on the somatic, $F (2,466) = 2.773$, $p = 0.063$ or social factors, $F (2,466) = 1.561$, $p = 0.211$.

COVID-19 phobia levels across other study variables were tested by MANOVA. There is no omnibus difference between those who have a chronic disease and who do not have any chronic disease, $\lambda = 0.176$, $F (4,464) = 0.528$, $p = 0.715$ or between those who are diagnosed with COVID-19 and who are not diagnosed with COVID-19, $\lambda = 0.992$, $F (4,464) = 0.943$, $p = 0.439$. However, MANOVA shows that the differences between people who lost someone close due to COVID-19 score significantly higher than those who have not lost anyone close,
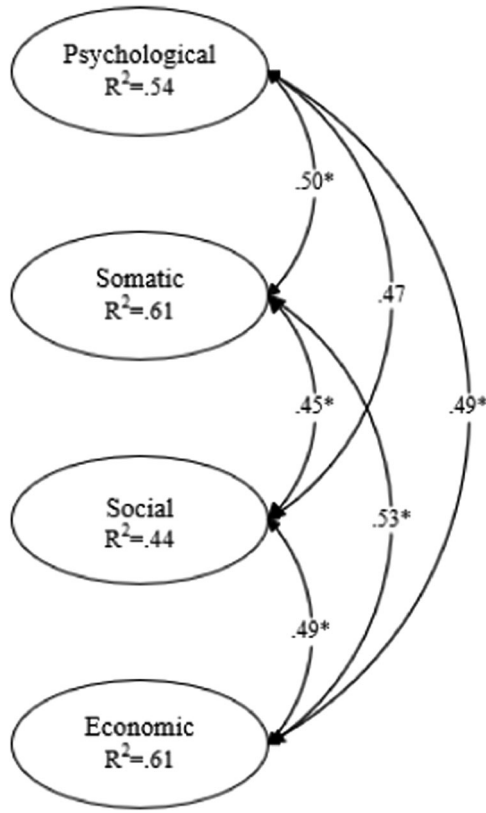
FIGURE 1 The measurement model

$\lambda = 0.929$, $F(4,464) = 8.825$, $p = 0.001$, partial $\eta^2 = 0.071$, power $= 0.999$. Post hoc analyses show that individuals who lost someone close to them due to COVID-19 score higher on three out of the scale's four factors: Psychological, $F(1,467) = 23.557$, $p < 0.001$, partial $\eta^2 = 0.048$; somatic, $F(1,467) = 16.381$, $p < 0.001$, partial $\eta^2 = 0.034$: and social, $F(1,467) = 13.996$, $p < 0.001$, partial $\eta^2 = 0.029$. There is no significant difference between the groups on the economic factor, $F(1,467) = 20.825$, $p = 0.141$. Finally, MANOVA shows that no significant difference based on the educational level of the participants, $\lambda = 0.951$, $F(4,464) = 1.165$, $p = 0.276$.

4 | DISCUSSION

The current study translated, adapted, and investigated the psychometric properties of the C19P-S into Arabic-speaking populations (C19P-SA). Initial results indicate that the adaptation is successful as evidenced by observed acceptable validity and reliability coefficients. Construct validity confirms the four-subscales of the C19P-SA and convergent and discriminant validity coefficients further support the adapted scale. In addition, the C19P-SA items are internally consistent. Moreover, results show that the C19P-SA differentiates between individuals who lost close people to them and those who have not on several factors, which lend support to the scale's discriminant validity; however, the effect size of the differences are minimal and should be interpreted with care. Nonetheless, based on all validity and reliability findings, we conclude that the C19P-SA may be used to assess COVID-19 phobia levels in Arabic-speaking populations. However, the current results came from one of the many Arabic-speaking populations (i.e., Jordan); therefore, further investigations are warranted across other Arabic-speaking nations as there may be subcultural differences.

The confirmed four-factor structure of the Arabic version is found to be similar to the original (Arpaci et al., 2020), English (Arpaci et al., 2021), Persian (Khosravani et al., 2021), and Korean (Bilgic et al., 2021) versions; however, it is slightly different from the Indonesian version (Anggraeni et al., 2021). Even though cross-cultural differences exist in phobic reactions, we believe that because coronavirus is affecting the entire world simultaneously, effects may be shared with less than usual invariably across the different parts of the world. In addition, the consistency of the items and factors of the original Coronavirus 19 Phobia Scale across cultures is partly because the scale followed the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, DSM–5, American Psychiatric Association, 2013).

As stated by the DSM–5 (APA, 2013), women reported higher phobic reactions on all scale factors. In addition to supporting the validity of the Arabic version, these results indicate that women, in general, are more vulnerable in terms of coronavirus. More complicated effects of marital status may partly be attributed to cultural the structure of the population. Similarly, Bilgic et al. (2021) found a significant relationship between the level of education and coronaphobia. Individuals with more education showed higher coronaphobia reactions in a Korean sample; however, this study found no significant difference based on the level of education, $\lambda = 0.951$, $F(4,464) = 1.165$, $p = 0.276$. Similar to Khosravani et al. (2021), we also found that coronaphobia is significantly related to transitory anxiety. However, these results do not indicate causality between the two conditions. We still do not know whether coronavirus phobia triggered anxiety reactions or vice versa.

Finally, a few limitations of the current research need to be addressed at this point. First, the study employed a descriptive design and therefore significant relationships between the subscales or differences among the levels of independent variables do not imply causality. Second, the sample was obtained through the convenience sampling method; therefore, results can only be generalized to populations that share similar characteristics to this sample. Third, even though the Arabic peninsula shares many similarities, there may be subcultural differences among various Arabic-speaking countries; thus, future studies should investigate other Arabic-speaking nations.

ETHICS STATEMENT

Ethical Approval "All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards." All procedures conducted were approved by the Ethics Committee of KMU (26.03.2020-E.9480).

PEER REVIEW

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Abdelsalam Alnaddaf http://orcid.org/0000-0001-5293-7100
Mustafa Baloğlu http://orcid.org/0000-0003-1874-9004

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SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

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