Reliability and validity of the multidimensional scale of perceived social support in Chinese mainland patients with methadone maintenance treatment

Kaina Zhou[a,b], Hengxin Li[c], Xiaoli Wei[c], Juan Yin[b], Peifeng Liang[b], Hongmei Zhang[b], Lingling Kou[b], Mengmeng Hao[b], Lijuan You[b], Xiaomei Li[a], Guihua Zhuang[b,*]

[a]*School of Nursing, Xi'an Jiaotong University Health Science Center, No. 76 Yanta Western Road, Xi'an, Shaanxi 710061, China*
[b]*Department of Epidemiology and Biostatistics, School of Public Health, Xi'an Jiaotong University Health Science Center, No. 76 Yanta Western Road, Xi'an, Shaanxi 710061, China*
[c]*Xi'an Center for Disease Control and Prevention, No. 599 Xiying Road, Xi'an, Shaanxi 710054, China*

Abstract

Introduction: The multidimensional scale of perceived social support (MSPSS) is a valid tool for assessing perceived support from family, friends and significant others. However, evidence about reliability and validity of the MSPSS in Chinese mainland patients with methadone maintenance treatment (MMT) is lacking.
Methods: The patients (n = 1212) being admitted to the first two largest MMT clinics in Xi'an were recruited in the study. Reliability was estimated with Cronbach's α and intra-class correlation (ICC). Convergent and discriminant validity was assessed using item-subscale correlation. Factorial validity was examined using exploratory and confirmatory factor analysis. The patients answered the questions of MSPSS at baseline and re-test after 6 months, respectively.
Results: Cronbach's α of the overall MSPSS was 0.92 (subscales range: 0.84–0.89). ICC of the overall MSPSS was 0.65 (subscales range: 0.57–0.64). Better convergent validity ($r \geq 0.40$) was demonstrated by the satisfactory hypothesized item-subscale correlation. All of the hypothesized item-subscale correlations were higher than the correlations between the hypothesized items and other subscales, indicating better discriminant validity. Two factors were extracted from the 12 items, with factor 1 mainly covering friends and significant others subscales (explained 55.56% variance) and factor 2 mainly covering family subscale (explained 11.77% variance). In comparison with the proposed three-subscale model, the two-factor observed model did not fit well in this sample according to model fit indices.
Conclusions: The MSPSS has acceptable reliability and convergent/discriminant validity in Chinese mainland MMT patients. The proposed three-factor model of MSPSS is much better fit than the two-factor observed model in this study. Findings of the study will provide evidence of psychometric properties of the MSPSS in MMT patient population and expand the use of the MSPSS in clinical MMT context.
© 2015 Elsevier Inc. All rights reserved.

1. Introduction

Opioid dependence is a chronic maladaptive pattern of heroin or opioid use, which poses adverse effects on individuals and society [1]. Methadone maintenance treatment (MMT) is a long-term opioid replacement therapy with daily methadone administration [2]. In China, it is estimated that about 190,000 drug users are being treated in the total

767 MMT clinics at the end of 2014 [3]. Due to the alternative characteristic and long-term treatment requirement of MMT, the majority of MMT patients cannot sustain the long-term treatment due to various factors, among which the most important one is social support [4–8].

Social support is a multidimensional and complex construct that has both structural and functional components [9]. The structural component includes quantitative properties of the

social network (e.g., size, proximity, range, and accessibility), frequency of contact with members of the network, reciprocal support and quality of the support [10]; while the functional component refers to perceived level of received support, such as emotional support, instrumental support (practical support), informative support and appraisal support [11]. These two components of social support can be broadly distinguished in terms of received and perceived support. Published studies have documented that social support has a buffering effect on stressful life events and depression [12,13] as well as great impacts on treatment outcomes [14–17], especially the perceived social support [18–20].

