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What is This?
Factorial Validity and Reliability of the Malaysian Simplified Chinese Version of Multidimensional Scale of Perceived Social Support (MSPSS-SCV) Among a Group of University Students

Ng Chong Guan, MBBS, MPM MSc, PhD¹, Loh Huai Seng, MB BCh BAO, FRACGP², Anne Yee Hway Ann, MB BCh BAO¹, and Koh Ong Hui, MBBS, MPM¹

Abstract
This study was aimed at validating the simplified Chinese version of the Multidimensional Scale of Perceived Support (MSPSS-SCV) among a group of medical and dental students in University Malaya. Two hundred and two students who took part in this study were given the MSPSS-SCV, the Medical Outcome Study social support survey, the Malay version of the Beck Depression Inventory, the Malay version of the General Health Questionnaire, and the English version of the MSPSS. After 1 week, these students were again required to complete the MSPSS-SCV but with the item sequences shuffled. This scale displayed excellent internal consistency (Cronbach’s α = .924), high test–retest reliability (.71), parallel form reliability (.92; Spearman’s ρ, P < .01), and validity. In conclusion, the MSPSS-SCV demonstrated sound psychometric properties in measuring social support among a group of medical and dental students. It could therefore be used as a simple screening tool among young educated Malaysian adolescents.

Keywords
Chinese version, Malay version, perceived social support, psychometric properties, reliability, validation

Introduction
Social support plays an important role in the coping mechanism between stress and psychological or physical symptoms. Various studies have established the association between social support and health.¹⁻⁵ In assessing social support, Sarason and colleagues concluded
that it is a multidimensional construct comprising the size of social network, emotional support, instrumental support, quality of social support, and reciprocal helping of others.\textsuperscript{6} There are many ways by which we can measure social support, and Multidimensional Scale of Perceived Support (MSPSS) is one such self-administered scale that is useful in the assessment. Three domains, namely, Family, Friends, and Significant Others, are assessed using this scale to determine the adequacy of social support. The MSPSS is very simple to be administered and scored, as it contains only 12 items.\textsuperscript{7} Over the years, we have seen that the MSPSS demonstrated sound reliability, validity, and factor structure, even when tested on various samples including university students,\textsuperscript{8} pregnant women,\textsuperscript{9} adolescents living abroad,\textsuperscript{7} pediatric residents,\textsuperscript{7} urban adolescents,\textsuperscript{10} adolescent psychiatric inpatients,\textsuperscript{11} and outpatients.\textsuperscript{12}

This scale has been translated into many other languages. In Hong Kong, Chou established a traditional Chinese version of the MSPSS, with its concurrent validity, construct validity, and reliability validated.\textsuperscript{13} Our study aims to translate the MSPSS into simplified Chinese language (denoted MSPSS-SCV) to examine the psychometric properties of the translated version in the Malaysian population. We also looked at the reliability (internal consistency), concurrent and construct validities, factorial structure, and the specificity of the MSPSS-SCV.

**Methods**

Approval from the Medical Ethical Committee, University Malaya Medical Centre, was obtained to conduct the study. Permission from the original author of the instrument was obtained.

**Stage 1**

The English version of the MSPSS was translated into Chinese by 2 doctors who were bilingual (English and Chinese). Another 2 doctors, who were also bilingual, back-translated the Chinese version of the MSPSS following the back-translation technique.\textsuperscript{14}

**Stage 2**

The translated version was pilot tested among 10 students from the Faculty of Medicine, University Malaya. Some items in the translated version needed minor revisions and were modified further. The finalized version was also reviewed by 3 medical officers and a psychiatrist to ensure satisfactory face, semantic, criterion, and conceptual equivalence.\textsuperscript{15}

**Stage 3**

Convenient sampling of the students was employed in this study. Students from the Faculty of Medicine, University Malaya (medicine and dentistry), were approached for the validation study. Two hundred and two students agreed to participate and completed the study. They were given the following questionnaires: the simplified Chinese version of the MSPSS (MSPSS-SCV), the Medical Outcome Study (MOS) social support survey, the Malay version of the Beck Depression Inventory (BDI), and the Malay version of the General Health Questionnaire (GHQ).

As all the participants were bilingual, they were given the English version of the MSPSS immediately after the initial assessment. One week later, these students were again required to complete the MSPSS-SCV (the sequence of the items was shuffled).
Statistical Analyses

The results were analyzed using Statistical Package for Social Sciences version 13.0. The mean total scores of the MSPSS-SCV were calculated. Principle axis extraction approach with oblique rotation method was used to explore the correlation structure of the components. The number of components to obtain was decided using Kaiser’s criterion (a new component is obtained if the eigenvalue of the factor is more than 1). Cronbach’s α for all items and each component were calculated. The correlations between the total and each component of the MSPSS-SCV with the MOS social support survey, the Malay version of the BDI, and the Malay version of the GHQ were analyzed with Spearman’s test.

