



Structural Equation Modeling in Development and Validating a Scale of Psychological Burnout Related to the COVID-19 Pandemic for Faculty Members in the Kingdom of Saudi Arabia

Dr. Ayed Abdullah Muhammad Almoied

Department of Psychology - King Khalid University

Abstract:

This study aimed to verify the factorial construction of the burnout scale related to the outbreak of the COVID-19 pandemic among faculty members in Saudi universities. This study used the descriptive approach. The researcher applied the burnout scale related to the COVID-19 outbreak via the google documents online, on a sample of 321 (146 males and 175 females) faculty members in Saudi public universities, who were randomly selected. The study revealed a number of results, most notably there are positive and statistically significant correlation coefficients between the main factor of burnout related to the COVID-19 pandemic and other factors (emotional exhaustion, depersonalization, and low work achievement). The results of the exploratory factor analysis, Cronbach's alpha stability coefficient, and half-Split also indicated that the burnout scale related to the COVID-19 pandemic had high validity and reliability indicators. The results of the confirmatory factor analysis using structural equation modeling also resulted in a goodness indicators with the proposed measurement model for burnout related to the COVID-19 pandemic. These results provide practical applications for planning counseling and psychotherapy interventions for faculty members affected by psychological burnout related to the COVID-19 outbreak

Email:

aaalmueed@kku.edu.sa

ORCID: 0000-0000-0000-0000



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استخدام نمذجة المعادلات البنائية في تطوير والتحقق من الخصائص السيكومترية لمقياس الاحتراق النفسي الناتج عن تفشي وباء COVID-19

لدى اعضاء هيئة التدريس بالمملكة العربية السعودية

د.عائض عبد الله محمد آل معيض

جامعة الملك خالد - المملكة العربية السعودية

الملخص:

هدف هذا البحث إلى التحقق من البناء العاملي لمقياس الاحتراق النفسي المرتبط بتفشي جائحة كوفيد-١٩ لدى أعضاء هيئة التدريس في الجامعات السعودية. استخدمت هذه الدراسة المنهج الوصفي. وطبق الباحث مقياس الاحتراق النفسي المرتبط بتفشي وباء كوفيد-١٩ عبر الإنترنت، وذلك على عينة مكونة من ٣٢١ (١٤٦ ذكور و ١٧٥ إناث) عضو من أعضاء هيئة تدريس بالجامعات الحكومية السعودية، تم اختيارهم عشوائياً. توصلت الدراسة إلى عدد من النتائج من أبرزها وجود معاملات ارتباط إيجابية وذات دلالة إحصائية بين العامل الرئيسي للاحتراق النفسي المرتبط بتفشي وباء كوفيد-١٩ وعوامل أخرى هي (الإرهاق الانفعالي، وتبدد الشخصية، وانخفاض إنجاز العمل). كما أشارت نتائج التحليل العامل الاستكشافي ومعامل ثبات ألفا كرونباخ والتجزئة النصفية، إلى تمتع مقياس الاحتراق النفسي المرتبط بتفشي وباء كوفيد-١٩ بمؤشرات صدق وثبات عالية. كما أسفرت نتائج التحليل العامل التوكيدي باستخدام نمذجة المعادلة البنائية عن مطابقة جيدة للنموذج القياسي المقترح للاحتراق المرتبط بتفشي وباء كوفيد-١٩ لدى أعضاء هيئة التدريس. توفر هذه النتائج تطبيقات عملية لتخطيط التدخلات الإرشادية والعلاجية المناسبة للمتضررين من أعضاء هيئة التدريس بالاحتراق النفسي المرتبط بتفشي وباء كوفيد-١٩.

