



Una evaluación de la escala sobre el miedo a la COVID-19 en docentes filipinos profesionales

An Evaluation of Fear of COVID-19 Scale in Professional Filipino Teachers

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RESUMEN.

La crisis mundial de la enfermedad del coronavirus 2019 (COVID-19) ha inducido enormemente impactos psicológicos en los humanos como el miedo. Teniendo en cuenta esta preocupación particular, existe la necesidad de probar los instrumentos utilizados para medir dicho impacto psicológico. Este estudio tuvo como objetivo evaluar las propiedades psicométricas de la Escala Miedo a COVID-19 (FCV-19) desarrollada originalmente por Ahorsu et al. (2020). Se seleccionó una muestra de 1.060 profesores profesionales de K a 12 de Mindanao, Filipinas, para participar en la encuesta en línea. El análisis preliminar mostró un alto nivel de miedo percibido a COVID-19 en los encuestados de este estudio. Los resultados de la serie de pruebas son alentadores ya que la Escala FCV-19 generó una validez de constructo robusta para modelos de estructura de uno y dos factores y una consistencia interna muy alta complementada por fuertes correlaciones entre ítems y correlaciones ítem-total. Los resultados respaldaron aún más la validez concurrente de la escala FCV-19 con características seleccionadas relacionadas con COVID-19 que predicen significativamente el miedo al COVID-19. En general, este artículo proporciona una evaluación del miedo al COVID-19 en una muestra de profesores profesionales y las propiedades de la Escala FCV-19 en un contexto particular. La escala FCV-19, una escala de siete ítems, es una medida válida y confiable que puede usarse para evaluar el miedo al COVID-19 de los maestros filipinos.

PALABRAS CLAVE.

Miedo, profesores, desarrollo de escalas, COVID-19, Filipinas.



**ABSTRACT.**

The global Coronavirus Disease 2019 (COVID-19) crisis has enormously induced psychological impacts on humans like fear. Considering this particular concern, there is a need to test instruments used to measure such psychological impact. This study aimed to evaluate the psychometric properties of the Fear of COVID-19 (FCV-19) Scale originally developed by Ahorsu et al. (2020). A sample of 1,060 K to 12 professional teachers from Mindanao, Philippines were selected to participate in the online survey. The preliminary analysis showed a high level of perceived fear of COVID-19 in the respondents of this study. The results of the series of tests are encouraging as the FCV-19 Scale generated a robust construct validity for both one- and two- factor structure models and a very high internal consistency complemented by strong inter-item correlations and item-total correlations. The results further supported the concurrent validity of the FCV-19 Scale with selected COVID-19-related characteristics significantly predicting fear of COVID-19. Overall, this paper provides an assessment of the fear of COVID-19 in a sample of professional teachers and the properties of the FCV-19 Scale in a particular context. The FCV-19 Scale, a seven-item scale, is a valid and reliable measure that can be used to assess the fear of COVID-19 of Filipino teachers.

KEY WORDS.

Fear, teachers, scale development, COVID-19, Philippines.

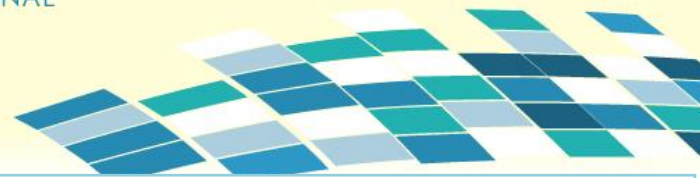
1. Introduction.

The world has been disturbed in the past two decades upon the emergence of three coronaviruses (Guarner, 2020). One of these coronaviruses is the COVID-19, which was first recorded in Wuhan, China in December 2019 and has quickly spread across continents and in more than a hundred countries (McLeod, 2020). Guarner (2020) further conveyed that with its contagious and evolving characteristics, COVID-19 rapidly transmits respiratory diseases, showing that an infected person could pass the virus to about two to three other persons. The most recent worldwide statistics of COVID-19 show a total of 236,132,082 confirmed cases and 4,822,472 deaths across the globe as of October 7, 2021 (World Health Organization, 2021).

