EDUCATIONAL ASSESSMENT & EVALUATION | RESEARCH ARTICLE

Modification and validation of the multidimensional scale of perceived social support for Chinese school teachers

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Abstract: This study aims to investigate the psychometric properties of the revised multidimensional scale of perceived social support (R-MSPSS) for Chinese school teachers. A questionnaire comprising the R-MSPSS and other psychological measures was administered to a sample of 539 school teachers in Hong Kong. A series of confirmatory factor analysis was conducted to examine the construct validity of the Scale. The results indicated a moderate fit of the proposed model with improved fit after covariance of error terms were added. Convergent and discriminant validity of the Scale were assessed by associations with self-esteem and burnout symptoms. The results of most correlations were statistically significant and in predicted directions, which will provide a fertile ground in supporting the use of the R-MSPSS for measuring social support for Hong Kong teachers. Further modifications in differentiating those items for measuring perceived social support from school principal and colleagues are suggested.

Subjects: Social Sciences; Behavioral Sciences; Education

Keywords: multidimensional scale of perceived social support; conservation of resources model; burnout; Chinese school teachers; confirmatory factor analysis

1. Introduction

Perceived social support refers to the subjective perception of the general availability of support when needed (Sarason, Sarason, & Pierce, 1990). The multidimensional scale of perceived social support...
support (MSPSS) was developed by Zimet, Dahlem, Zimet, and Farley (1988) that provided a multidimensional measure of perceived social support adequacy from three major sources, including family, friends, and significant other. Initial results showed that the MSPSS has good internal and test–retest reliabilities and moderate construct validity. The psychometric properties of the MSPSS have been further validated in wide sectors of population sizes across different cultures and races (e.g. Canty-Mitchell & Zimet, 2000; Chou, 2000; Cobb & Xie, 2015; Dahlem, Zimet, & Walker, 1991; Edwards, 2004; Ekback, Benzine, Lindberg, & Arestedt, 2013; Eker, Arkar, & Yaldiz, 2000; Kazarian & McCabe, 1991; Ng, Amer Siddiq, Aida, Zainal, & Koh, 2010; Stanley, Beck, & Zebb, 1998; Tonsing, Zimet, & Tse, 2012; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). However, most of the aforementioned exploratory studies have demonstrated the three-factor structure of the MSPSS, a few of those studies have yielded alternative factor structures. For example, Stanley et al. (1998) could only found a two-factor solution in a sample of elderly adults with generalized anxiety disorder (GAD), in which the subscales of family and significant other were merged together into a single factor. Family and significant other subscales were also loaded on the same factor among 122 undocumented Hispanic immigrants (mean age = 33.66) in the US (Cobb & Xie, 2015) and 153 Nepalese migrants (mean age = 32.4) living in Hong Kong (Tonsing et al., 2012). A two-factor structure was also found with samples of Chinese adolescents and young adults, in which the items of friends and significant other were combined into a single factor (Chou, 2000; Ho & Chik, 2010).

Using confirmatory factor analyses, Clara, Cox, Enns, Murray, and Torgrudc (2003) found that a three-factor model and a single higher order factor of the MSPSS were supported in samples of university students and clinically distressed students. In a sample of high school students in Hong Kong, confirmatory factor analyses revealed that the three-factor model was better fit and the two-factor model (in which friends and significant other subscales are combined) was less than satisfactory (Cheng & Chan, 2004). Though the three-factor model was well fit in this Chinese sample, a hierarchical model showed that the significant other subscale seemed to measure support from both friends and family. Similarly, Başol (2008) replicated the three-factor solution of the MSPSS with both exploratory and confirmatory factor analyses with a sample of Turkish school administrators. However, item in the friends and significant other subscales is highly correlated, making it difficult to differentiate between the two subscales. Both Cheng and Chan’s (2004) and Başol’s (2008) studies highlight the potential conceptual and measurement problem in defining the term of “a special person” in the significant other subscale.