الكلمات المفتاحية الاحتراق النفسي، الإرهاق الانفعالي، تبدد الشخصية، الإنجاز في العمل، أعضاء هيئة التدريس، كوفيد-١٩

1. Background:

What happened during the closure period caused by the COVID-19 outbreak was not the same for everyone. Some have been forced to live alone in complete isolation for months, while others have been forced to live for weeks with a life partner with whom they no longer have affection. Some saw the months of isolation as a positive experience and an opportunity to slow down a bit from the rhythm of



life and engage in activities such as walking, getting some relaxation, or enjoying the best possible time with their children. Whatever form life may have taken during the quarantine, there is a fact that all our usual living styles have changed. Therefore, the quarantine measures resulted in chronic stresses that caused many psychological problems for individuals of different ages and jobs (Arnout, 2020). Teaching is one of the jobs that infilunced by the COVID-19 pandemic outbreak. Because of the precautionary measures imposed by the COVID-19 pandemic, face-to-face learning transformed into distance learning. Studies revealed that distance learning increased the workload and requirements of faculty members and caused burnout in faculty members who failed to cope with stress (Al-gharaibeh et al., 2021; Daumiller et al., 2020; Chirico et al., 2022).

The COVID-19 outbreak had severe economic consequences and turned from a health crisis to a significant economic shock and problem in the labor market. Many employees lost their jobs, and their mental health was negatively affected by the workloads that led to physical and emotional exhaustion (Arnout& Abdelmotelab, 2020).

The teaching profession in university is among the professions in which employees face various stresses resulting from the diversity of tasks required: teaching and preparing lectures, preparing studies, administrative tasks, community service activities, and family and social obligations. There are an increasing number of studies on burnout of university faculty members (Al-gharaibeh et al., 2021; Al-shoqran et al., 2021; Alves et al., 2019; Arrona-Palacios et al., 2022; Cassidy-Vu et al., 2017; Daumiller et al., 2020; Durning et al., 2013; Galindo-Dominguez et al., 2020; Haghhighinejad et al., 2021; Kaveh et al., 2020; Khosravi et al., 2022; Mansourian et al., 2021; McKinley et al., 2022; Nodoushan et al., 2021; Reddy, 2012) showed a high level of burnout among faculty members. Aljaroudi (2014) and Reddy (2012) found an average level of psychological burnout among faculty members in the Kingdom of Saudi Arabia.

The World Health Organization stated on May 28, 2019 (WHO, 38) that burnout is not a disease but an occupational phenomenon associated with the workplace and not a general disease of life. The combustion represents a breakdown of the employees' relationship with their workplaces.

Frudenberger (1974) is considered the first to describe the burnout phenomenon, as most of those who work in various



professions suffer from fatigue, stress, and burnout (Maslach, Schaufeli & Leiter, 2001). From the perspective of Hans Selye's stress theory (Selye, 1977), combustion is the last stage for an individual to face stress. Burnout has different symptoms, including lack of ability to control one's emotions, anger, extreme sadness, excessive sensitivity accompanied by emotional coldness, and indifference to others, loss of concentration, lack of attention, disturbance of the remembering process, and decreased ability to make decisions, social isolation, headache, vomiting, joint pain, heart palpitations, sweating, sexual problems, insomnia, stomach ulcers, asthma, diabetes, arthritis, high blood pressure, high cholesterol, eating behavior disorder, loss of desire for it, and lack of motivation. Thus, burnout increases employees' medical use, and they seek psychological counseling (Sung, 2020).

There are multiple definitions of burnout as an internal negative psychological experience that includes feelings, attitudes, motives, and inappropriate negative responses to self and others. Maslach et al. (1996) defined burnout as a state of physical, emotional, and mental exhaustion manifested in extreme fatigue, a sense of worthlessness, hopelessness, and the development of a negative self-concept and negative attitudes toward work life and others.

In 2022 burnout was included in the International Classification of Diseases 11th revision ICD-11. Burnout was "a syndrome resulting from chronic stress in the workplace which the employee could not manage effectively" [39]. According to ICD-11 (WHO, 2022), burnout is related explicitly to phenomena in the work context and does not describe experiences in other areas of life. ICD-11 identified three dimensions of burnout: emotional exhaustion, depersonalization, and decreased personal accomplishment at work.

- **Emotional exhaustion:** Refers to the feeling of exhaustion, which leads to the inability to give.
- **Depersonalization:** Refers to an increase in mental distance from one's job or a feeling of negativity or cynicism related to one's job.
- **Decreased personal accomplishment at work:** refers to the feelings of ineffectiveness and lack of accomplishment and the tendency to evaluate personal achievements in a negative way, which is represented by feelings of depression, withdrawal, lack of productivity, inability



to adapt to pressures, a sense of failure, and a lack of self-esteem.