Results

All the 202 students gave informed consent to participate in this study. Their mean age was 22 years, with two thirds being females, and the majority (94.1%) were Chinese. About three quarters of the students were studying medicine, year 4 and above (Table 1).

Factor Analysis

The mean score of the respondents to the 12-item, 7-point Likert-type scale MSPSS-SCV was in the direction of high social support (mean = 67.20, SE = 10.43). We conducted a confirmatory factor analysis of the MSPSS-SCV items to confirm the 3-factor structure proposed by the original authors in their original study.7 In the study, correlation among 3 factors ranged from $r = .53$ (Family with Significant Others) to .57 (Family with Friends; Table 2). Barlett’s test of sphericity was significant ($P < .01$), and the Kaiser–Mayer–Olkin measure of sampling adequacy for the 12-item MSPSS-SCV was .89, which Kaiser reported as meritorious.16 Therefore, it is appropriate to proceed to factor analysis. Factors were extracted with a common factor approach (principle axis extraction). Three factors were extracted (eigenvalue > 1.00), which coincide with the MSPSS Family, Friends, and Significant Others.
The factors combined to account for 77.65% of the variance. The scree plot graphically displayed that there were 3 predominant factors. Oblique rotation was used by the researcher in the study. The oblique rotation allowed various amounts of correlation among the factors. It provided a more compelling solution than orthogonal rotation. Based on this rotation, 2 matrices were produced, a pattern matrix and a structure matrix. The difference between the high and low loading was far more apparent in the pattern matrix. The pattern matrix indicated that all items loaded most highly on their respective subscales with no cross-loading (Table 3).

Table 2. Oblique Rotated Factor Correlation Matrix From the Principal Axis Factor Analysis of the MSPSS-SCV Items

<table>
<thead>
<tr>
<th>Factors</th>
<th>Significant Others</th>
<th>Family</th>
<th>Friends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant Others</td>
<td>1.000</td>
<td>.533</td>
<td>.568</td>
</tr>
<tr>
<td>Family</td>
<td>.533</td>
<td>1.000</td>
<td>.566</td>
</tr>
<tr>
<td>Friends</td>
<td>.568</td>
<td>.566</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Abbreviation: MSPSS-SCV, simplified Chinese version of the Multidimensional Scale of Perceived Support.

Table 3. Oblique Rotated Pattern Matrix From Principal Axis Factor Analysis of MSPSS-SCV Items

<table>
<thead>
<tr>
<th>Factors</th>
<th>Significant Others</th>
<th>Family</th>
<th>Friends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant Others</td>
<td>1. There is a special person who is around when I am in need.</td>
<td>.862</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. There is a special person with whom I can share joys and sorrows.</td>
<td>.817</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. I have a special person who is a real source of comfort to me.</td>
<td>.810</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. There is a special person in my life who cares about my feelings.</td>
<td>.761</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>3. My family really tries to help me.</td>
<td>.834</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. I get the emotional help and support I need from my family.</td>
<td>.953</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. I can talk about my problems with my family.</td>
<td>.762</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. My family is willing to help me make decisions.</td>
<td>.585</td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>6. My friends really try to help me.</td>
<td>.881</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. I can count on my friends when things go wrong.</td>
<td>.907</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. I have friends with whom I can share my joys and sorrows.</td>
<td>.609</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12. I can talk about my problems with my friends.</td>
<td>.620</td>
<td></td>
</tr>
<tr>
<td>Cronbach α</td>
<td>.895</td>
<td>.891</td>
<td>.904</td>
</tr>
<tr>
<td>Eigen value</td>
<td>6.635</td>
<td>1.478</td>
<td>1.205</td>
</tr>
<tr>
<td>Explained variance (%)</td>
<td>55.288</td>
<td>12.318</td>
<td>10.043</td>
</tr>
</tbody>
</table>

Abbreviation: MSPSS-SCV, simplified Chinese version of the Multidimensional Scale of Perceived Support.

*Loading less than .30 is suppressed.
Reliability

Cronbach’s coefficient $\alpha$ was calculated for the total MSPSS-SCV and each subscale to assess the internal reliability. Coefficient $\alpha$ for the total MSPSS-SCV was .924. The Significant Others, Family, and Friends subscales demonstrated $\alpha$s of .895, .891, and .904, respectively (Table 3). The parallel form of reliability was high (Spearman’s $\rho = .92$, $p < .01$). The test–retest reliability after the 1-week interval was also high (Spearman’s $\rho = .71$, $p < .01$).

