Brief Methodological Report

Testing the Factorial Validity of Scores From the Caregiver Pain Medicine Questionnaire

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Abstract

Context. The Caregiver Pain Medicine Questionnaire is designed to measure caregiver agreement with statements regarding pain management. However, little testing has been done to determine its reliability and validity.

Objectives. The objective of the study was to test the factorial validity of scores from the Caregiver Pain Medicine Questionnaire as hypothesized by the original study authors.

Methods. Confirmatory factor analysis was conducted to assess whether the subscales postulated by the instrument authors could be replicated in external data.

Results. Fit statistics reveal an unsatisfactory fit between the hypothesized model and the observed data.

Conclusion. The theoretical model hypothesized by the original study authors was not confirmed. Results lead us to conclude that the instrument is poor and should not be used. Further research is needed to define content domains and validate the items developed to assess them. J Pain Symptom Manage 2014;48:99–109.

Key Words

Caregiver Pain Medicine Questionnaire, factor analysis, hospice, pain management

Introduction

Cancer is the second leading cause of death,[1] and prevalence of pain in patients with terminal cancer is estimated to be between 59% and 75%.[2] Although nearly half of the patients enrolled in hospice programs are cancer patients,[3] terminally ill patients with other diseases also experience pain. In fact, pain is

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a major problem for most hospice patients.[4–6] With 66% of the hospice patients dying in their place of residence,[3] the day-to-day implementation of pain management plans is accomplished by informal family caregivers. These untrained caregivers are ill prepared for the struggles associated with managing pain in the terminally ill and their former caregiving experiences influence their perception and management of their loved ones' pain experience.[7,8]

Barriers to effective pain management arise from knowledge, beliefs, and attitudes of patients and family caregivers.[9] A recent review of the literature found that the pharmacological management of pain is challenging for caregivers across cultures and within numerous contexts of care.[10] This review concluded that there is a need for targeted educational interventions to address the myths held by caregivers and strategies to increase self-efficacy for caregivers faced with the burden of managing pain.[10] It is critical to have reliable and valid scores from instruments both to understand these caregiver perceptions and to evaluate the effectiveness of potential interventions. One such instrument, the Caregiver Pain Medicine Questionnaire (CPMQ), was created in 2004;[11] however, little testing has been done to determine the reliability and validity of its scores, especially in the hospice population.

Caregiver Pain Medicine Questionnaire

The CPMQ is a 16-item self-report instrument that measures informal caregivers' agreement with statements regarding pain management, with a few additional questions about medication administration/adherence.[11] The factor structure proposed by the original instrument authors[11] is hierarchical and includes two second-order factors ("Concern about Reporting Pain" and "Concern about Administering Analgesics") and five first-order factors ("Fatalism," "Stoicism," "Concern about Addiction," "Concern about Side Effects," and "Concern about Tolerance"). Hierarchical factor structures represent the associations between multiple observed variables or indicators in terms of a smaller set of associated latent variables or factors, which themselves can be represented by a higher order latent variable or factor.

The original study authors[11] supported their decision to include the second-order factors by citing the 1994 Clinical Practice Guidelines for the Management of Cancer Pain,[12] which identified the factors as two (of the eight) problems related to patients that are potential barriers to effective cancer pain management. "Concern about Reporting Pain" was delimited to include two first-order factors, namely "Fatalism" and "Stoicism." "Fatalism" was defined as the belief that pain is inevitable and untreatable.[11] "Stoicism" was defined as the belief that pain is to be tolerated and not complained about.[11] "Concern about Administering Analgesics" also was delimited to include "Concern about Addiction," "Concern about Side Effects," and "Concern about Tolerance." These factors were not defined. Additional questions about medication administration/adherence were included but the rationale is not documented. The content validity of the CPMQ, however, was tested by having six experts apply the index of content validity,[13] resulting in the retention of all 16 items (Table 1 shows a complete list of these items).

Objective and Hypotheses

The CPMQ was developed with a priori hypotheses of the relationships among the variables. It follows that a validity investigation should use confirmatory factor analysis (CFA) to test these relationships. The objective of our study was to test the model of the CPMQ hypothesized by the original study authors.[11] The model tests that 1) responses to the CPMQ can be explained by five first-order factors ("Fatalism," "Stoicism," "Concern about Addiction," "Concern about Side Effects," and "Concern about Tolerance") and two second-order factors ("Concern about Reporting Pain" and "Concern about Administering Analgesics"); 2) each item has a non-zero loading on the first-order factor it was designed to measure, and zero loadings on the other four first-order factors; 3) residuals associated with each item are uncorrelated; and 4) covariation among the five first-order factors is explained fully by their regression on the second-order factors. Fig. 1 is a diagrammatic representation of the model. We did not test the additional questions about medication administration/adherence because our pilot study found that 43% of the caregivers did not administer medication, which resulted in high amounts of missing data and increased the likelihood of respondent burden.[24]