In the Philippine setting, an increasing trend in the transmission of the virus has been recorded. As per the latest report of the World Health Organization (2021), the Philippines has 2,622,917 confirmed cases and 38,828 deaths as of October 8, 2021. The national government has planned to purchase 104 million doses of vaccines, to inoculate the majority of the Filipinos this year. Added to the ongoing efforts of the national and local government units, an inter-agency task force on emerging infectious diseases, health professionals, and the general population to flatten the curve, the Department of Health and World Health Organization (2020) have further urged the strong implementation of the COVID-19 guidelines at the local levels.

Considering the multidimensional impacts, the COVID-19 has devastated not only the physiological, financial, and social aspects of the societies but also the psychological (Serafini,





2020). Several studies have reported the enormous psychological effects of COVID-19 (Serafini, 2020; Tee, 2020; Aylie & Mekonen, 2020; Tan, 2020; and Brooks, 2020). The American Psychological Association (2020) identified certain variables correlated to the psychological crisis that people experience during the virulent COVID-19 period. They include anxiety, panic attacks, depression, and even suicides caused by enormous home isolation, social distancing, changes in routines, job loss, or loss of benefits, financial constraints, and devastation from the loss of loved ones.

Another serious psychological distress caused by COVID-19 is fear (Gao & Xie, 2005; Liang et al., 2020). Mertens (2020) described fear as a result when people encounter danger, threat, or harm around them. The transactional theory of Lazarus and Folkman (1948) explained fear as an interactive process between the stressor and the psychological response of the affected person (cited by Liang et al., 2020). As an adaptive response, it also tends to become burdensome when it exists continuously with uncertainty such that of the fear caused by the COVID-19. A study understanding corona phobia by Arora et al., (2020) has shown that fear of COVID-19 is often caused by constant worries of being exposed to risks and dangerous aggravating anticipations. Consequently, fear during a disease outbreak causes further problems such as an increase in disease transmission (Shultz et al., 2016), decrease in economic productivity (Lempel et al., 2009), weakness in immunity (Segerstrom et al., 1998), mental distress and job burnout (Carreon et al., 2021).

As reliable and valid tools are needed to empirically assess fear, the FCV-19 Scale was developed by Ahorsu et al. (2020). The scale has been globally tried out in various languages (Tzur Bitan et al., 2020 in Hebrew; Alyami et al., 2020 in Arabic; Sakib et al., 2020 in Bangla; Soraci et al., 2020 in Italian; Haktanir et al., 2020 in Turkish; Huarcaya-Victoria et al., 2020 in Spanish) and particular samples (Perz et al. 2020 in American college students; Martinez-Lorca et al., 2020 in Spanish university students). Some Philippine studies have attempted to explore the fear of COVID-19 in different samples (e.g., Labrague & De los Santos, 2020 on frontliners; Tee et.al, 2020 on general population). However, no concrete undertaking has yet been conducted to evaluate the FCV-19 Scale psychometric properties in the context of Filipino teachers. Extending initiatives to assist teachers to cope with the demands of the new normal is an important part of the response plans. Teachers also need to be protected, and even prioritized for vaccination (Cahapay, 2021), as they take the lead in delivering education amid the menace of pandemic (Dela Cruz, 2020).

Tee et al. (2020) articulated the need to explore the psychological impact of COVID-19, such as fear, in the Philippines to provide appropriate and relevant measures. Cortez et al. (2020) highlighted that diagnosis and treatments differ from one person to another. Thus, for the treatment to be effective, they emphasized that instruments contextually designed for specific groups, which in this case are teachers, must be sought. Considering the enormous effects of the COVID-19 crisis, there is an increasing need to evaluate instruments such as the FCV-19 Scale to help concerned authorities accurately diagnose the level of fear encountered by teachers and eventually offer appropriate psychological interventions.

Thus, this paper aimed to evaluate the FCV-19 Scale in the sample of professional Filipino teachers. The researchers specifically expect to determine the psychometric properties of the scale in terms of reliability and validity.





2. Methods.

Sample.

