Available online at www.sciencedirect.com
SCIENCE DIRECT®

PERGAMON

Personality and Individual Differences xxx (2004) xxx–xxx

PERSONALITY AND INDIVIDUAL DIFFERENCES

www.elsevier.com/locate/paid

The multidimensional scale of perceived social support: dimensionality and age and gender differences in adolescents

Sheung-Tak Cheng [a,*], Alfred C.M. Chan [b]

[a] *Department of Applied Social Studies, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong*
[b] *Department of Politics and Sociology, Lingnan University, Hong Kong*

Received 19 June 2003; received in revised form 26 November 2003; accepted 21 January 2004

Abstract

The Multidimensional Scale of Perceived Social Support which contains three subscales—family, friends, and significant other support—was administered to 2105 high school students in Hong Kong. Confirmatory factor analyses were performed on two competing models, and the model that fit the data was a hierarchical model in which the three first-order factors were produced by a higher-order factor of overall support. Results showed that the higher-order factor was completely redundant with the first-order factor of significant other support which appeared to measure both friends and family support at the same time. The significant other subscale therefore poses serious conceptual and measurement problems. Further analysis based on the family and the friends subscales showed that girls reported more friends but less family support than boys, and older adolescents also reported less family support than younger ones. Older girls reported the highest level of friends support, and younger boys reported the highest level of family support.

Keywords: Family support; Friends support; Significant other support; Adolescents

1. Introduction

Recently, there is a surge of interest in the use of the Multidimensional Scale of Perceived Social Support (MSPSS) to measure perceived social support across cultures (Canty-Mitchell & Zimet,

* Corresponding author. Tel.: +852-2788-8991; fax: +852-2788-8960.
E-mail address: tak.cheng@cityu.edu.hk (S.-T. Cheng).

0191-8869/$ - see front matter © 2004 Published by Elsevier Ltd.
doi:10.1016/j.paid.2004.01.006

2000; Chou, 2000; Eker, Arkar, & Yaldiz, 2000). The MSPSS was originally developed on university students (Zimet, Dahlem, Zimet, & Farley, 1988) and was later validated in a wide range of samples, including pregnant women, adolescents, older adults, doctor-trainees and psychiatric patients (Kazarian & McCabe, 1991; Stanley, Beck, & Zebb, 1998; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Even though all the items are worded in the positive, the MSPSS has been shown to be relatively free of social desirability bias (Dahlem, Zimet, & Walker, 1991; Kazarian & McCabe, 1991).

The MSPSS provides assessment of three sources of support: family (FA), friends (FR), and significant other (SO). Zimet and his colleagues have argued well the unique features of this scale (Canty-Mitchell & Zimet, 2000; Zimet et al., 1988). First, it is short (12 items in total) and is ideal for (a) research that requires assessment of multiple variables and (b) populations which, for one reason or another, cannot tolerate a long questionnaire. Second, a point related to (b) above, MSPSS items are easy to understand (requiring just fourth grade reading level) and are therefore suitable for young populations or populations with limited literacy level. Third, despite being a brief instrument, MSPSS measures support from three sources, and in particular, the SO subscale is rather unique among measures in the field. Who the "significant other(s)" is is left to the respondent to define. Canty-Mitchell and Zimet (2000) argued that the SO subscale is a strong supplement to the family and the friends subscales because it taps a different support source for the adolescent, such as boyfriend/girlfriend, teacher and counselor. Studies which have used the scale have replicated the 3-factor structure across populations (e.g., Eker et al., 2000; Kazarian & McCabe, 1991; Stanley et al., 1998). However, two studies on Chinese adolescents have shown divergent results. Whereas Lai, Hamid, Lee, and Yu (1996) replicated the 3-factor structure, Chou (2000) could only find a sensible 2-factor solution, in which the SO and the FR items were merged into one single factor; in other words, their adolescents could not distinguish friends support from significant other support. In fact, to the best of our knowledge, Chou's (2000) study is the only one that has failed to report a 3-factor structure for the scale.

Establishment of the factorial validity of the scale has relied exclusively on exploratory factor analytic procedures so far. This technique is known to have potential flaws. It is generally recognized that confirmatory (CFA), rather than exploratory (EFA), factor analysis is the preferred method of choice to test the theory-based structure of a scale (McDonald, 1985). For a scale that has been as widely used as the MSPSS, it is surprising to find that not even a CFA has been conducted on the scale. [1]

Whereas EFA always produces a unique solution that fits the data (i.e., from data to theory generation), in CFA one starts with a theoretical model a priori and sees if the model fits the data (in practice whether the model can reproduce the covariance/correlation matrix of the data). In the case of MSPSS, the model would require the FA items, the FR items and the SO items to load on three separate latent constructs, while their loadings on unrelated constructs are constrained to *zero*. Hence unlike EFA that allows for cross-loadings in order to produce a fit solution, CFA does not (in CFA cross-loading is dictated by theory rather than by data). Furthermore, CFA

[1] Zimet et al. (1988) and Zimet et al. (1990) mistakenly reported results of EFA under the heading "Confirmatory Factor Analysis".

allows for higher-order factor analysis whereas EFA does not. In the case of MSPSS, this means assessing whether the latent constructs of FA, FR, and SO together indicate a general sense of perceived social support. The second-order factor loadings can suggest whether FA, FR and SO contribute equally or differentially toward an overall sense of support.

