DOI: http://dx.doi.org/10.22122/ijbmc.v9isp.415 Published by Vesnu Publications

International Journal of Body, Mind and Culture

Reliability and Validity of the Arabic Version of the Cancer Stigma Scale

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Quantitative Study

Abstract

Background: Stigma is a mark of disgrace associated with a particular circumstance, quality, or person. Stigma can be attached to health-related problems or illnesses. That is, people with a certain disease might be stigmatized or devalued due to their illness. Most stigma studies focus on human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), leprosy, and mental illnesses. The purpose of this study is to investigate the reliability and validity of the Arabic version of the Cancer Stigma Scale (CSS).

Methods: The present study is a validation study based on correlation and confirmatory factor analysis (CFA). The 25-item CSS was translated into Arabic by psychologists competent in both Arabic and English. Back translation was used to ensure transliteral equivalency. The scale was given to 262 Iraqi university students in Mosul University, Iraq, through convenience sampling. Item-total correlations, internal consistency reliability, and construct validity were examined. SPSS and AMOS software were used for data analysis.

Results: All the items had acceptable item-total correlations. They ranged from 0.49 to 0.72 (mean = 0.63) and all were significant at $P < 0.01$. The Cronbach's alpha reliability was 0.88. CFA was used to examine the fit of the 6-factor solution arrived by the scale developers. Goodness of fit indicators [comparative fit index (CFI) = 0.923, Tucker-Lewis Index (TLI) = 0.919, chi-square/degree of freedom (χ^2/df) = 1.98, root mean square error of approximation (RMSEA) = 0.064] showed that the original 6-factor model had a good fit for the data.

Conclusion: The Arabic version of the CSS was valid and reliable and can be used for measuring cancer stigma in the Arab-speaking general populations.

Keywords: Cancer Stigma Scale; Measure; Blame; Attitudes

Citation: Kazem SA, Alsaleem SEMA, Hassan JM, Sead FF, Talib SG, Ali MH, Anber AA. **Reliability and Validity of the Arabic Version of the Cancer Stigma Scale.** Int J Body Mind Culture 2022; 9(Special Issue): 54-62.

Received: 26 June 2022
Accepted: 05 July 2022

Introduction

Stigma as a term related to health is defined as a sort of disorder or attribute which leads to an undesirable difference to emerge in the person affected by the disease, and it will result in some abnormality which is considered to be multifaceted and complex (Soffer, 2022). Several diseases including human immunodeficiency virus (HIV), acquired immunodeficiency syndrome (AIDS), leprosy, and several kinds of cancer have been introduced as stigmatizing (Gavan et al., 2022). However, there have only been studies in the recent years on cancer as a stigmatizing disease. Tseng et al. (2022) highlight that cancer is known as a stigmatizing disease in many countries and cultures. The stigmatizing process will lead to the exclusion or rejection of the patient by the society (Cevik, Kav, Kaynar, Sahin, Tekcan, & Ulker, 2022) which will in turn lead to an isolation from the society and depression (Cho et al., 2013; Larkin et al., 2022). Stigma can also affect the psychosocial, communication, and behavioral status of the patients (Hamann, Ver Hoeve, Carter-Harris, Studts, & Ostroff, 2018) which can in return be a major obstacle in fulfilling the clinical potential of advanced care.

Stigmatization is defined through several components. As a multidimensional notion, Jones and de French (1984) introduces one of the earliest classifications focusing on the health-related stigma which can be practically used for non-patient populations. The components are as follows. The first factor in the category is introduced as peril. This entails the danger which is perceived on the part of the stigmatized person giving some awareness to others about the risks. The second factor as course relates to the changes that are observed through time which can immensely affect the procedure of treatment if a more optimistic view is taken toward the disease and its cure. Origin as the third component relates to the source of the cancer. This component is associated with self-responsibility and may also include the lifestyle of the person. Concealability is the fourth factor and it is connected to the fact whether the illness can be veiled from others or not. Disruptiveness which is the fifth component relates to the disruptions that the illness may have on the usual interactions of the person. Finally, aesthetics factor determines the non-concealable marks which may make the person less pleasing to observe (Jones & de French, 1984).

Another category is proposed by Hamann et al. (2018) which includes stigmatization from the perspective of the patients. In this category, the scholars refer to the components as perceived stigma which entails the thinking and perception of others which is evaluated by the patient. The next component is referred to as internalized stigma which includes self-blame as well as guilt. The last component in this category, constrained disclosure, limits the patient in discussing the disease with others.

