Original Article

Validation and Reliability of a Scale for COVID-19 Stigma-Discrimination on General Population in Greece

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Abstract

Covid-19 disease, became a source of stigma discrimination not only in affected people but in health professionals also, who come in direct contact with the disease daily. The study aimed to validate a scale which quantifies COVID-19 stigma-discrimination for health professionals in Greek General population. Permission was obtained from Professor Adalberto Campo-Arias to use the scale for COVID-19 stigma-discrimination. A total of 35 questionnaires were completed by the general population. The findings of this study suggest that this scale can be used to quantify stigma-discrimination toward general population.

Key words: Covid-19, stigma, discrimination, health professionals, validation

Introduction

Social stigma is a negative relationship of an individual or a group of people with common characteristics and culture, who live in a society. The person who is stigmatized has characteristics that are undesirable by the society or part of it.

A common cause of stigma related to the field of health, is mental illness, which is a phenomenon of shame for the person who experiences it and his environment as well(Saridi at al., 2017). The COVID-19 pandemic, in addition to the serious effects on human health, has had significant consequences for human relationships, with the stigmatization of people infected with the virus being one of them.

Of course, the pandemic continues, and its impact is expected to bring more tensions to human relationships, something that is expected to be explored in the coming years(Vitvitskyi et al., 2021). The tools measurement of this stigma have begun to provide important scientific data.

This particular scale of COVID stigma measuring, after being tested in health professionals in Mexico was chosen to be tested in Greece, both in general population and health professionals, in order to show the levels of stigma from COVID disease (Campo-Arias et al., 2021).

Methods

Description of original questionnaire: A structured 18-item questionnaire assessing COVID-19 stigma in general population was designed and validated by Professor Adalberto Campo-Arias et al.(2021). The questionnaire consists of two sections. In particular, the first section includes general population' demographic characteristics such as gender, age and the second section includes questions about the stigma associated with COVID-19 infection, with a dichotomous response pattern (yes or no).

Translation: The original questionnaire was in English language and the target version was Greek language. The translation guideline included bilingual forward and backward translation and a panel of experts to consolidate all versions of the questionnaire prior to the development of the final pilot version. In achieving intercultural equivalence, the comparability of language, the similarity of comprehension and the similarity of interpretation between the versions of the questionnaire were strictly analyzed. The forward translation involved translating the English questionnaires into Greek (target language) by two certified independent bilingual translators. One of the translators was knowledgeable about epidemiological behaviour of pandemics, while the other translator has such capabilities in addition to proficiency in informal phrases and emotional terms commonly used in the Greek community (Sousa & Rojjanasrirat, 2011). The translated Greek questionnaire was presented at the board meeting, for comparison with the original English version to identify any ambiguities and differences of words, sentences, and meanings. Ambiguities and discrepancies were discussed and resolved using a committee-consensus approach to produce a reconciled version of the translated questionnaire. Upon amendment, the translated questionnaire (Greek; target language) was subsequently translated backward into the source language (English). Two independent translators were recruited to translate the Greek version of the questionnaire into English. They were completely blind to the original version of the questionnaire(Su & Parham,2002). Two different versions of English translated questionnaires were discussed and reconciled for any differences and ambiguities. All revisions made were documented.

Validity: The validity of the questionnaire was documented by two methods of theoretical construction: a) face validity and b) content validity. In terms of face validity, it is a subjective evaluation of the questionnaire by experts, who assess whether the questionnaire seems appropriate and has relevant information on the subject to be investigated (Setia,2017). This validity includes the qualitative and quantitative method. In particular, the quality method was conducted by 5 experts and the criteria for inclusion were: more than 5 years of work experience in social research and familiar with the questionnaire procedures. Personal interviews were conducted with the experts and was asked to assess the ambiguity and misinterpretation of the questions, the incomprehensible meaning of the words, the appropriateness of the questions and relationship among them and with the purpose of the questionnaire as well as the level of difficulty of the answers (Banna et al., 2010). The quantitative method was also based on the convenience sampling of 35 people, who were distributed the questionnaire, in order to evaluate the questions in relation to the problems, ambiguity, relevance, appropriate terms, using a 5-point Likert scale which ranges from 1 (not at all important) to 5 (extremely important).Regarding content validity, experts assess whether the questions adequately measure the concepts they are supposed to explore **Error! Bookmark not defined.**. The experts who participated in face content validity were also those who participated in the content validity. To judge the relevance of each question, a 4-point scale based on criteria was used (Davis,1992). The experts noted each question as follows: 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = very relevant.