Validity

Spearman’s correlation between the total MSPSS-SCV subscales and the participants’ respective scores on the MOS social support survey and the Malay version of GHQ and BDI are shown in Table 4. Perceived social support from all the 3 factors was inversely related to the score of GHQ and BDI. The scores of the total subscales of the MSPSS-SCV were positively correlated with the MOS social support survey ($P < .01$). The MOS social support survey correlated more highly with Significant Others than the other 2 subscales (Table 3).

Discussion

Our study on the translated simplified Chinese version of the MSPSS among medical and dental students of the Faculty of Medicine, University Malaya, has shown impressive and convincing results in terms of sound psychometric property, as evident by good reliability and validity. Besides high parallel reliability, the internal consistency of the instrument was also high, reflecting good homogeneity among items of the scale. Stability of the scale was also remarkable, with the demonstrated high test–retest reliability. Consistent with other studies, the negative correlation was significant between the scores (both total and subscale) of the instrument and the 2 validated measures of psychological and depressive symptoms in a local setting (GHQ and BDI). In addition, the concurrent validity of the instrument was reflected through the significant correlation between the overall and subscale scores of the instrument using the validated MOS social support survey.

The MSPSS-SCV in our study underwent a factor analysis and 3 factors were generated. It confirmed the 3-factor structure originally proposed by the original author, which was

Table 4. Correlation (Spearman’s $\rho$) Between the Social Support Factors of the MSPSS-SCV With the Malay Versions of the GHQ, BDI, and MOS Social Support Survey

<table>
<thead>
<tr>
<th>MSPSS</th>
<th>Total</th>
<th>Significant Others</th>
<th>Family</th>
<th>Friends</th>
<th>MOS</th>
<th>GHQ</th>
<th>BDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1.000</td>
<td>.824**</td>
<td>.817**</td>
<td>.922**</td>
<td>.645**</td>
<td>-.164*</td>
<td>-.103</td>
</tr>
<tr>
<td>Significant Others</td>
<td>.824**</td>
<td>1.000</td>
<td>.501**</td>
<td>.573**</td>
<td>.637**</td>
<td>-.028</td>
<td>-.053</td>
</tr>
<tr>
<td>Family</td>
<td>.817**</td>
<td>.501**</td>
<td>1.000</td>
<td>.598**</td>
<td>.453**</td>
<td>-.134</td>
<td>-.073</td>
</tr>
<tr>
<td>Friends</td>
<td>.848**</td>
<td>.573**</td>
<td>.598**</td>
<td>1.000</td>
<td>.499**</td>
<td>-.228**</td>
<td>-.132</td>
</tr>
<tr>
<td>MOS</td>
<td>.645**</td>
<td>.637**</td>
<td>.433**</td>
<td>.499**</td>
<td>1.000</td>
<td>-.170*</td>
<td>-.149*</td>
</tr>
<tr>
<td>GHQ</td>
<td>-.164*</td>
<td>-.028</td>
<td>-.134</td>
<td>-.228**</td>
<td>-.170*</td>
<td>1.000</td>
<td>.590**</td>
</tr>
<tr>
<td>BDI</td>
<td>-.103</td>
<td>-.053</td>
<td>-.073</td>
<td>-.132</td>
<td>-.149*</td>
<td>-.590**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Abbreviations: MSPSS-SCV, simplified Chinese version of the Multidimensional Scale of Perceived Support; BDI, Beck Depression Inventory; GHQ, General Health Questionnaire; MOS, Medical Outcome Study social support survey.

**$p < .01$. *$p < .05$. 

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supported by many subsequent studies. Although Chou had done a study on a translated Chinese version of this scale, only 2 factors emerged. The Family subscale was retained. However, both the Friends and Significant Others were merged into one Friend subscale in that study, proving that the perceived social support varied among different cultures. In our case, the medical and dental students were able to differentiate among the 3 sources of support in the MSPSS, namely, Family, Friends, and Significant Others.

Overall, the MSPSS-SCV displayed sound psychometric performance in assessing social support among the group of medical and dental students in the Faculty of Medicine, University Malaya. All 3 dimensions of social support, namely, Family, Friends, and Significant Others, were measured with good reliability and validity.

As noted in other similar studies, there were 2 limitations in our study. First, we only recruited medical and dental students from a university. It would be more meaningful if the psychometric properties and factorial structure of the MSPSS-SCV is studied on a larger population. Second, unlike a longitudinal study, this correlational study could not define the causal relation between social support with psychological and depressive symptoms.

Conclusion
In conclusion, our study still proves that the MSPSS-SCV is a useful screening tool especially among the young educated Malaysian adolescents.

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Declaration of Conflicting Interests
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