Perceived social support has been conceptualized as a function of beliefs about self-worth and the availability and responsiveness to others [21]. A promising scale that aims to measure perceived social support is the Multidimensional Scale of Perceived Social Support (MSPSS). The MSPSS is a short 12-item scale assessing both perceived availability and adequacy of emotional and instrumental support from three sources, i.e., family, friends and significant others [22]. The significant others subscale is a unique aspect of the MSPSS, which leaves the definition of who the "significant others" are to the respondent [23].

The MSPSS has been found to be reliable and valid both in its original English version [24] and other language versions across different subgroups, such as university students [25–27], nursing students [11], females [28,29], adolescents [30,31], South Asian migrants [32], schizophrenia patients [21], myocardial infarction patients [33], and psychiatric patients [34]. Being a specific population, MMT patients are characterized by chronic brain dysfunction due to drug addiction, which needs long-term methadone intake and duration for rehabilitation [1]. Thus, social support is very important for these patients maintaining in the treatment [4–8]. However, evidence regarding MSPSS application in MMT patient population is lacking.

With respect to the MSPSS validation, most of the published studies are conducted using western samples and report acceptable internal consistency reliability, test–retest reliability and construct validity of the translated MSPSS. Only few studies replicate the three-factor model (i.e., family, friends and significant others) of the MSPSS; other two-factor models of MSPSS include friends and combination of family and significant others [35], or family and combination of friends and significant others [36]. Additionally, Akhtar et al. [29] found a single-factor model of the MSPSS in a group of antenatal women. Huang et al. [37] translated the MSPSS into Chinese and validated this instrument in cancer patients with sound psychometric properties. The Chinese MSPSS also has been validated in general populations such as medical students and adolescents [23,36]. However, psychometric properties of the MSPSS in MMT patient population are still unclear.

The purpose of the study was to examine reliability and validity of the Chinese version MSPSS in MMT patients of mainland China. The hypotheses are (1) the items have satisfied internal consistency and reproducibility; (2) the items consisting of a certain subscale have higher correlations with this subscale and lower correlations with other subscales; (3) the items reflect the three-factor model, i.e., family, friends and significant others. To our knowledge, this is the first study to evaluate MSPSS in Chinese mainland MMT patient population. Findings of the study will provide evidence of psychometric properties of the MSPSS in a specific population and expand the use of the MSPSS in clinical MMT context.

2. Methods

2.1. Ethics statement

The study protocol was reviewed and approved by the Human Research Ethics Committee of Xi'an Jiaotong University. The written informed consent was obtained from each recruited patient before the questionnaire survey.

2.2. Subjects and data collection

The subjects were admitted patients of the first two largest MMT clinics in Xi'an, China. One is privately funded and the other is publicly funded. Inclusion criteria were aged 18 years or over and Chinese-speaking. If the patients had cognitive disorders or refused to give written informed consent, they were excluded.

Data were collected from March to September, 2014. In this study, the patients came to the clinics at different time and they took methadone one by one under the supervision of the clinical staff. Considering different education levels of the patients, individual face-to-face interview was used to collect data in order to ensure the data quality. After methadone taking, the patients received individual face-to-face interview in a quiet and well-lit room, which was provided by the researchers and data collectors with special training. The data collection work did not interfere with the busy clinical settings. In the face-to-face interview, the patients understood the questions of MSPSS well and finished the questionnaire completely.

Published studies show that the time frame of test–retest reliability of the MSPSS ranges from 1 week to 2 months in different populations [26,27,33,34]. However, few studies focus on test–retest reliability of the MSPSS with time frame over 2 months. According to the recommended longest time frame of 6 months in test–retest reliability evaluation and considering the long-term treatment process of MMT, the 6-month time frame was selected between test and retest in this study.

2.3. Multiple scale of perceived social support (MSPSS)

The MSPSS is a 12-item instrument measuring perceived support from three subscales, i.e., family (FA), friends (FR) and significant others (SO) [22,24]. Each item is rated on a 7-point Likert-type response format ranging from 1 (very