Reliability: The reliability study was performed based on the repeated measurements (Test-retest reliability). The questionnaire was distributed to 35 people. After seven days, the questionnaire was administered again to the same participants.

Statistical analysis: In the face validity, the impact score was calculated for each question, using the formula: impact score = frequency (%)

× importance. If the impact score of a question is s 1.5, the questionnaire is retained, otherwise it is eliminated (Lacasse et al., 2002). In content validity, the experts were required to review the items with respect to, beneficial, or unnecessary. For evaluating this necessity, the content validity ratio(CVR), based on the Lawshe scale, was used. According to the Lawshe scale the CVR was calculated on a three-point graph. Each item was scored according to three options on the graph (1=not necessary, 2=useful, but not essential, and 3=essential). If more than half of the experts stated that an item is essential that item would have the minimum amount of content validity. If the CVR score is higher than 0.45, the content validity of the scale has been approved (Yalghmale, 2003; Lawshe,1975).

$$CVR = (N\_(E\ ) - N/2)/(N/2)$$

N=The total number of experts

N_E=The number of experts who have checked option 3

Additionally, the experts need to evaluate the relevance of each question on a scale from 1 (not relevant) to 4 (highly relevant). The Content Validity Index (CVI) was calculated for each item (Item Content Validity Index, I-CVI)as well as for the whole questionnaire was considered acceptable when CVI> 0.8 (Polit et al., 2007; Polit & Beck,2006; Lynn,1986).

$$CVI = (The\ Number\ of\ the\ experts\ who\ have\ checked\ option\ 3\ and\ 4)/(The\ total\ number\ of\ experts)$$

Accounting for agreement occurring by chance, test-retest reliability was further evaluated using Cohen's kappa coefficient (k) (Salerno et al., 2001). The kappa coefficients were interpreted using the criteria outlined by Landis and Koch (1977), summarized as follows: <0 (poor agreement); 0-0.2 (slight agreement); 0.21-0.40 (fair agreement);0.41-0.60 (moderate agreement); 0.61-0.80 (substantial agreement); 0.81-1.0 (almost perfect agreement). The statistical program SPSS 25 (Statistical Package for the Social Sciences for Windows, Version 25.0) was used to evaluate the test-retest reliability.

Ethical and institutional approvals: Permission was obtained from Professor Adalberto Campo-Arias to use the scale for COVID-19 stigma-discrimination. Also, approval of the research protocol was given by the scientific council of the General Hospital where the research was conducted (Prot. No. 5612,11.05.21). The participation of the experts and people was anonymous and voluntary.

Results

Face validity: In studying the face validity, all the experts stated that the questionnaire items were simple, understandable, clear, and related to the objectives. Five experts (100%) agreed that the questionnaire was a useful tool to assess COVID-19 stigma in general population. Four experts (80%) reported that all the questions in the questionnaire were important, while one (20%) disagreed. Two experts (40%) suggested that some questions could be omitted, while three disagreed (60%). In addition, the sample who participated in the face validity declared that all the questions were simple, clear and related to the objectives. The impact scores showed that all the questions had a score equal to or greater than 1.5, hence included in the questionnaire.

Content validity: Five experts participated in the research. Three of them were professors, one physician and one nurse. The Content Validity Ratio and Content Validity Index are presented n **Table 1**. In summary, the I-CVI for the questionnaire ranged from 0.8 to 1.00and CVR was 0.99. Eight (8) of the eighteen (18) questions had an I-CVI of 1.00, proving complete agreement among the experts, for a total of 0.89.