The sample involved in this study is composed of 1,060 Filipino K to 12 teachers in Mindanao, Philippines. They are elementary teachers (n=638; 60.2%) and secondary teachers (n=422; 38.9%) currently employed in different public schools (n= 1,045; 98.6%) and private schools (n=15; 1.4%). They were selected through a combination of purposive and snowball sampling techniques in which the researchers started with a small number of known teachers, mostly from their professional circles. They expanded the sampling by asking the teachers who initially participated to identify other prospective respondents until the current sample size was found (Crossman, 2020). They were chosen regardless of gender, age, religion, rank, educational attainment, socioeconomic status.

Measures.

First, a measure eliciting information about the characteristics of the respondents was designed by the researchers. It particularly asked for the age, gender, marital status, monthly income, and educational attainment of the respondents.

Another measure used was adopted from the FCV-19 Scale originally developed by Ahorsu, et al. (2020). It is composed of seven items intended to measure the level of fear of COVID-19. They were framed using a five-point Likert-type scale with 1 as Strongly Disagree and 5 as Strongly Agree. The original FCV-19 Scale possessed very good psychometric properties. It obtained acceptable internal consistency ($\alpha = 0.72$) and strong factor loadings (0.66-0.74). The FCV-19 Scale was translated into several languages and tested in particular samples. It should be noted that, in this paper, no significant adaptation was made to the English version of the FCV-19 Scale as the Filipino sample involved is considered proficient in this language. On the other hand, the researchers developed another measure to assess the perceptions of the respondents regarding COVID-19 related characteristics. It was based on studies (e.g., Teitler-Regev et al., 2011) about the intentions of people to vaccinate against COVID-19. It consisted of items on willingness to vaccinate; low level of barriers; perceived susceptibility; perceived seriousness; and health motivation. They were also framed using a five-point Likert-type scale with 1 as Strongly Disagree and 5 as Strongly Agree.

Data collection.

Following the DepEd Order No. 16 series of 2017 on Research Management Guidelines, the prior administrative endorsement was obtained from the concerned Department of Education division office. The data collection for this study was conducted from January 25-31, 2021 through an online survey using Google link. The survey was divided into two parts. The first part involved the introduction to the study and obtaining the consent of the target respondents. The researchers initially sought to explain the purpose of the study and the voluntary role of the respondents in providing the needed data. It was stressed that there are no known advantages and disadvantages in participating in the survey. They were assured that the confidentiality of information will be maintained throughout the process. A box to be ticked was provided at the end, signifying their consent to participate in the research. The second part consisted of the main questionnaires. It asked for the sample characteristics or personal information of the respondents. Then, it presented the seven-item FCV-19 Scale and COVID-





19-related characteristics. All the answers of the respondents were automatically recorded. The researchers electronically generated the data.

Data analysis.

The researchers initially inspected the data for any missing values, conducted reverse coding on the barriers items, and then analyzed them. The descriptive statistics provided for the frequency count, skewness, kurtosis, weighted mean, and standard deviation for the items of FCV=19 Scale at the preliminary stage of the data analysis.

Then, the FCV-19 Scale was subjected to factor analysis. This process is intended to examine how well an instrument measures what it is supposed to measure (Glen, 2015). Based on the criterion proposed by Kuan et al. (2019), items with factor loadings lower than 0.40 would be discarded from the scale. It should be noted that to achieve good psychometric characteristics, high factor loadings must be sought because they indicate good construct validity.

The FCV-19 Scale was further subjected to a reliability test using Cronbach’s alpha. This procedure provides evidence that the items have internal consistency (Taber, 2018). Following the recommendation of Cortina (1993), the acceptable level of Cronbach’s alpha is .70 for a scale to be considered reliable. This measure will provide confidence that the items in the FCV-19 Scale are interrelated and are measuring the same construct.

To support the concurrent validity of the FCV-19 Scale, a simultaneous test of linear regression analysis was performed. The set of predictor variables included in this study are sample characteristics (gender, income, education) and COVID-19-related characteristics (willingness to vaccinate, low level of barriers, perceived susceptibility, perceived seriousness, and health motivation). Specifically, categorical variables were dummy coded with the most frequent category serving as the reference group. Thus, the reference group for gender is females; for income is PHP23,000 and below; and for education is undergraduate degree.