According to the theory of coping with stress, the individual's awareness of threats from external events and his inability to control them, such as COVID-19, leads to maladaptive behaviors and affects his physical and psychological health (Carlotto & Camara, 2008; Lazarus & Folkman, 1984; Lazarus, 2000; Wen et al., 2004). Selye (1977) also mentioned that when the individual's efforts to cope with chronic stress fail, psychological burnout will result.

The Maslach Scale MBI is the most widely used tool for measuring employee burnout. By reviewing the theoretical literature about the measurement of burnout related to COVID-19 among faculty members, to the best of our knowledge, there are limited studies that sought to develop a questionnaire for this purpose, especially in the Saudi environment. Therefore, the current study attempted to develop a scale of burnout related to COVID-19 for university faculty members, verify its psychometric properties by formulating a theoretical model of burnout related to COVID-19 for faculty members (figure 1), and test its good fitness with the data of the study sample using structural equation modeling.

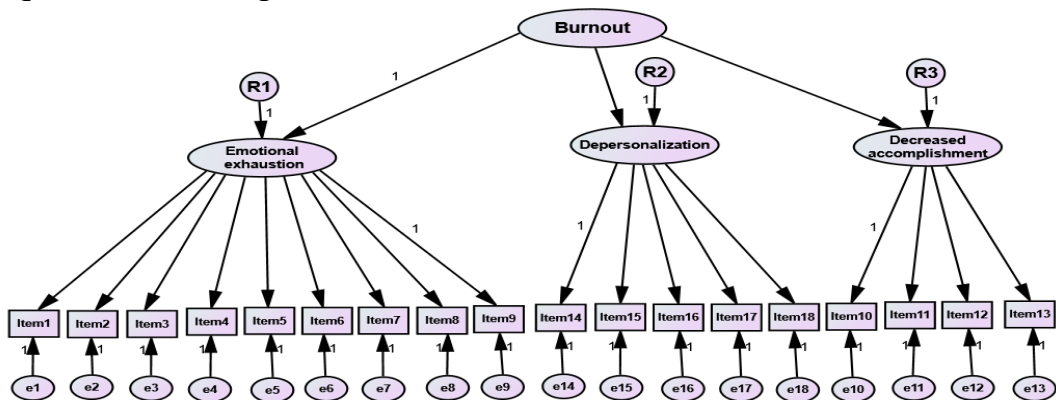


Figure 1. The hypothesized model for burnout related to the COVID-19 outbreak

3. Methods:

2.1. Research design and sampling

The current study was conducted after the transformation of learning to distance learning because of the COVID-19 pandemic outbreak and continuing the stress of distance learning on faculty members from April 29 to June 11, 2022. Data were collected from Saudi university faculty members through an online questionnaire. Before answering the online questionnaire, all participants were

informed about the purpose and procedures of this study by an online notification; after this, every participant provided online written informed consent. The researcher required all participants to complete all items before submitting their answers and avoid resubmitting their responses. After checking the submitted replies, the researcher found among 374 participants, 321 replies met the criteria of the current study (such as: faculty members in public universities, teaching courses remotely at the time of the COVID-19 pandemic, with an academic degree from an assistant professor or higher) with a completion rate of 85.83%. The participants' ages ranged from 36 to 57 years of age; 146 (45.48%) were males; 175 (54.52%) were females. All participants work as faculty members in Saudi universities.

Table 1. Summary of sociodemographic characteristics (N = 321)

Variables	n (%)
Mean Age (SD)	39.80
Sex	
Male	146 (45.48%)
Female	175 (54.52%)
Faculty	
Home economics	45 (14.02%)
Education	82 (25.54%)
Science	39 (12.15%)
Engineering	33 (10.28%)
Art	45 (14.02%)
Medicine	15 (4.68%)
Applied Medical	36 (11.21%)
Sharia	26 (8.10%)
Total	321 (100.0%)

3.2. Measures

Burnout related to the COVID-19 questionnaire:

The researcher developed a self-report questionnaire to measure faculty members' burnout related to the COVID-19 pandemic (Appendix.1). Participants reported the extent to which they felt burnout through 18 items (e.g., I suffered from family tensions because of my work burdens, During distance learning, I felt like a failure because of its many requirements, I was struggling with time to accompli

sh my daily tasks, I had sleep problems after shifting to distance education, I lost my passion for life due to the many work requirements, My academic participation decreased because of the distance education burden), using a 5-point scale (from 1 = ‘strongly disagree’ to 5 = ‘strongly agree’).