Reliability: The reliability of repeated measurements is presented in **Table 2**. A total of 35 questionnaires were completed for the second time by the general population seven days after the initial distribution. Totally, 2 items were rated with low agreement, 2 items with moderate agreement, while the majority of items were rated with good or very good agreement above 0.6.

Conclusions: The findings of this study suggest that this scale can be used to quantify stigma-discrimination toward general population.

Table 1. Content Validity Index and Content Validity Ratio of the COVID-19 stigma-discrimination questionnaire

Number of item	Item description	I-CVI	CVR
1	Are all foreign nationals at higher risk of transmitting COVID-19?	0.8	0.99
2	Is COVID-19 a divine punishment?	0.8	0.99
3	Should people fear those who are sick with COVID-19?	1	0.99
4	Are people sick with COVID-19 afraid to tell others that they have this disease?	0.8	0.99
5	When I see news and stories about COVID-19 on television, press, or social media, do I get nervous or anxious?	0.8	0.99
6	Is it embarrassing to be sick with COVID-19?	0.8	0.99
7	Should people feel sorry for persons who are sick with COVID-19?	1	0.99
8	Do people get sick with COVID-19 due to irresponsible behaviors?	0.8	0.99
9	Should people who work in health services and are in contact with COVID-19 patients be isolated from society?	1	0.99
10	Should family members treat people with COVID-19 with less respect?	0.8	0.99
11	Should people sick with COVID-19 be rejected by society?	0.8	0.99
12	Can people sick with COVID-19 be neighbors of those who do not suffer from this disease?	1	0.99
13	Am I afraid of being infected by the health personnel I meet in public transportation, on the street, or at home?	0.8	0.99
14	Are people sick with COVID-19 guilty of having acquired this disease?	0.8	0.99
15	Should people who have recovered from COVID-19 stay away from their worksites?	1	0.99
16	Should people who work in health services avoid using public transport so as not to infect the population?	1	0.99
17	Should health personnel avoid returning home so as not to infect their family?	1	0.99
18	Should health personnel avoid going out to the street so as not to infect the population?	1	0.99

Table1. Test-retest reliability results for theCOVID-19 stigma-discrimination questionnaire

Number of item	Item description	Percentage agreement (%)	Kappa coefficient (SEk)
1	Are all foreign nationals at higher risk of transmitting COVID-19?	82.9	0.71(0.11)
2	Is COVID-19 a divine punishment?	98.1	097(0.03)
3	Should people fear those who are sick with COVID-19?	87.8	0.78(0.06)
4	Are people sick with COVID-19 afraid to tell others that they have this disease?	88.7	0.38(0.13)
5	When I see news and stories about COVID-19 on television,	79.2	0.69(0.05)

	press, or social media, do I get nervous or anxious?		
6	Is it embarrassing to be sick with COVID-19?	98.1	0.89(0.04)
7	Should people feel sorry for persons who are sick with COVID-19?	95.7	0.73(0.18)
8	Do people get sick with COVID-19 due to irresponsible behaviors?	91.9	0.61(0.11)
9	Should people who work in health services and are in contact with COVID-19 patients be isolated from society?	91.5	0.45(0.23)
10	Should family members treat people with COVID-19 with less respect?	91.2	0.61(0.11)
11	Should people sick with COVID-19 be rejected by society?	96.8	0.84(0.008)
12	Can people sick with COVID-19 be neighbors of those who do not suffer from this disease?	72.3	0.43(0.14)
13	Am I afraid of being infected by the health personnel I meet in public transportation, on the street, or at home?	99.2	0.80(0.20)
14	Are people sick with COVID-19 guilty of having acquired this disease?	75	0.76(0.04)
15	Should people who have recovered from COVID-19 stay away from their worksites?	97	0.65(0.32)
16	Should people who work in health services avoid using public transport so as not to infect the population?	73.6	0.77(0.04)
17	Should health personnel avoid returning home so as not to infect their family?	99.2	0.94(0.03)
18	Should health personnel avoid going out to the street so as not to infect the population?	78.7	0.37(0.13)

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