One of the characteristics of the MSPSS is that respondents are allowed to define the “special person” in the significant other subscale. Although it is generally believed that items about a “special person” connote a romantic relationship (Ramaswamy, Aroian, & Templin, 2009), using a more specific term (e.g. boyfriend/girlfriend) could have weakened the scale as it presumes the existence of a romantic relationship for all respondents (Canty-Mitchell & Zimet, 2000). In a large scale of study conducted in Italy including 1,041 adults aged between 18 and 77, other than filling in the MSPSS, participants were also required to identify their own “special person” (Prezza & Giuseppina Pacilli, 2002). Among the respondents, 515 had chosen the category of “special person.” Of those older and married participants, more than three-quarters of them identified their spouse, whereas those younger and never married respondents chose almost equally among friends, parents, and partner. The results corroborate with the view that meaning of “special person” may be dependent on individual’s age and marital status (Zimet et al., 1990). The results thus explain why the same component comprised items from both the family and significant other subscales in Stanley et al.’s (1998) study of older adults and Cobb and Xie’s (2015) study of adults, whereas items of the significant other and friends subscales were loaded on the same factor in Chou’s (2000) study of adolescents and Ho and Chik’s (2010) study of young adults. Besides, since the meaning of “a special person” was translated as “one best friend” in Chinese (一個好朋友) in Chou’s (2000) and Ho and Chik’s (2010) studies, it was likely that participants might equate a special person with a best friend rather than a romantic partner (if any). It further confirms why the two studies combined significant other and friends into a distinct category.
The conservation of resources (COR) model (Hobfoll, 1989) suggests that the prime human motivation is directed toward the maintenance and accumulation of resources for stress coping. Although this theory is initially tied to people who had experience in stress regardless of the setting or context (Hobfoll & Freedy, 1993), it is widely applied to work (Hobfoll & Shirom, 2000), including teaching professions (e.g. Buchwald, Schorn, & Morgernroth, 2011; Hakonen, Bakker, & Schaufeli, 2006; Shirom, Oliver, & Stein, 2009). In this model, social support is viewed as a condition resource where individuals strive to meet their needs as well as enhancing other resources (Hobfoll & Shirom, 2000). Social support has been traditionally identified as a major resource against stress (Cohen & Wills, 1985). Without adequate social support, individuals who have gone through intensive and chronic stressful experiences at work may culminate into a “burnout” condition, a psychological syndrome that involves a prolonged response to stress in the workplace, manifesting symptoms of emotional exhaustion (EE), (2) depersonalization (DP), and (3) reduced personal accomplishment (PA) (Maslach & Jackson, 1981, 1986). One of the key features of the COR model is the gain or loss of resources occurring in spirals (Hobfoll & Freedy, 1993), which signifies that individuals with greater available resources are less likely to suffer from resources loss and more capable of resources gain, and vice versa. For example, those with high levels of social support are more likely to bolster their self-esteem, which is identified as a resource of personal characteristics in the COR model (Hobfoll & Shirom, 2000). Based on the COR model, Halbesleben (2006) maintains that different sources of social support (coworker, supervisor, family, and friends) are differentially related to dimensions of burnout. According to the results of meta-analysis, Halbesleben (2006) found that work-related support was more closely associated with emotional exhaustion than depersonalization and personal accomplishment whereas non-work support was more closely related to depersonalization and personal accomplishment than exhaustion.