Carefully following the assumptions of each statistical tool used, all tests in this study were done at .05 level of significance. The data were run using the IBM Statistical Package for Social Science Version 17.

3. Results.

Descriptive analysis.

Table 1 presents the result of the descriptive analysis of the FCV-19 Scale.

Table 1. Descriptive analysis of FCV-19 Scale.

Item	Skewness	Kurtosis	Mean	SD	Description
Item 1	1.289	1.082	4.2340	1.00611	Strongly agree
Item 2	0.959	0.287	4.0519	1.03487	Agree
Item 3	0.227	0.902	3.2321	1.26435	Neutral
Item 4	1.389	0.992	4.2434	1.11442	Strongly agree
Item 5	0.410	0.668	3.4925	1.17213	Agree
Item 6	0.215	1.024	2.6660	1.29566	Neutral
Item 7	0.106	1.106	2.8349	1.32104	Neutral
Overall mean = 3.536					Agree





The result disclosed that the teachers strongly agree that the respondents are afraid of losing their lives because of Corona (Item 4, $M=4.2434$, $SD=1.11442$) and they are most afraid of Corona (Item 1, $M=4.2340$, $SD=1.00611$). Furthermore, they agree that it makes them uncomfortable to think about Corona (Item 2, $M=4.0519$, $SD=1.03487$), and when they watch news and stories about Corona on social media, they become nervous or anxious (Item 5, $M=3.4925$, $SD=1.17213$). Lastly, the respondents are neutral that their hands become clammy when they think about Corona (Item 3, $M=3.2321$, $SD=1.26435$), heart races or palpitates when they think about getting Corona (Item 7, $M=2.8349$, $SD=1.32104$), and they cannot sleep because they worry about getting Corona (Item 6, $M=2.6660$, $SD=1.29566$). Overall, the teachers agree that they fear Corona ($M=3.16$). This suggests that Filipino teachers experience a high level of fear of COVID-19.

Factor analysis.

Table 2 presents the result of the factor analysis of the FCV-19 Scale.

Table 2. Factor analysis of FCV-19 Scale.

Item	One-factor Structure Model	Two-factor Structure Model	
		Factor 1	Factor 2
Item 1	.725		.890
Item 2	.810		.826
Item 3	.837	.736	
Item 4	.745		.785
Item 5	.866		.733
Item 6	.799	.917	
Item 7	.814	.893	

The preliminary test showed the Kaiser Meyer Olkin value at .874 and the Bartlett Test of Sphericity was significant at .000 level. This indicates that the sampling is adequate for factor analysis. Thus, exploratory factor analysis was performed. A one-factor structure model of the FCV-19 Scale was found, explaining 64.138% of the variance in all the variables. The result of the principal component analysis also revealed factor loadings of the FCV-19 items ranging from .725 to .866. Furthermore, to explore potential structures that underlie the FCV-19 Scale, extraction was based on varimax rotation while imposing a two-factor structure model. The result showed two distinct factors. The items under Factor 1 referred to physiological fear reaction, which included Item 3 (“My hands become clammy when I think about Corona”), Item 6 (“I cannot sleep because I’m worrying about getting Corona”), and Item 7 (“My heart races or palpitates when I think about getting Corona”). On the other hand, Factor 2 comprised psychological fear reaction such as Item 1 (“I am most afraid of Corona”), Item 2 (“It makes me uncomfortable to think about Corona”), Item 4 (“I am afraid of losing my life because of Corona”), and Item 5 (“When I watch news and stories about Corona on social media, I become nervous or anxious”). The two factors cumulatively explained 79.226% of the total variance, with Factor 1 explaining 64.138% and Factor 2 explaining an additional 15.088%.





Reliability Analysis.

Table 3 presents the result of the reliability analysis of the FCV-19 Scale.

Table 3. Reliability analysis of FCV-19 Scale.