3.4. Data analysis:

The researcher organized and analyzed data using IBM SPSS 21.0 and IBM SPSS Amos 25.0 Graphics. Descriptive statistics, such as the Spearman correlation coefficient and structural equation modeling SEM, were used to examine the hypothesized theoretical model of burnout related to COVID-19. According to Win et al. [21], the criteria of goodness-of-fit parameters indices of the hypothesized model were $CFI \geq 0.90$, $TLI \geq 0.90$, $RMSEA \leq 0.08$, and standardized root mean square residual (SRMR) ≤ 0.08 . In this study, the value of significance was 0.05.

4. Results:

4.1. Burnout related to the COVID-19 outbreak Items analysis:

The study sample replies of burnout related to the COVID-19 items were analyzed by calculating the percentages, means, and standard deviation of the 5 Lickert answer choices for each item; table 1 shows the results.

Table 1. Descriptive results of burnout related to COVID-19 items for sample N=321

Items	Scale (%)					M	SD
	1	2	3	4	5		
B1	18.4	15.2	23.4	29	16.8	3.134	1.345
B2	15	14.6	3.2	27.7	12.5	3.081	1.232
B3	2.2	15.9	23.7	33.3	24.9	3.629	1.088
B4	10.9	12.8	24.9	33	18.4	3.352	1.229
B5	7.8	10.9	22.4	32.1	26.8	3.592	1.211
B6	5.6	9.7	12.5	32.7	39.6	3.909	1.186
B7	15.6	17.1	29.30	24.6	13.4	3.031	1.257
B8	9.3	11.2	21.2	30.8	27.4	3.558	1.259
B9	7.5	9.7	13.1	32.4	37.4	3.825	1.240
B10	51.7	25.2	12.5	7.8	2.8	1.847	1.089
B11	17.5	57.9	10.6	1.31	0.6	2.209	.907
B12	10.9	60.1	16.8	10	2.2	2.324	.877

B13	63.9	14.3	13.7	7.5	0.6	1.667	1.011
B14	10	23.7	42.4	16.5	7.5	2.878	1.043
B15	13.5	32.4	32.4	15.3	4.7	2.617	1.063
B16	9	23.4	24.9	29.9	12.8	3.140	1.179
B17	21.2	25.5	24	20.9	8.4	2.698	1.249
B18	6.5	22.4	29.9	30.8	10.3	3.159	1.088

Scale: 1 Strongly disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly agree

The results shown in Table 1 for all categories of replies to the items of the burnout related to the COVID-19 scale according to the percentages, averages, and standard deviations of the responses indicated that all items are discriminatory and that all of them contribute to measuring what they were designed to measure.

4.2. Exploratory factor analysis (EFA):

The researcher used exploratory factor analysis (EFA) to extract the burnout related to COVID-19 questionnaire factors; after checking the adequacy of the analysis sample ($KMO=0.842$, Bartlett's= 2789.850 , $df, 153$, P value= 0.000); the results are shown in Table 2.

Table 2. Saturations of the items of the burnout related to the COVID-19 questionnaire by factors after the Rotated Component Matrix

Items	Emotional exhaustion	depersonalizati on	Decreased accomplishment
1	0.755		
2	0.802		
3	0.526		
4	0.784		
5	0.813		
6	0.701		
7	0.776		
8	0.772		
9	0.724		
10			0.864
11			0.721
12			0.645
13			0.885
14		0.773	

15		0.717	
16		0.823	
17		0.769	
18		0.794	
Total	5.086	3.446	2.274
% of Variance	27.7417%	17.368%	14.922%
Cumulative %	27.741%	45.109%	60.031%

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

The results in table 2 indicated that the exploratory factor analysis revealed three factors of burnout related to the COVID-19 questionnaire, which accounted for 60.03% of the total variation, and the saturation of items ranged between 0.645 to 0.864; these factors are:

The first factor: This factor was saturated with nine items with a percent of (27,741% of the total variance), and it revolves around the weakness and depletion of energy and exhaustion of the faculty member due to the many burdens of distance education and his inability to give as usual to his students, family, and others; this factor can be called as "Emotional exhaustion related to COVID-19."

