The factor structure of the Medical Outcomes Study–Social Support Survey: A comparison of different models in a sample of recently diagnosed cancer patients

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ABSTRACT

Objective: To analyse the factor structure and psychometric properties of the original and abbreviated versions of the Medical Outcomes Study–Social Support Survey (MOS-SSS) in recently-diagnosed cancer patients.
Method: A sample of 128 newly-diagnosed cancer patients were assessed with the Spanish versions of the MOS-SSS and the Hospital Anxiety and Depression Scale (HADS). Confirmatory factor analyses were conducted to analyse six different factor structures. Internal consistency and convergent validity indexes were calculated. The models tested included all of the following: 1) the original five-factor model (comprised of the following dimensions: emotional, informational, and tangible support, positive social interaction, and affection); 2) a four-factor empirical solution; 3 & 4) two different three-factor structures obtained in studies conducted in cancer patients; and 5 & 6) a two-factor solution for the abbreviated 8-item form and a one-factor solution for the 6-item form.
Results: The original five–factor structure showed a better fit index than the three and four factor models. Both the 6- and 8-item versions showed excellent goodness-of-fit, with adequate internal consistency and convergent validity indexes.
Conclusion: The MOS-SSS is a powerful, highly flexible instrument to assess social support in cancer patients. The full 19-item scale allows for a comprehensive assessment of the essential dimensions of social support, while the abbreviated versions permit a quick assessment that minimizes the burden on patients.

1. Introduction

In individuals with chronic illnesses, the availability of a satisfying network of interpersonal relations is crucial for both emotional sustenance and practical assistance during periods of pain, disability, and uncertainty [1]. Numerous studies have shown that social support is a strong predictor of adjustment to chronic illness [2–5]. Moreover, perceived social support is a stronger predictor of positive adjustment to stress than received support [6].

Although a variety of social support instruments have been developed to measure perceived social support (see review by Chronister, Johnson and Berven [7]), one of the most widely used social support scales is the Medical Outcomes Study–Social Support Survey (MOS-SSS) [8], a 20-item, self-administered scale originally designed to assess

functional support in a community sample of patients with chronic illnesses.

Sherbourne and Stewart [8] assessed the five most cited dimensions of social support using the MOS-SSS: 1) emotional support (the expression of positive affect, empathetic understanding, and the encouragement of expressions of feelings; items 3, 9, 16, 19); 2) informational support (the offering of advice, information, guidance or feedback; items 4, 8, 13, 17); 3) tangible support (the provision of material aid or behavioral assistance; items 2, 5, 12, 15); 4) positive social interaction (the availability of other persons to do fun things with you; items 7, 11, 14, 18); and 5) affection support (involving expressions of love and affection; items 6, 10, 20). The authors collected data from 2987 patients who had participated in the Medical Outcomes Study (MOS) and analysed the dimensionality of the MOS-SSS scale.

They performed multi-trait scaling analysis, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). The results of those analyses supported a four-factor structure, with emotional and informational support grouped into the same dimension, and the construction of an overall social support index.

The MOS-SSS has been adapted to various languages and even dialects: Chinese Cantonese [9], Spanish [10], Taiwanese [11], French [12], Brazilian Portuguese [13], Italian [14], Chinese Mandarin [15]. The MOS-SSS scale has also been evaluated in patients with chronic illnesses [9,10,13,15,16], in caregivers of cancer patients [11] and the general population [12,14]. In all of the aforementioned studies, the MOS-SSS has shown satisfactory psychometric properties. Empirical evidence for the factor structure of the scale (assessed by EFA and CFA) has mainly obtained three and four factor structures. Four-factor structures (9, 12, 14, 15) generally replicate the empirical solution obtained by Sherbourne and Stewart [8]. In three-factor structures, positive social interaction items are distributed between emotional/informational and affection dimensions [10], and are either included within the emotional/informational dimension [16] or are grouped with the affection dimension items loading on a single factor [13]. The existence of a higher-order factor for overall social support has not been explored in the validation studies. Nevertheless, some studies have provided internal consistency values for the total score [9,15].

Some authors have proposed shorter versions of the MOS-SSS in order to assess social support more quickly and to reduce the burden of having to complete the full MOS-SSS. Gjesfjeld et al. [17] explored two short forms (4 and 12 items) in a sample of 330 mothers of children in mental health treatment. The original research conducted by Sherbourne and Stewart [8] was used to determine which items should be retained in each case. In both the 4- and 12-item scales, the items with the strongest correlations to their subscale were retained. CFA results showed that both of these short forms maintained a good fit, which was even better than original scale, indicating satisfactory internal consistency. The Gjesfjeld study, however, used the original MOS-SSS version containing only 18 items (item 14 was dropped because it contributed to two social support subscales).