Perhaps the most important contribution CFA can make toward scale validation is an examination of whether the items operate in the same way in different sub-populations of research interest (so-called group invariance analysis; Byrne, 1998). Researchers are often interested in comparing group performances on the same test (e.g., between at-risk and normal people, between different ethnic or cultural groups, etc.). Take Canty-Mitchell and Zimet (2000)'s study as an example. They found that whereas African–American adolescents were comparable in FA and SO to their European-American counterparts, they had less FR. However, in order for a valid conclusion to be drawn from such comparisons, one has to first establish that the construct tapped by the items is the same between the two groups. In operational terms, this means examining whether the loadings on the corresponding factors, besides the factor pattern, are identical between the two groups. Besides cultural invariance, other pertinent questions in scale development are gender and age invariance (Byrne, 1998).

This study reports on a CFA of the MSPSS in a large sample of Hong Kong adolescents. Two competing models will be tested, one containing three first-order factors (FA, FR, SO) and a higher-order factor of perceived social support, the other containing just two first-order factors (in which FR and SO are merged) and the same higher-order factor. The model that provided better fit to the data will be tested for age and gender invariance. The internal consistency of the three subscales as well as age and gender differences across the three sources of support will also be examined, subject to factorial evidence on the unidimensionality of the subscales.

2. Method

2.1. Participants and procedure

The data reported here are part of a larger study to investigate teenage suicide and problem behaviors (Chan, Cheung, & Cheng, 1999). Briefly, classes from Grade 7 to Grade 11 were proportionally sampled from six schools on a convenience basis to represent different academic abilities. These schools were themselves a representation of different socioeconomic backgrounds in an urban district in Hong Kong. Of the six schools that participated, three were girls' schools, one was a boys' school, and the other two were coeducational schools. Questionnaires were distributed in class and were collected back by the teacher upon completion. Altogether, 2,105 valid questionnaires were collected (completion rate = 97.2%). There were 61.7% females and 38.3% males in the sample, with a mean age of 14.8 years (SD = 1.58).

2.2. Measure

The Chinese, back-translated version of the MSPSS was used (Chou, 2000; Lai et al., 1996). It has 12 items: 4 for FA, 4 FR, and 4 SO (see Table 1). Items were measured on a 5-point

Table 1
MSPSS items

Item no.
Family subscale
3. My family really tries to help me
4. I get the emotional help and support I need from my family
8. I can talk about my problems with my family
11. My family is willing to help me make decisions
Friends subscale
6. My friends really try to help me
7. I can count on my friends when things go wrong
9. I have friends with whom I can share my joys and sorrows
12. I can talk about my problems with my friends
Significant other subscale
1. There is a special person who is around when I am in need
2. There is a special person with whom I can share my joys and sorrows
5. I have a special person who is a real source of comfort to me
10. There is a special person in my life who cares about my feelings

scale from 1 'strongly disagree' to 5 'strongly agree'. [2] It provides four scores: FA, FR, SO, and total.

2.3. Data analysis

Items on the MSPSS were subject to CFA by LISREL 8.52. The covariance matrix of the items was analyzed with the maximum likelihood method. The hypothesized measurement model consists of 3 or 2 first-order factors and a second-order factor. No cross-loading on the first-order level was allowed.

We first examined which of these models fit the data in the whole sample as well as the male, female, younger (ages 14 or below) and older (ages 15 or above) subsamples. Subject to indications of good fit, we proceeded to test factorial invariance between males and females, and between younger and older adolescents. Three invariance models were tested: (a) invariance of factor pattern, (b) invariance of first-order factor loadings, and (c) invariance of second-order factor loadings. Each invariance analysis was nested in the former in that the earlier equality constraints remained. A nonsignificant chi-square (χ^2) change from invariance model (a) to (b) would indicate that the first-order factor loadings, besides the factor pattern, were equivalent between the groups, and similarly for a nonsignificant χ^2 change from invariance model (b) to (c). If the model passes all tests, then we can be confident that the items tap similar constructs across gender and age subgroups. It should also be mentioned that CFA is based on large-sample theory

[2] Both 5- and 7-point rating formats have been used by Zimet and colleagues (see Canty-Mitchell & Zimet, 2000; Dahlem et al., 1991; Zimet, Dahlem, et al., 1988; Zimet, Powell, et al., 1990).

and a large number of participants in each subgroup (most typically $n \geqslant 200$, depending on the number of parameters to be estimated) is required.