The second factor: This factor was saturated with five items with a percent of (17.368% of the total variance), which reflects increasing the mental distance between the faculty member and his work, his feeling of negativity, reluctance to work, ridicule of his job, and the effort he makes with his students and the tasks entrusted to them; thus, this factor can be called as "Depersonalization related to COVID-19."

The third factor: This factor was saturated with four items with a percent of (14.922% of the total variance), which means revolves around the faculty member's feeling of failure, lack of self-esteem, lack of achievement, lack of effectiveness, and negative evaluation of his personal achievements as a result of his inability to adapt to the stresses facing him; this factor can be called as "Decreased work accomplishment related to COVID-19."

From the findings shown in table 2, we can conclude that these three factors reflect the burnout related to COVID-19 for faculty members, which that researcher defined as "a disturbance in the faculty member's ability to adapt as a result of exhausting his energy in the face of chronic and acute occupational stress and losing hope of

overcoming its causes in the absence of social support; which results in a feeling of inability to achieve personal and negative self-evaluation. Burnout related to COVID-19 among faculty members leads to a terrible internal void in which the faculty member lives after all his energies have been drained in his attempt to adapt to the occupational stress and a large number of requirements, their conflict or ambiguity; that affects his physical and psychological health and his relationships with others at work and outside."

These three factors are in accordance with the dimensions identified by ICD-11 (WHO, 2022), describing different symptoms of faculty members in their work through the COVID-19 outbreak that can generate burnout.

4.3. Confirmatory factor analysis to verify burnout related to COVID-19:

The second-order confirmatory factor analysis was used to verify the goodness of fit of the proposed theoretical model of burnout related to COVID-19 with the theoretical data of the study sample; table 3 and figure 2 show the results.

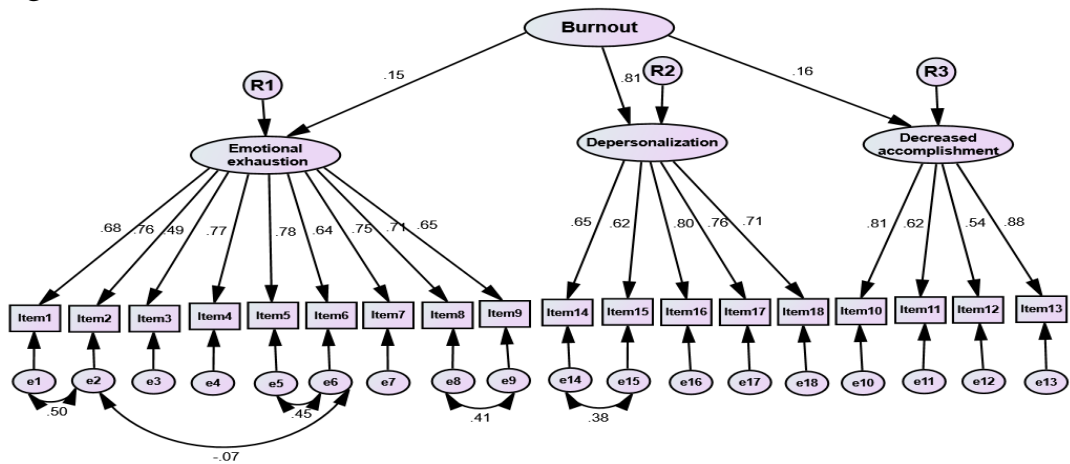


Figure 2. The results of second-order confirmatory factor analysis
Table 3. The goodness of fit parameters criteria for the proposed theoretical model of burnout related to COVID-19

Goodness-of-fit parameters	Values	Criteria
χ^2/df	2.073	
Df	127	
GFI	0.914	
NFI	0.910	
RFI	0.900	

IFI	0.950	
TLI	0.939	≥ 0.90
CFI	0.950	≥ 0.90
RMSEA	0.05	≤ 0.08
AIC	351.260	
BCC	356.815	
BIC	517.203	
CAIC	561.203	

The results shown in table 3 revealed that a three-factor confirmatory factor analysis (CFA) model indicated a goodness fit of the model ($\chi^2/df = 2.073$; comparative fit index (CFI) = 0.950; Tucker-Lewis index (TLI) = 0.94; root mean square error of approximation (RMSEA) = 0.05).