Moser et al. [18] analysed an 8-item version of the MOS-SSS (mMOS-SSS) that had been developed in a previous study [19]. That version included two 4-item subscales related to perceived provision of support for instrumental activities and emotional needs. The authors examined a two-factor structure for mMOS-SSS using secondary analyses of data obtained from three different populations, including 1) 660 women with cancer from the Boston breast cancer study [20], 2) 864 women with cancer from the Los Angeles breast cancer study [21], and 3) 1717 women from the Medical Outcomes Study [22]. EFA results yielded one- and two-factor structures while the CFA results suggested a better fit for the two-factor structure versus a one- factor structure (the total mMOS-SSS score). Gómez-Campelo et al. [23] examined the 8-item version of the MOS-SSS in outpatients in a primary health care setting in Spain ($n = 903$). The EFA and CFA both obtained a one-factor model with adequate fit indices, in contrast with the finding reported by Moser et al. supporting a two-factor structure (18). In both studies, psychometric properties for the mMOS-SSS factor structures were satisfactory.

Finally, Holden et al. [24] developed a 6-item version of the MOS-SSS (MOS-SSS-6), which they validated using two large population-based samples: 10616 and 8977 women from the Australian Longitudinal Study on Women's Health [25]. The items in this abbreviated version were derived from the factor structure obtained from unpublished research that used earlier data from one of these cohorts. The authors reported a satisfactory overall performance for MOS-SSS-6, with an adequate goodness-of-fit for the data and excellent reliability.

Studies using the Spanish version of the scale [10,16,23] have shown satisfactory psychometric properties. Regarding the factor structures found in these studies, De la Revilla Ahumada et al. [10], performed an EFA in a sample off 301 outpatients with chronic illness,

finding a three-factor structure that explained 68.7% of the variance. Costa et al. [16] also used the EFA methodology in a sample involving 400 cancer patients, in which they found a three-factor structure that differed slightly from the one found in the previous study. As shown above, Gomez-Campelo et al. [23] tested the 8-item with a sample of 903 primary health care outpatients. The EFA and CFA performed in that study found that a one-factor solution was the most appropriate.

For two decades, the MOS-SSS and related short forms have been widely used in many populations, including cancer patients [26–29]. However, the wide variety of factor structures obtained in those studies has raised concerns about the most appropriate structure for this scale. Clearly, more research is needed to determine the optimal factor structure for the MOS-SSS scale and for the abbreviated versions. Understanding the factor structure of the MOS-SSS would allow a correct interpretation and use of the scale. In addition, a precise knowledge of the assessed dimensions would permit the detection of specific needs in social support, thus helping researchers to develop more precise interventions. In this context, and considering the need to validate this instrument in different populations, the aim of the current study was to use CFA to explore the factor structure of the original and abbreviated 6- and 8-item forms of the MOS-SSS in a sample of recently diagnosed cancer patients. A secondary aim of this study was to analyse the internal consistency of these models and their convergent validity with psychological distress.

2. Method

2.1. Participants and setting

Participants were recruited from a longitudinal study of psychological predictors of distress carried out at University Hospital Marqués de Valdecilla, Santander, Spain, from December 2011 to October 2013. Eligibility criteria for inclusion in the present study were as follows: (1) first diagnosis of primary cancer, (2) age between 18 and 70 years, (3) time to diagnosis ≤ four months, (4) no cognitive deficits, mental disability, or illiteracy. Consecutively admitted patients from the Oncology, Haematology, Gynaecology departments and from the chemotherapy Day Hospital were approached. Of the 215 patients who met the study criteria, 21 refused to participate. The remaining 194 patients, all of whom agreed to participate and provided written informed consent, were scheduled for an appointment with a clinical psychologist during the first weeks after diagnosis, at which time the questionnaires were delivered. Out of these 194 patients, 128 returned the questionnaires with all data at the next medical appointment, and were thus included in the final sample. The study was approved by the Marqués de Valdecilla Committee of Ethics and met all criteria of the Declaration of Helsinki.

3. Materials

3.1. MOS-SSS

The MOS-SSS [8] is a 20-item self-administered scale, originally designed to assess social support in a community sample of patients with chronic illness. In this study, we used the Spanish version of this scale, which was tested in a sample of patients with chronic illnesses [10]. The first item (an open-ended question) explores the size of the respondent's social network and/or structural support, but this item was not analysed in the present study. The remaining 19 items measure the perceived availability of functional support using a 5-point Likert response scale (ranging from 1 = 'none of the time' to 5 = 'all of the time'. The instrument assesses the availability of different types of social support and makes it possible to calculate a total score.