Considering teaching profession often involves intense emotional and stressful experiences in the workplace, having support from various sources may help teachers cope effectively with these experiences. Research indicates that various sources of social support are related to three burnout symptoms differentially in teachers. However, the results are varied. Some studies have indicated that having support from principal (supervisor) may account for lowering emotional exhaustion. For instance, Brouwers, Evers, and Tomic (2001) found that social support from principal is more strongly related to emotional exhaustion than depersonalization and personal accomplishment among secondary school teachers in the Netherlands. Some studies have also indicated that social support from principal is the only significant predictor among other sources of support in all facets of burnout (Russell, Altmaier, & Van Velzen, 1987; Sarros & Sarros, 1992), in particular emotional exhaustion (Zhang & Zhu, 2007). However, Kim, Lee, and Kim (2009) found that support from principals and/or vice principals does not make a significant contribution to the prediction of burnout in a sample of Korean elementary school teachers. Besides, social support from colleagues (peers) contributed salient effects in some studies. For example, in their study among physical education teachers, Brouwers, Tomic, and Boluijt (2011) revealed significant correlations between colleague support and the three burnout dimensions, and these relationships are stronger than those between school management support and all burnout dimensions. Greenglass, Burke, and Konarski (1997) reported that support from co-workers is more effective than support from supervisor in the contribution to the prediction of depersonalization and personal accomplishment in a sample of Canadian teachers. However, personal accomplishment was the only facet of burnout predicted by co-worker support in a sample of Hong Kong teachers (Mo, 1991). Research studies have also showed that higher levels of support from family and/or friends are associated with lower levels of burnout symptoms (Bataineh, 2009; Cheuk & Wong, 1998; Otero López, Bolaño, Santiago, & Villardefrancos, 2010; Otero López et al., 2008). Greenglass, Fiksenbaum, and Burke (1994) conducted a one-year longitudinal study to examine determinants of burnout in a sample of Canadian teachers. Burnout level (as measured by a composite score of EE, DP, and PA) at year 2 was found to be dependent on the interaction between sources of stress and support from family members and friends one year earlier, indicating the buffering effect of such support. The aforementioned findings suggest that there may be distinct patterns of relationships between various sources of social support and burnout components among teachers.
The current study investigated the psychometric properties of a revised multidimensional scale of perceived social support (R-MSPSS) for Chinese school teachers. First, confirmatory factor analyses were performed to assess construct validity of the scale. Second, based on the spiral of gain assumptions in the COR model, we expected that different sources of social support were positively correlated with self-esteem. Finally, this study also examined if various sources of perceived social support were differentially associated with burnout dimensions. According to the results of a meta-analytic test of the relationships between various sources of social support and burnout dimensions by Halbesleben (2006), it is expected that the relationships between perceived social support from principal and colleagues are related more to emotional exhaustion than those with depersonalization and personal accomplishment, whereas the associations of perceived social support from family and friends with depersonalization and personal accomplishment are stronger than those with emotional exhaustion.

2. Method

2.1. Participants & procedures
A sample of 539 teachers from 14 schools were recruited. Two hundred and thirty-five (43.6%) men and 304 (56.4%) women participated in the study. About one-third of the respondents were aged between 21 and 30 and one-third were in the “31 to 40” age group; 21.3% were in the “41 to 50” age group, 7.8% were in the “51 or above” age group, and 23 of them (4.3%) did not indicate their age. The majority of them worked in either primary (23%) or secondary schools (70.1%). One thousand questionnaires were sent to the respondent schools and the researcher collected the questionnaires in person, resulting in slightly more than 50% response rate (see Appendix A).

2.2. Measures

2.2.1. Perceived social support
In view of the ambiguity of “special person” and its poorly translated meaning in Chinese, the four items of social support from the significant other subscale of the MSPSS were omitted and superseded by items measuring social support from work (Caplan, Cobb, French, Van Harrison, & Pinneau, 1980). Specifically, Caplan et al.’s (1980) Social Support Scale (SSS) was translated and back-translated for “colleagues” and “principal,” respectively, and added to the MSPSS to form a 16-item R-MSPSS assessing perceptions of social support adequacy from (1) principal, (2) colleagues, (3) family, and (4) friends. Additionally, all the original social support items from “friends” subscale were specified as “friends (non-colleagues)” so as to better distinguish the two possible sources of social support between colleagues and friends one might receive. Responses are anchored on a seven-point scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Higher subscale scores yield higher satisfaction with perceived social support from the respective sources.

2.2.2. Self-esteem
The Chinese version of Rosenberg’s 9-item self-esteem scale (RSES-C) was used to assess one’s orientation toward the self (Kwan, Bond, & Singelis, 1997). Participants rate items on a four-point scale from 1 (strongly disagree) to 4 (strongly agree). Five items were reversed-scoring items (items 1, 2, 5, 6 & 9). A sample item is “At times, I think I am no good at all”. A higher score shows higher level self-esteem. The Cronbach’s alpha estimated based on the current sample of this 9-item scale was .86, with a mean score of 27.95 (SD = 3.95).

2.2.3. Burnout
Teacher Burnout is measured by the Maslach Burnout Inventory-Educators Survey (MBI-ES) (Yuen, Lau, Shek, & Lam, 2002). It consists of 22 items grouped into three dimensions: emotional exhaustion (EE) (9-item), depersonalization (DP) (5-item), and reduced personal accomplishment (PA) (8-item). Participants are required to indicate how often they feel burnout on a seven-point Likert-type rating scale from 0 = “never” to 6 = “every day.” Higher scores on the dimensions are indicative of burnout. The Cronbach’s alphas for EE, DP, and PA for this sample were .88, .80, and .83, respectively.
3. Results

3.1. Descriptive data and reliability of the R-MSPSS
The mean scores of the perceived social support from principal, colleagues, family, and friends were 16.26, 20.75, 22.14, and 22.46, with standard deviations of 5.92, 4.21, 4.73, and 3.92, respectively. The reliability coefficients for the four sources of perceived social support of the R-MSPSS were good, ranging from .84 to .90.