Based on Jones' classification as well as other studies on stigma, as related to other illnesses in literature, Marlow and Wardle (2014) developed a pool of 481 items. The pool of items were developed based on a systematic review of 24 measures related to stigma. The components and subscales included awkwardness, severity, avoidance, policy opposition, personal responsibility, pity, and financial discrimination which included the behavioral, psychological, environmental, and even financial factors. The proposed components have also been accepted and inherently mentioned in other scholars' works including Lopes et al. (2020), Ettridge et al. (2018), Wang et al. (2017), Niksic et al. (2016), Rosman (2004), Solomon et al. (1991), Weiner et al. (1988), and MacDonald and Anderson (1984).

After initial modifications and omission of the duplicated items, the researchers concluded with 84 resulting items to test the item pool. The scale was administered

for further analyses. The results of factor analysis as well as the analysis for construct validity confirmed that the scale was valid. Besides, the six subscales of the 25-itme scale showed adequate internal and test-retest reliability.

As a reliable and valid scale, the scale has been extensively used in research on stigmatizing in terms of social isolation and help-seeking (Ettridge et al. 2018), cancer screening (Vrinten, Gallagher, Waller, & Marlow, 2019), gender differences in stigmatization (Grosso et al., 2019), as well as cultural aspects (Fallahi, Rassouli, & Mojen, 2017) in the current decade by scholars from different parts of the world. However, as the scale is widely used and while there is no scale in the Arabic language to assess the stigma among Arab-speaking populations, the present research was an attempt to validate the Arabic version of the scale. The validation procedure was conducted through correlational methods and confirmatory factor analysis (CFA).

Methods

The present study is a validation project conducted using correlational methods and CFA. The population for the study was all Iraqi university students.The sample of the study was 262 (172 women) university students in Mosul University in Iraq who were recruited through convenience sampling. Wolf et al. (2013) using a simulation study showed that a sample size of 200 had adequate statistical power for a two-factor three-indicator model with loadings of 0.65. However, for a three-factor model, larger sample sizes were not required. Participants were recruited through convenience sampling. The age range of the participants was 19-43 [mean ± standard deviation (SD) = 23.76 ± 3.29]. Participation in the research project was voluntary. Participants were reassured that all their information would be kept confidential and would be used for research purposes only. The study was approved by the Ethics Board of the University of Mosul.

Instrument: The Cancer Stigma Scale (CSS) (Marlow & Wardle, 2014) was translated into Arabic using forward and backward procedures. CSS contains 25 items with a 6-point response scale of strongly disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, and strongly agree. The 25 items are clustered under six subscales of awkwardness (4 items), severity (5 items), avoidance (5 items), policy opposition (4 items), personal responsibility (4 items), and financial discrimination (3 items). Marlow and Wardle (2014) reported internal consistency reliability coefficients (Cronbach's α) of 0.73-0.87 and retest reliability coefficients of 0.72-0.82 for the subscales. They demonstrated the construct validity of the CSS by showing that the mean scores for each subscale varied in the expected directions by age, gender, experience of cancer, awareness of lifestyle risk factors for cancer, and social desirability. CSS was created on Google Forms and was distributed via social media and email.

Procedure: The CSS was given to 262 Iraqi university students in Mosul University. Google Forms was used as the platform for distributing the questionnaire. The questionnaire's link was sent via email and social media to over 500 students. A sample of 262 students filled in the questionnaire.

Data analysis: Item-total correlations, Cronbach's alpha reliability, and CFA were used to examine the reliability and validity of CSS. An independent samples t-test was run to compare the means of medical and non-medical students on the CSS. Before the analysis of data, five items had to be reverse scored. SPSS (version 22, IBM Corporation, Armonk, NY, USA) and AMOS (version 23) software were used for data analysis.

Results

Table 1 shows the demographic variables explained above in a tabular form.

Table 1. Demographic variables

Variable	Value
Gender	
Men	90 (34.00)
Women	172 (66.00)
Age (year)	23.76 ± 3.29
Major	
Medicine	89 (33.00)
Non-medicine	173 (67.00)

Data are reported as mean ± standard deviation (SD) or number and percent

Table 2 shows the reliabilities and correlations between the subscales. Table 2 shows that all the subscales have acceptable internal consistency reliability as shown with Cronbach's alpha. The correlations between the subscales were all positive and ranged from 0.02 to 0.45. The pattern of correlations between the subscales were mainly in line with those reported by Marlow and Wardle (2014). The corrected item-total correlations were all high and ranged between 0.49 and 0.72 (mean = 0.63).