Item	inter-item correlation							Corrected Item-total correlation	Cronbach α if item deleted
	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7		
Item 1	1.000							.621	.901
Item 2	.732	1.000						.724	.891
Item 3	.494	.622	1.000					.768	.885
Item 4	.632	.630	.495	1.000				.646	.899
Item 5	.517	.624	.698	.584	1.000			.806	.881
Item 6	.353	.461	.676	.427	.698	1.000		.729	.890
Item 7	.397	.488	.671	.456	.692	.822	1.000	.747	.888
FCV-19 Scale overall Cronbach α = .905									
FCV-19 Scale factor 1 Cronbach α = .887									
FCV-19 Scale factor 2 Cronbach α = .864									

The result uncovered significantly moderate inter-item correlations in all the items of the FCV-19 Scale, which ranged from $r = .353$ to $r = .822$. It also illustrated evidence of strong corrected item-total correlation for all the items, varying from .621 to .806. The items were further subjected to the assessment of the Cronbach alpha coefficient. The analysis showed that the one-factor structure model of the FCV-19 Scale obtained an overall Cronbach alpha coefficient of .905. It can be noted that if an item is deleted, the reliability values did not significantly increase, ranging from .88 to .90, which are lower when compared to the overall Cronbach alpha coefficient. When assessing the internal consistency of the two-factor structure model of the FCV=19 Scale, the Cronbach alpha coefficient for Factor 1 was .887 while factor 2 was .864.

Regression Analysis.

Table 4 presents the result of regression analysis of the FCV-19 Scale.

Table 4. Regression analysis of FCV-19 Scale.

Characteristics	B	Std. Error	p value
Gender	.147	.080	.064
Income	.117	.070	.094
Education	.094	.068	.164
Willingness to vaccinate	.140	.047	.003
Low level of barriers	.157	.047	.001
Perceived susceptibility	.058	.045	.194
Perceived seriousness	.081	.038	.034
Health motivation	.090	.031	.004





The results revealed that only four COVID-19-related characteristics significantly predicted the fear of COVID-19. First, the respondents who were willing to vaccinate against COVID-19 reported significantly higher fear of COVID-19 total scores than respondents who were not ($B=.140$, $p=.003$). Moreover, the respondents who expressed a low level of barriers (e.g., discomfort to vaccinate against COVID-19) reported significantly higher fear of COVID-19 total scores than those who expressed a high level of barriers ($B=.157$, $p=.001$). The participants who also perceive COVID-19 as a serious disease have a significantly higher fear of COVID-19 total scores than those who do not ($B=0.81$, $p=.034$). Lastly, the respondents who rated higher health motivation had significantly higher fear of COVID-19 total scores as compared to those who rated lower health motivation ($B = .090$, $p=.004$).

4. Discussion.

The goal of this paper is to evaluate the FCV-19 Scale in the sample of professional Filipino teachers. The researchers particularly intended to determine the psychometric properties of the scale in terms of validity and reliability.

First, the analysis of the structure of the FCV-19 Scale supports its unidimensionality in this study. This result affirms the structure of the original scale by Ahorsu et al. (2020) and in other samples and languages (e.g., Alyami et al., 2020; Sakib et al., 2020; Soraci et al., 2020). Moreover, reviewing the results of the factor analysis, this study presents a strong construct validity, with factor loadings between .725 and .866, comparable to other earlier versions of Alyami et al., (2020) between .62 and 0.84; Ahorsu et al. (2020) between 0.66 and 0.74; Soraci et al. (2020) between .68 and .89; and Sakib et al., (2020) between .72 to .80.

Moreover, it should be noted that when imposing the two-factor structure model through confirmatory analysis, this study in the sample of Filipino teachers uncovered two underlying factors of the FCV-19 Scale. When reviewing the items, it can be noticed that the items that loader under the first factor are related to physiological symptoms of fear (Barrios et al., 2020) like clammy hands, lack of sleep, heart racing. On the other hand, a closer look at the items under the second factor suggested psychological symptoms of fear (Barrios et al., 2020) with concepts such as afraid, uncomfortable, nervous, and anxiety.