3.2. Confirmatory factor analyses
Confirmatory factor analysis using maximum likelihood estimation with Amos 23.0 was conducted to test the proposed four-factor model of the R-MSPSS (Figure 1). The correlations among the four factors ranged from .16 to .50, and the standardized factor loadings for the 16 items ranged from .68 to .89. All standardized factor loadings and correlations among the factors are significant ($p < .01$).
Several absolute and incremental fit indices (the normed chi-square ($\chi^2/df$), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA)) were examined to determine the “goodness of fit” of the measurement model. The value of $\chi^2$ divided by degree of freedom (CMIN/DF) falls within the range of 2–5 is considered as reasonable fit (Bollen, 1989). CFI and TLI values in the range of .90–.95 and that of RMSEA less than .08 suggest good fit (Browne & Cudeck, 1993; Hu & Bentler, 1999). Results showed that the proposed four-factor R-MSPSS model did not fit well, with CMIN/DF = 7.91, CFI = .88, TLI = .85, and RMSEA = 1.13 (90% CI = .11–.12).

Post hoc model modifications based on modifications indices (MI) were performed so as to improve the overall model fit. Upon checking the MI with high estimates (i.e. >60), error terms between items 9 and 10, items 12 and 16, items 1 and 2, items 7 and 8, and items 13 and 14 were allowed to covary, as shown in Figure 2. Comparing with the initial model, the revised four-factor model with modifications fitted well, with CMIN/DF = 3.36, CFI = .96, TLI = .95, and RMSEA = .07 (90% CI = .06–.07).

Significant correlations among the four factors suggest a possible higher order factor of overall support. As shown in Figure 3, the four sources of social support correlate moderately with the overall support (Support), ranging from .32 to .76. The fit indices also met the fit criteria, with CMIN/
DF = 3.50, CFI = .96, TLI = .95, and RMSEA = .07 (90% CI = .06–.07). The fit of the higher order factor model suggests that the total of the R-MSPSS can be summed to represent a meaningful and interpretable score (Noar, 2003).

3.3. Convergent and discriminant validity
As shown in Table 1, all sources of support were positively correlated with self-esteem (rs ranged from .10 to .19, ps < .05 to .001), supporting the notion of spiral of gain of COR theory and convergent validity of the R-MSPSS. Concerning discriminant validity of the scale, a series of one-tailed Steiger’s (1980) Z-test was performed. First, we would like to conclude if the relationships between work support (principal and colleagues) and burnout dimensions are related more to emotional exhaustion than depersonalization and reduced personal accomplishment. Support from principal and colleagues was both inversely related to all burnout symptoms. Specifically, the negative correlation between support from principal and emotional exhaustion (r = -.27, p < .001) was statistically higher than the associations with depersonalization (r = -.09, p < .05) and reduced personal accomplishment.
accomplishment ($r = -0.14, p < 0.01$), $Zs = 4.54 \& 2.46, ps < 0.01$. However, there were no significant differences between the correlations each of the burnout dimensions has with support from colleagues, $Zs$ ranged from 0.56 to 0.75, $ps > 0.05$. Second, we also examine if non-work support (family and friends) is more closely related to depersonalization and reduced personal accomplishment than emotional exhaustion. Results showed that both support from family and friends is negatively related to depersonalization and reduced personal accomplishment but not emotional exhaustion. And these significant relationships are stronger ($rs = -0.14 \& -0.22, ps = 0.01 \& 0.001$) than with emotional exhaustion ($rs = -0.07, ns$), $Zs$ ranged from 1.74 to 2.80, $ps = 0.05 \& 0.01$. With the exception of the colleagues support subscale showing no differences with the associations with burnout dimensions, discriminant validity is demonstrated for principal, family, and friends subscales of the R-MSPSS.