We report χ^2, Comparative Fit Index (CFI), and Standardized Root Mean Square Residuals (SRMR) for the assessment of model fit. Following Hu and Bentler (1999, p. 24) for a large sample such as this, a CFI value $\geqslant 0.96$ and an SRMR $\leqslant 0.06$ at the same time indicate a well-fitting model. The χ^2 statistic is also reported as a convention, but because it is sensitive to large sample sizes, it will be used for indicating relative rather than absolute fit, particularly in simultaneous tests of invariance.

As for the analysis of age and gender differences, multivariate analysis of variance (MANOVA) followed by univariate analyses will be used to probe group differences on the social support variables, following evidence on factorial invariance.

3. Results

3.1. Factor structure

Initially, LISREL produced marginally fit indices for the whole sample and all the subsamples for both models. Looking at Table 2 (under the "without correlated error" column), all samples produced fit indices that exceeded the thresholds, with, however, the 3-factor model performing slightly better than the 2-factor model. In all samples there was a significant increase in χ^2 from the 3-factor to the 2-factor model. Post hoc modification analysis suggested that the error terms of items 1 and 5, both measuring SO, were correlated. The presence of correlated error suggests that the participants did not treat these items independently (we will come to this point again). Looking at Table 1, it appears that the two items tap similar properties and a correlated error between them appears to be justified. By allowing the correlated error, the degree of fit improved dramatically, and there was a substantial reduction in χ^2 in all groups. These results are reported in Table 2, under the "with correlated error" column.

Again adding the correlated error between items 1 and 5, the 3-factor model provided better fit to the data than the 2-factor model. Across all samples, there was a significant increase in χ^2 when the SO and the FR items were lumped together. Moreover, CFIs for the 2-factor model did not reach the threshold of 0.96. On the contrary, the fit indices of the 3-factor model were all within the acceptable range regardless of sample. As a result, the 3-factor model incorporating the correlated error between items 1 and 5 was accepted, and we proceeded to perform simultaneous tests of invariance across age and gender on this model.

We first tested for invariance of the factor pattern (i.e., the same factors, each relating to the same group of indicators, are equally true for different subgroups). The results showed that the hierarchical model was equally valid for older and younger adolescents, and for males and females (Table 3).

Subsequently, we tested for invariance of first-order factor loadings, without relaxing the constraint for factor-pattern equality. In this analysis, each and every path relating the first-order factor to the item was constrained to be identical between boys and girls, and between older and younger adolescents. As one can see from Table 3, imposing first-order-factor-loading equality did not result in significant increase in the χ^2 statistic for both age and gender.

Table 2
Goodness-of-fit Indices for the MSPSS

Sample	Without correlated error						With correlated error[a]					
	3-Factor model			2-Factor model			3-Factor model			2-Factor model		
	χ^2 (51)	CFI	SRMR	χ^2 (52)	CFI	SRMR	χ^2 (50)	CFI	SRMR	χ^2 (51)	CFI	SRMR
All ($N = 2105$)	793.51	0.94	0.057	965.06	0.93	0.064	534.64	0.96	0.048	648.67	0.95	0.054
Ages $\leqslant 14$ ($n = 976$)	438.36	0.94	0.060	489.43	0.93	0.065	304.83	0.96	0.051	336.90	0.95	0.055
Ages $\geqslant 15$ ($n = 1129$)	424.17	0.94	0.057	555.28	0.93	0.065	299.08	0.96	0.049	309.40	0.95	0.056
Males ($n = 807$)	327.69	0.94	0.057	367.91	0.93	0.061	245.95	0.96	0.049	273.99	0.95	0.053
Females ($n = 1298$)	529.79	0.94	0.061	670.77	0.92	0.068	352.43	0.96	0.051	443.61	0.95	0.058

Note: All were hierarchical models with either two or three first-order factors and one higher-order factor of perceived social support. The critical value ($P = 0.05$) for χ^2 with 1 and 2 degrees of freedom are 3.84 and 5.99, respectively.

[a] A correlated error was allowed between items 1 and 5.