4.4. Internal consistency:

The correlation coefficients were calculated between the three factors that make up the burnout related to COVID-19; table 4 shows the results:

Table 4. Pearson correlations between burnout related to COVID-19 factors

Factors	Emotional exhaustion	Depersonalization	Decreased work accomplishment	Total
Emotional exhaustion	1	.100	.013	.828**
Depersonalization	.100	1	.209**	.561**
Decreased work accomplishment	.013	.209**	1	.394**
Total	.828**	.561**	.394**	1

*Correlations are significant at the 0.01 level (2-tailed).

The results shown in Table 4 refer to the relationships between burnout related to COVID-19 factors among faculty members as found in the structural model and the structural equation, which shows the correlation coefficients between burnout related to COVID-19 and three factors were significant at the level of 0.01. The correlations between burnout related to COVID-19 with each emotional exhaustion, depersonalization, and decreased work accomplishment were (0.828, 0.561, and 0.394) respectively.

Also, the correlation coefficients were calculated between the 18

items of burnout related to the COVID-19 questionnaire; table 5 shows the results:

Table 5. Correlations between factors of burnout related to COVID-19 indicators

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18
B1	1	.757	.771	.588	.479	.376	.498	.524	.447	.921	.521	.621	.892	.541	.921	.568	.774	.821
B2	.7571	1	.809	.639	.533	.400	.589	.511	.535	.667	.779	.892	.772	.921	.542	.801	.632	.881
B3	.771	.8091	1	.882	.782	.829	.569	.892	.789	.771	.821	.729	.689	.593	.785	.693	.825	.793
B4	.588	.639	.8821	1	.792	.775	.542	.679	.742	.583	.882	.594	.746	.398	.765	.596	.771	.854
B5	.476	.479	.782	.7921	1	.879	.698	.492	.579	.431	.398	.493	.863	.931	.659	.488	.491	.783
B6	.367	.400	.879	.775	.8791	1	.784	.593	.883	.638	.884	.852	.766	.731	.844	.798	.699	.491
B7	.498	.589	.569	.542	.698	.7841	1	.789	.547	.442	.754	.843	.679	.543	.661	.637	.805	.773
B8	.524	.511	.892	.679	.492	.593	.7891	1	.781	.773	.678	.901	.687	.471	.568	.445	.880	.452
B9	.447	.535	.789	.742	.579	.883	.547	.7811	1	.886	.481	.773	.907	.666	.591	.776	.498	.553
B10	.921	.667	.771	.583	.431	.638	.442	.773	.8861	1	.781	.777	.850	.679	.825	.770	.782	.884
B11	.521	.779	.821	.882	.398	.884	.754	.678	.481	.7811	1	.663	.581	.620	.815	.913	.881	.930
B12	.621	.892	.729	.594	.493	.852	.843	.901	.773	.777	.6631	1	.781	.468	.885	.901	.557	.699
B13	.892	.772	.689	.746	.863	.766	.679	.687	.907	.850	.581	.7811	1	.835	.791	.880	.991	.799
B14	.541	.921	.593	.398	.931	.731	.543	.471	.666	.679	.620	.468	.8351	1	.897	.690	.798	.590
B15	.921	.542	.785	.765	.659	.844	.661	.568	.591	.825	.815	.885	.791	.8971	1	.398	.848	.673
B16	.568	.801	.693	.596	.488	.798	.637	.445	.776	.770	.913	.901	.880	.690	.3981	1	.698	.931
B17	.774	.632	.825	.771	.491	.699	.805	.880	.498	.782	.881	.557	.991	.798	.848	.6981	1	.786
B18	.821	.881	.793	.854	.783	.491	.773	.452	.553	.884	.930	.699	.799	.590	.673	.931	.7861	1

* Correlations are significant at the 0.01 level (2-tailed).