CFA was used to establish the construct validity of the scale. Baghaei and Tabatabaee Yazdi (2016) stated that the fit of data to a latent trait model was evidence that the covariation among the items could be explained by an underlying latent factor and this was evidence for validity. A six-factor model was fitted to the data using AMOS programme. All the six factors were allowed to correlate (Figure 1). Several fit statistics including comparative fit index (CFI) and Tucker-Lewis Index (TLI) (> 0.90), chi-square/degree of freedom (χ^2/df) (< 3), and root mean square error of approximation (RMSEA) (< 0.08) were examined (Hu & Bentler, 1999). Results indciated that the six-factor model fitted the data: CFI = 0.923, TLI = 0.919, χ^2/df = 1.98, and RMSEA = 0.064. Standardized factor loadings, the t-values, their standard errors, and R^2 are reported in table 3. An independent samples t-test was run to compare the means of medical and non-medical students on the total CSS scores. Findings showed that medical students had a significantly lower mean compared to non-medical students (t = 3.31, P < 0.01).

Discussion

The present study was an attempt to validate and verify the reliability of the Arabic version of the CSS. The researchers in the present study translated the CSS into Arabic through a rigorous forward-backward translation strategy that is an acceptable step in validating scales in different languages.

Table 2. Reliabilities and correlations between subscales

	Severity	Personal responsibility	Awkwardness	Avoidance	Policy opposition	Financial discrimination
Personal responsibility	0.20*	--				
Awkwardness	0.31*	0.29*	--			
Avoidance	0.28*	0.44**	0.45**	--		
Policy opposition	0.02	0.32**	0.21*	0.33**	--	
Financial discrimination	0.17	0.35**	0.19*	0.38**	0.29*	--

Chronbach alpha	0.79	0.89	0.79	0.85	0.75	0.77

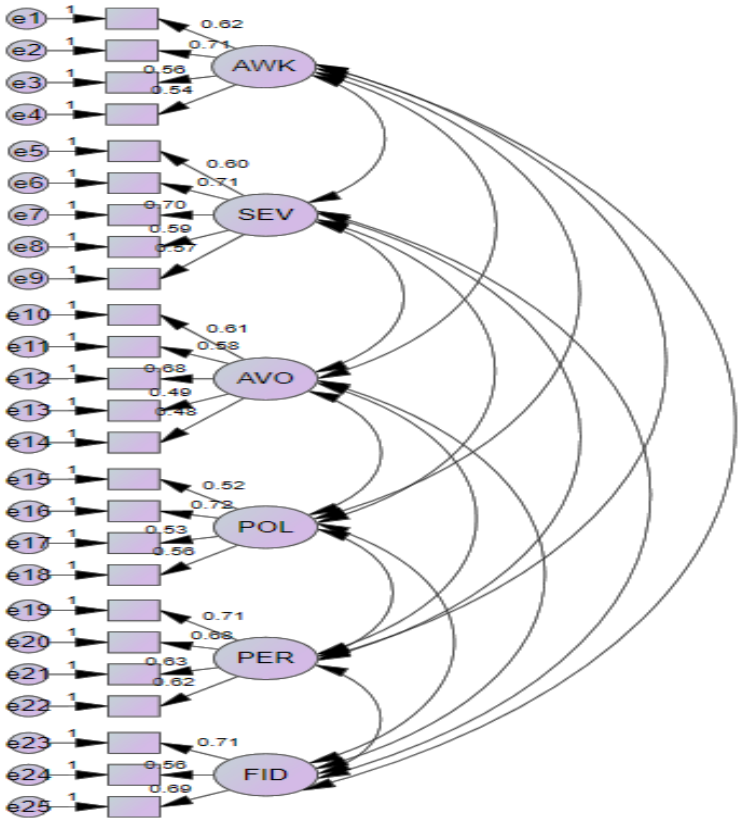

Figure 1. Graphical representation of the estimated confirmatory factor analysis (CFA) model
Note: AWK: Awkwardness; SEV: Severity; AVO: Avoidnace; POL: Policy opposition; PER: Personal responsibility; FID: Financial discrimination

Based on the correlational analysis, it was revealed that correlation patterns found between the subscales were in accordance with the results reported in Marlow and Wardle (2014) study. Moreover, the item-total correlations were high. Similarly, CFA was evidence for the validity of the scale. As another finding of the study, it was confirmed that medical students' mean was significantly lower as compared to non-medical students. The findings related to validity and reliability of the scale are also in line with other studies. For example, Ye et al. (2019) also employed back-translation technique as well as cross-cultural adaptation of the scale in the Chinese context. The researchers also referred to the scale as having adequate internal consistency as well as acceptable reliability by analyzing the data gathered from 382 non-cancer patients through CFA.