Considering the particular result above, it can be observed that the trend in the descriptive analysis of the fear of COVID-19 of the sample of Filipino teachers in this study shows a higher score for the items related to psychological symptoms of fear. On the other hand, lower scores were obtained for the items related to physiological symptoms of fear. These results corroborate with the outcomes uncovered in the previous related studies of Soraci et al. (2020), Doshi et al. (2020), Alyami et al. (2020), Satici et al. (2020), and Sakib et al., (2020) undertaken in different samples.

Furthermore, the reliability result of the FCV-19 Scale in the sample of Filipino teachers is comparable to the original FCV-19 Scale and several earlier versions in different languages and samples. For example, the reliability index of this scale used in this study ($\alpha = .90$) is higher than that of Ahorsu et al., (2020; $\alpha = .82$), Huarcaya-Victoria et al., (2020; $\alpha = .83$), Barrios et al. (2020; $\alpha = .86$), Haktanir et al., (2020; $\alpha = .86$), Martinez-Lorca et al., (2020; $\alpha = .86$), Tzur Bitan et al. (2020; $\alpha = .86$), Alyami et al., (2020; $\alpha = .88$), Sakib et al., (2020; $\alpha = .87$), Soraci et al., (2020, $\alpha = .87$). On the other hand, it is slightly lower





than that of Perz et al., (2020; $\alpha = 0.91$). This good result is complemented by the strong inter-item correlations and item-total correlations.

Most studies used sample characteristics and fear-related constructs to support the concurrent validity of the FCV-19 Scale. This present research extends by venturing into selected COVID-19-related characteristics as predictors of the fear of COVID-19. Unlike previous studies (e.g., Alyami et al., 2020; Perz et al., 2020; Tzur Bitan et al., 2020), this paper found no significant association between sample characteristics and fear of COVID-19. While the results for COVID-19-related characteristics indicate modest influence, this paper offers evidence as regards the potential ability of willingness to vaccinate, low level of barriers, perceived seriousness, and health motivation to predict fear of COVID-19.

Taken together, these outcomes provide a piece of insight regarding the excellent psychometric properties of the FCV-19 Scale. It implies that the FCV-19 Scale, with its original seven items, is a valid and reliable tool that can be used to assess the fear of COVID-19 in Filipino teachers.

5. Conclusions.

The COVID-19 crisis continues to induce psychological outcomes on people all over the world. A common but serious psychological outcome brought by this crisis is fear of COVID-19. As tools were developed to measure such a psychological outcome, there is a need to test them in different contexts to help concerned authorities make an accurate diagnosis and suitable interventions may be offered. Thus, this paper sought to evaluate the psychometric properties of the seven-item FCV-19 Scale originally developed by Ahorsu et al. (2020).

It can be underscored from the initial evaluation that the respondents in this study showed a high level of perceived fear of COVID-19. Furthermore, the overall analysis of psychometric tests is encouraging as the FCV-19 Scale generated strong construct validity for both one- and two- factor structure models. The outcomes of reliability analysis also indicate a very high internal consistency of the FCV-19 Scale supported by inter-item correlations and item-total correlations. Though modest, this paper also provides evidence as regards the concurrent validity of the FCV-19 Scale with selected COVID-19-related characteristics yielding significant values in predicting fear of COVID-19.

Taking the research outcomes together, the researchers believe that the results of this paper provide an assessment of the FCV-19 Scale in a particular sample and context. This research confirms the excellent psychometric properties of the FCV-19 Scale when used to measure the COVID-19 fear in a large sample of teachers and the context of a developing country.

While the results drawn from this study serve as important baseline data, however, some limitations can be noted. As this study focused on a very particular sample, it is suggested to examine the performance of the FCV-19 Scale in other samples, assuming the differences that can be noted based on the characteristics of the population. If possible, scale development studies at this point should also employ other measures of reliability and validity using other statistical packages. Lastly, to assess how fear influences other psychological aspects of the respondents, there is a need to conduct more scholarly works that probe the association of fear with other factors or variables.





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