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Short Communication

Psychometric evaluation of the MSU CAM health literacy scale

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A B S T R A C T

Background/Purpose: The rise in the use of alternative health care approaches (CAM) increases the need for adequate health literacy. The MSU Health Literacy Scale was developed to measure CAM health literacy. Psychometric evaluation of the scale is presented in this article.

Methods: A test retest design was utilized and data from this instrument evaluation research project were used to explore the validity and several forms of reliability of the MSU Health Literacy Scale. The data analysis was based on the scores of 241 individuals at the T1 data collection and the scores of 188 at the T2 administration of the instrument.

Results: There were significant correlations between the MSU CAM Health Literacy Scale and Newest Vital Sign ($r = 0.330$ $p = .000$) and with a single question health literacy measure ($r = .255$ ($p = .000$). Cronbach's alphas were adequate for each administration of the scale (T1 = .774 and T2 = .754). The correlation of scores between the T1 administration and the T2 administration were significant ($r = .696$ ($p = .000$).

Conclusions: This psychometric evaluation provides confirmation of convergent validity and stable reliability. The scale can be used in future research and clinical endeavors.

1. Introduction

Having adequate health literacy is widely recognized as a necessity in today's health care market place so that consumers can take an active role in decision-making about their personal health care.[1] Health literacy is defined as the capacity to obtain, process, communicate, and understand basic health information and services needed to make appropriate health decisions.[2] The growth in the use and availability of Complementary and Alternative Medicine (CAM) has added to the complexity of being sufficiently health literate. As with general health literacy the desired outcomes of CAM health literacy are wiser consumers with skills to make more informed decisions regarding management of their own health. The purpose of this short report is to share the psychometric evaluation of the MSU CAM Health Literacy Scale which consisted of an assessment of convergent validity and several forms of reliability evaluation.

Through a series of studies on the use of CAM among older adults living in rural areas in the western United States, the need for education to improve CAM health literacy was identified [3,4,5] Critical to developing an educational intervention to improve CAM health literacy was the ability to adequately measure CAM health literacy. The available health literacy instruments measure reading and numeracy skills,1 and not the broader range of knowledge and cognitive skills needed when making decisions about using self-prescribed CAM. The MSU CAM Health Literacy Conceptual Model was developed and guided the development and initial testing of the MSU CAM Health Literacy Scale.[6,7]

2. Methods

This project was approved by the MSU Institutional Review Board for the Protection of Human Subjects. A research assistant invited individuals at several senior centers and adult living centers to participate. Other recruits included nursing students, nursing faculty, and others identified individually. Participation was voluntary without compensation. At the time of recruitment participants completed the first questionnaire (T1) which contained the MSU CAM Health Literacy Scale, two general health literacy measures, and a short demographic sheet.

Two weeks after T1 was completed, the second questionnaire (T2) was mailed which contained a cover letter, the MSU CAM Health Literacy scale, and an addressed/stamped return envelope. Participants were asked to complete the questionnaire within a week thus giving a test retest window of about 3 weeks. Upon the receipt of T2 a Thank You note was sent.

The MSU CAM Health Literacy Scale is an instrument designed to measure knowledge specific to safe use of CAM. It consists of 21 items with Cronbach's alphas of .75 to .79. The detailed discussion of the development of the scale, initial psychometric evaluation, and a copy of

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the full measure were provided earlier.[7]

Two general health literacy instruments were selected to assess convergent validity. The Newest Vital Sign (NVS) is a six item valid and reliable screening tool for measuring general health literacy.[8] The NVS has a reported Cronbach's alpha of > 0.76.[9] In previous research, the correlation between scores on the MSU CAM Health Literacy Scale and the NVS was r = 0.221 (p = .002).[7] The second general health literacy instrument was the single question, *"How confident are you filling out medical forms by yourself?"* which has been shown to identify likelihood of inadequate health literacy [10] In previous research, the correlation between scores on the MSU CAM Health Literacy Scale and the single question were: r = .117, p = .05 and r = .284, p.003.[7]

3. Results

A total of 251 individuals participated in T1 resulting in 241 useable questionnaires. The age range was 21–95 years (mean = 60.5, median = 67, mode = 83), 47.3 percent were currently married or partnered, 68.8 percent had high school education, and 189 (76.8%) were women. A total of 193 T2 questionnaires were returned, 188 were useable with a mean age of 59.9 (median = 66, mode = 83) and 145 (77.1%) were women

Cronbach's alpha was the test used to assess scale reliability. In this study the alpha was .774 at the T1 and .754 at T2. The correlation of T1 scores for the MSU CAM Health Literacy Scale with (T2) scores was r = .696 (p = .000). If the correlation between separate administrations of a measure is 0.70 or higher it has good test retest reliability.[12]

To assess convergent validity, the scores on the MSU CAM Health Literacy Scale were compared to scores on the general health literacy measures (NVS, single question). The mean NVS score was 4.72 (sd = 1.92) with an alpha of .876. On the single question health literacy measure, 80.9% indicated they were extremely or quite confident filling out medical forms by themselves. The correlation between the MSU CAM Health Literacy Scale and the NVS was r = 0.330 (p = .000) and with the single question r = .255 (p = .000). Among demographic variables examined, the scale was correlated significantly only with education (r = .315, p = .000) and use of CAM (r-.161, p = .013).

4. Discussion

The results of this psychometric evaluation added credibility to the MSU CAM Health Literacy Scale. The scale has undergone extensive reliability evaluation with Chronbach's alphas consistently near or above .70, with additional confirmation of reliability in the study reported here.

The scale was designed to measure CAM health literacy, a construct that had not been measured to date, and thus provide a valid and reliable measure to use when assessment of CAM health literacy is important. The validity assessment results reported here and in our previous research[7] were statistically significant, although correlations were modest. This was not unexpected because general health literacy and CAM health literacy are related but somewhat different constructs. There were no other options for comparison, as there are no other established CAM health literacy instruments.

CAM is widely used and often self-prescribed and used based on the recommendations of family, friends, or media advertisements.[11] Thus, having the capability to assess the level of CAM health literacy is critical in both research and clinical endeavors. Enhancing general and CAM health literacy will enable individuals to make more reasoned informed health decisions including when considering the use of CAM.

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