4.5. Reliability:

To verify the reliability of burnout related to COVID-19 total score and subscales, Cronbach's α and Split-half were used; table 6 shows the results.

Table 6. The results of Cronbach's α and Split-half for burnout related to COVID-19 total score and subscales

Scale	Cronbach's α	Split-Half
Emotional exhaustion	0.898	0.859
Depersonalization	0.843	0.837
Decreased work accomplishment	0.806	0.830
Total	0.831	0.674

The reliability findings shown in table 6 are acceptable outcomes. Cronbach's α for subscales (0.890, 0.843, 810) and the total scale was (0.831). The higher scores in this questionnaire reflect higher levels of burnout related to COVID-19.

5. Discussion:

The burnout related to COVID-19 questionnaire was developed for university faculty according to the theoretical background on burnout by ICD-11 (WHO, 2018, 2022) and Maslach (1996). For this questionnaire to be a valuable tool in scientific research and to reach practical results, the psychometrical characteristics were verified, and indicators of validity and reliability were extracted from the study sample. The analysis of the items shows that all items are discriminatory and contribute to measuring burnout related to COVID-19 among faculty members. Also, the extraction method performed the exploratory factor analysis (EFA); the results showed three factors explain 60.031% of the total variance: emotional exhaustion, depersonalization, and decreased work accomplishment.

The university teaching profession represents a different professional experience, which may provide the faculty member with positive and good experiences. At the same time, it may be a source of many stresses such as teaching, research, preparation of lectures, etc., and then may lead to symptoms of burnout. Many studies (Arrona-Palacios et al.; Bhui et al., 2016; Cassidy-Vu et al., 2017; Durning et al., 2013; Galindo-Dominguez et al., 2020; Garcia et al., 2008; Haghighejad et al., 2021; Lipp, 2002; Maslach et al., 1992; McKinley, 2022; Nodoushan et al., 2021; Oginska-Bulik, 2002; Polman et al., 2010; Pruessner et al., 1999; Reddy, 2012; Seo et al., 2022; Sousa & Mendoca, 2009) indicated that continuous exposure to work stress and the absence of social and occupational support sources might lead to symptoms of occupational burnout.

Also, the structural equation model technique conducted the second confirmatory factorial analysis (CFA). Results revealed a factor from the second order called "burnout related to COVID-19" and three factors of the first order: emotional exhaustion, depersonalization, and decreased work accomplishment, calculating their correlation coefficients and specifying a model with (EFA) to ensure its validity. Also, the internal consistency, estimated by Cronbach's alpha and Split-half, was considered acceptable and adequate for all three factors and the total scale.

Sürücü & Maslakçı (2020) emphasized that it is crucial in studies to verify the psychometrical characteristics of the measurement tools used. Researchers develop a conceptual model that includes certain variables for the problems identified in their studies or for the



phenomenon they want to study. Next, they collect and analyze the data obtained through a questionnaire to test the conceptual model they have developed. The measuring instrument must have specific characteristics to achieve valuable results in the study. The first of these qualities is honesty.

The scale's validity indicates whether the measurement tool measures the behavior or characteristic it aims to measure, and it measures how well the measurement tool performs its function. Validity is determined by a meaningful and appropriate interpretation of the data obtained from the measurement tool as a result of the analyses. Another advantage that a measuring instrument should have is reliability. The scale's reliability indicates the measured values obtained in repeated measurements under the same conditions using the same instrument. Reliability is not only a characteristic of the measuring instrument but also a characteristic of the results of the instrument. Thus, it is clear that the validity and reliability of the instrument are indispensable features. A study using an instrument that does not have one or both features will not yield valuable results. For this reason, measurement tools used in studies must be valid and reliable (Sürücü & Maslakçı, 2020).