Similarly, in a very recent study, researchers in Turkey (Cevik et al., 2022) have provided the Turkish version of the same scale. They reported a Cronbach alpha of 0.83. The analysis also showed that the six-dimensional structure of the scale was

parallel to the original version of the scale. In the context of Japan, also the same scale is translated and validated. Takeuchi et al. (2019) reported the findings of the cross-cultural validation conducted based on 319 responses.

Table 3. Scale items and factor loadings

No.	Items	Factor loading	SE	t	R^2
1	I would feel at ease around someone with cancer.	0.62	0.14	2.31	0.38
2	I would feel comfortable around someone with cancer.	0.71	0.27	2.56	0.50
3	I would find it difficult being around someone with cancer.	0.56	0.16	2.73	0.31
4	I would find it hard to talk to someone with cancer.	0.54	0.22	3.21	0.29
5	I would feel embarrassed discussing cancer with someone who had it.	0.60	0.19	3.44	0.36
6	Once you have had cancer, you are never 'normal' again.	0.71	0.13	2.89	0.50
7	Having cancer usually ruins a person's career.	0.70	0.29	2.88	0.49
8	Getting cancer means having to mentally prepare oneself for death.	0.59	0.11	3.22	0.34
9	Cancer usually ruins close personal relationships.	0.57	0.17	3.98	0.32
10	If a colleague had cancer, I would try to avoid them.	0.61	0.24	3.44	0.37
11	I would distance myself physically from someone with cancer.	0.58	0.09	2.79	0.33
12	I would feel irritated by someone with cancer.	0.68	0.14	3.11	0.46
13	I would feel angered by someone with cancer.	0.49	0.25	4.07	0.24
14	I would try to avoid a person with cancer.	0.48	0.18	3.25	0.23
15	More government funding should be spent on the care and treatment of those with cancer.	0.52	0.20	2.86	0.27
16	The needs of people with cancer should be given top priority.	0.72	0.17	2.91	0.52
17	We have a responsibility to provide the best possible care for people with cancer.	0.53	0.23	3.41	0.28
18	A person with cancer is liable for their condition.	0.56	0.29	2.28	0.31
19	A person with cancer is accountable for their condition.	0.71	0.11	2.63	0.50
20	If a person has cancer, it is probably their fault.	0.68	0.10	4.01	0.46
21	A person with cancer is to blame for their condition.	0.63	0.08	3.87	0.39
22	It is acceptable for banks to refuse to make loans to people with cancer.	0.62	0.15	3.85	0.38
23	It is acceptable for banks to refuse to make loans to people with cancer.	0.71	0.18	2.85	0.50
24	Banks should be allowed to refuse mortgage applications for cancer-related reasons.	0.56	0.21	2.69	0.31
25	It is acceptable for insurance companies to reconsider a policy if someone has cancer.	0.69	0.12	2.75	0.47

SE: Standard error

They presented a Cronbach's alpha ranging from 0.81 to 0.91 for the factors in the scale. Thus, the current translated version of the original scale can effectively be used in research on different aspects of cancer in relation to stigma by researchers in the context of Arab populations as well.

Most of research on cancer stigma has been on patients. There have been few studies focusing on the perception of cancer stigma among non-patient populations. Moreover, cancer stigma is mostly defined and studied qualitatively. However, based on the need for quantitative measurements, Marlow and Wardle (2014) made the attempt to develop a scale for general use in non-patient populations. It also needs to be noted that "cancer stigma may not just affect patients with cancer, but public stigma of cancer may also negatively impact public health efforts to reduce the burden of cancer in the wider society" (Vrinten et al., 2019)

Marlow and Wardle (2014) contribution is mainly based on stigma specifically related to the disease of cancer. Their model of cancer stigma is based on a

comprehensive review of the available studies on the concept of cancer stigma and the scale has been employed by several researchers and scholars. Their validated scale also showed correlations among its subscales. The severity subscale is related to the harshness of the cancer consequences. Personal responsibility component is related to the person's share in the disease, which was also termed as 'origin' in the reviewed literature. The third component 'awkwardness' is "whether people feel comfortable around someone with cancer" (Marlow & Wardle, 2014). Avoidance, which is related to interpersonal avoidance as well as social distance, was another component in their study. Policy opposition as the next factor mainly dealt with perceptions on funding, spending for, or supporting individuals with cancer. This component correlated closely with policy opposition in Marlow and Wardle's study.

Conclusion

As the model was extensively used in research studies, the researchers in the present study saught to translate and validate it. However, the findings of the present study were limited as the participants were from one city in Iraq. It can be suggested to other researchers in other Arabic-speaking countries to cross validate the findings. In the same vein, it is suggested to other reserachers in other contexts to translate and employ the scale in other languages in the studies in relation to cancer stigma.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

None.

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