### 4. Discussion

The purpose of this study was to examine the psychometric properties of the R-MSPSS for Chinese school teachers. The revised scale is based on the instruments developed by Zimet et al. (1988, 1990) and Caplan et al. (1980), enclosing four major sources of social support, namely principal, colleagues, family, and friends. Results of the confirmatory factor analyses demonstrate the proposed four-factor structure with modifications as evidenced by the fit indices. Examination of the modification indices reveals that errors terms are correlated for items duplicated in meaning for principal and colleagues, respectively (e.g. “My principal/colleague can go out of his/her way to do things to make my work life easier”), suggesting revisions of items are required in further research, thus making the items more unique and relevant to individual source of support. The R-MSPSS showed good internal consistency, illustrating its reliability.

In addition, the findings showed reasonable levels of convergent validity for the R-MSPSS as all the subscales were positively correlated with self-esteem. Concerning discriminant validity, the distinction between work (principal) and non-work (family and friends) support with burnout dimensions is congruent with the results of a meta-analytic study by Halbesleben (2006) in which work support was found to closely relate to emotional exhaustion than depersonalization and reduced personal accomplishment, whereas non-work support was more strongly correlated with depersonalization and reduced personal accomplishment than emotional exhaustion. Presumably, the principal of a school is the one who has the authority to provide instrumental and tangible support to teachers (e.g. reduction of workload). Since emotional exhaustion is characterized by feeling drained and depleted because of work, having support from this source definitely helps lower emotional exhaustion. The stronger relationship between support from principal and emotional exhaustion in this study is also consistent with the findings of Brouwers et al. (2001). However, no evidence was shown for stronger relationships between support from colleagues and emotional exhaustion. Among all others, colleagues should be more empathetic; therefore having support from colleagues is equally important for coping with emotional exhaustion, depersonalization as well as a loss of personal accomplishment at work. Finally, support from family and friends correlated more highly with

| Perceived social support | Self-esteem | Emotional exhaustion | Depersonalization | Reduced personal accomplishment |
|--------------------------|-------------|---------------------|------------------|--------------------------------|
| Principal                | .11*        | -.27***             | -.09*            | -.14**                         |
| Colleagues               | .10*        | -.15***             | -.18***          | -.18***                        |
| Family                   | .19***      | -.07                | -.16***          | -.18***                        |
| Friends                  | .14**       | -.07                | -.14**           | -.22***                        |

*Significance level at $p < 0.05$.
**Significance level at $p < 0.01$.
***Significance level at $p < 0.001$.
depersonalization and reduced personal accomplishment than emotional exhaustion, findings are in parallel with Halbesleben’s (2006) meta-analytic study that non-work support would be useful to encourage individuals emotionally and psychologically. They are less likely to establish detached and uncaring attitudes toward others (depersonalization) nor feeling incapable and unaccomplished at work (reduced personal accomplishment).

Future research is required for further validation and application of the R-MSPSS in teachers. Since participants of the current study were drawn from a convenient sample, a more representative random sample could be recruited to enhance the generalizability of results. In measuring various sources of social support, to identify and differentiate items that have unique effects on burnout becomes a challenge. The findings of the current study also call for an appropriate focus on school management for the promotion of social support at school in preventing teacher burnout. Further research focusing on the design and evaluation of social support intervention programs could be promising.

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## Appendix A

1 = Strongly Disagree  
2 = Disagree  
3 = Disagree Somewhat  
4 = Neither Agree Nor Disagree  
5 = Agree Somewhat  
6 = Agree  
7 = Strongly Agree

1. My principal can go out of his/her way to do things to make my work life easier.

2. My colleagues can go out of their way to do things to make my work life easier.

3. I can rely on my principal when things get tough at work.

4. I can rely on my colleagues when things get tough at work.

5. My family really tries to help me.

6. I get emotional help and support I need from my family.

7. It is easy for me to talk with my principal.

8. It is easy for me to talk with my colleagues.

9. My friends (non-colleagues) really try to help me.

10. I can count on my friends (non-colleagues) when things go wrong.

11. I can talk about my problems with my family.

12. I have friends (non-colleagues) with whom I can share my joys and sorrows.

13. My principal is willing to listen to my personal problems.

14. My colleagues are willing to listen to my personal problems.

15. My family is willing to help me make decisions.

16. I can talk about my problems with my friends (non-colleagues).