Although validity and reliability are closely related, they express different instrument psychometrical characteristics. The instrument may be reliable without being valid, but it is also likely to be reliable if it is valid. However, reliability alone is not sufficient to guarantee validity. Even if the instrument is reliable, it may not accurately reflect the behavior or characteristic to be measured. For this reason, researchers must test the validity and reliability of the instrument they intend to use, and the instrument must meet these two conditions. Otherwise, researchers will not be able to correctly and properly interpret the results of their research.

According to the theoretical model of burnout, burnout related to the COVID-19 pandemic is considered a process in which the employee retreats from performing his duties and job obligations. This burnout goes through four stages: fascination, stagnation, frustration, and indifference (Fernandes & Rocha, 2009; Lipp, 2002; Nodoushan et al., 2021). Employees who are loyal and committed to their job and have a strong desire for occupational success are the most vulnerable to burnout (Mansourian et al., 2021). Maslach, Schaufeli & Leiter (2001) argued that there are many different causes of burnout, including



personal factors such as personality traits. And also, organizational factors, including workload, work rhythm, working times, boredom, standards and methods of work, defining roles, controlling work, and freedom of decision-making, may lead to burnout, especially in the social absence in the workplace and family.

In addition to these causes of burnout, the outbreak of the COVID-19 epidemic has contributed to an increase in work and family burdens on university faculty members. Therefore, the outbreak of COVID-19 and its continuation from 2019 until now is one of the causes of burnout. Studies found that the COVID-19 outbreak related to increasing burnout among faculty members, such as (Arrona-Placios et al., 2022; Khosravi et al., 2022).

6. Conclusion:

The study results showed that burnout related to COVID-19 has adequate and acceptable validity and reliability indicators. These findings reflect that this questionnaire has good psychometrical characteristics and is suitable for application to faculty members in Saudi universities. The hypothesized measurement model for burnout related to the COVID-19 outbreak has the goodness of fit indicators with the data of the study sample. These findings will provide a new measurement tool for the burnout related to COVID-19 for faculty members with goodness fit indices, validity, and reliability, according to a theoretical model consisting of three dimensions of ICD-11 (2022) and Maslach (1982).

Limitations and Future Directions:

One of the limitations of this study is a descriptive design used to verify the psychometrical characteristics of burnout related to the COVID-19 questionnaire. And another limitation represented in this study was conducted on a sample of faculty members in Saudi universities, not other employees or universities in other countries. Thus, in light of these limitations, future research can be directed to conducting studies on the psychometrical characteristics of burnout related to the COVID-19 questionnaire in other occupational groups and other countries. We also need future research studies on the level of burnout related to COVID-19 among faculty members and other employees to help psychological healthcare providers to plan counseling and therapy programs for faculty members. In addition, we need to conduct quantitative, qualitative, and mixed studies on the relationship of burnout related to COVID-19 with other psychological



variables.

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All methods were carried out in accordance with relevant guidelines and regulations, and informed consent was obtained from all subjects.

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Data Availability:

All data about the current study is available in this manuscript, and there is no more data.

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Appendices:

Appendix.1. Scale of Psychological Burnout Related to the COVID-19 Pandemic for Faculty Members

	During COVID-19, I felt exhausted while doing my job.
	During COVID-19, I thought about retiring from work due to the emotional exhaustion of work burdens.
	I have experienced family harassment because of workloads during COVID-19.
	I sought the help of a therapist several times because of exhaustion from chronic work stress after COVID-19.
	I exhausted my energy to work because of the increased workload during COVID-19.
	I suffered from time stress in completing my daily tasks during COVID-19.
	I had sleeping disturbances after the turn to distance learning.
	I lost my passion for life due to many work burdens during COVID-19.
	My academic givenness to my students decreased after COVID-19.
	After COVID-19, I no longer love my job because of the heavy workload.
	Because of the workload during COVID-19, my promotion was delayed.

	After COVID-19, the workload increased without appreciation from the supervisor.
	I wish I hadn't worked as a faculty member.
	After COVID-19, I felt worst because of the long time wastes in many online meetings.
	I felt like a failure during distance learning because of its many burdens.
	During COVID-19, I failed to be an influential faculty member because of the increased workload.
	After COVID-19, I no longer have a distinguished scientific production.
	During COVID-19, my engagement in the scientific community decreased because of the workload.