Table 3
Simultaneous tests of factorial invariance across age and gender, 3-factor hierarchical model (with correlated error)

Invariance models	χ^2	df	$\Delta\chi^2$	Δdf	CFI	SRMR
Invariance across age						
M1 factor pattern	603.92	100	–	–	0.96	0.049
M2 = M1 + first-order loadings	621.20	112	17.28	12	0.96	0.050
M3 = M2 + second-order loadings	628.29	115	7.09	3	0.96	0.054
Invariance across gender						
M1 factor pattern	598.39	100	–	–	0.96	0.051
M2 = M1 + first-order loadings	618.69	112	20.30	12	0.96	0.055
M3 = M2 + second-order loadings	626.45	115	7.76	3	0.96	0.055

Note: The critical values ($P = 0.05$) for χ^2 with 3 and 12 degrees of freedom are 7.82 and 21.03, respectively.

Next, we tested for invariance of second-order factor loadings, without relaxing the prior constraints. Again, imposing this constraint did not result in significant χ^2 increase for age and gender. Hence, factor pattern, and first- and second-order factor loadings were deemed to be equivalent between older and younger adolescents, and between males and females. As a result, the constructs of FA, FR, and SO being measured were identical across subgroups of adolescents.

The completely standardized factor solution for the whole sample is presented in Fig. 1.

It can be seen from Fig. 1 that whereas the FA and the FR items were more or less equally loaded on their respective factors, there was obvious disparity among the SO items. In other words, whereas the variances of the FA and the FR factors were contributed equally by their constituent items, the variance of the SO factor was dominated by items 1 and 2. Moreover, the second-order factor, which we labeled Perceived Social Support here, was perfectly measured by SO (residual = 0), meaning that the second-order factor was in fact unnecessary. This result was replicated in all subgroup analyses. In other words, the higher-order factor which produced FA and FR was in fact the first-order factor of SO. This is an important point to consider when interpreting what it is that the MSPSS is measuring, and we will return to this point later. Note also that the higher-order factor (or its equivalent, SO) strongly predicted FR ($r = 0.85$) but only moderately predicted FA ($r = 0.42$). (A *significantly* higher correlation between SO and FR than the ones between SO and FA and between FR and FA has also been reported by Dahlem et al., 1991.) This means that the overall perceived social support measured by the scale was largely friends support rather than family support. The two latent factors of FR and FA correlated at $r = 0.35$.

3.2. Internal consistency

It has been seen that the factor loadings of some of the SO items were relatively low or marginal. The effect of this was the lower internal consistency of the SO subscale, being $\alpha = 0.69$, compared to 0.78 and 0.76 for FA and FR, respectively. Hence the reliability of the SO subscale is subject to question, although it perfectly measured the higher-order factor.

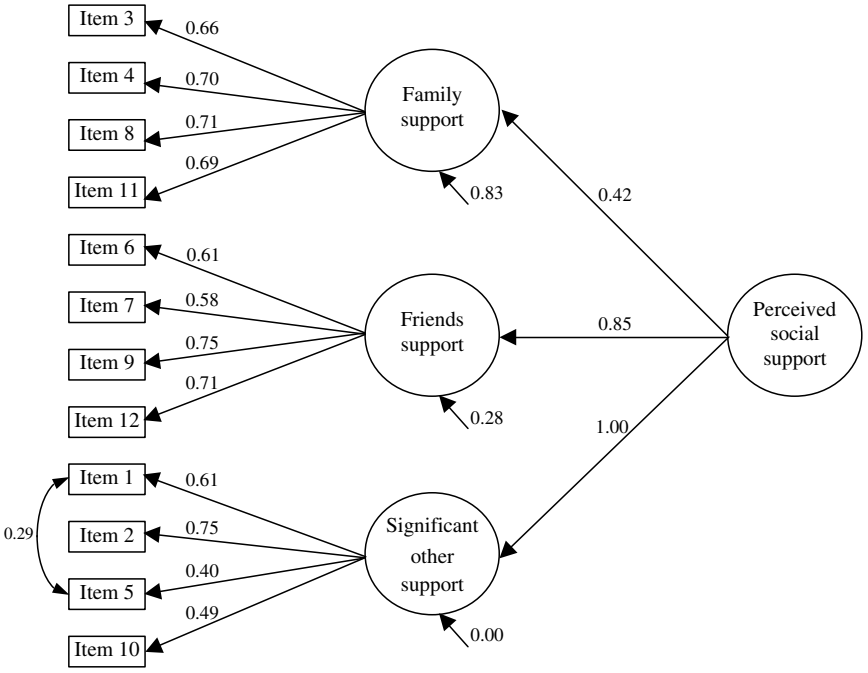

Fig. 1. The measurement model of MSPSS, whole sample.

3.3. Age and gender differences

Having established the age and gender equivalence of the scale, comparisons of scale scores between age and gender groups make more sense. Because of substantial redundancies among the three subscales, only FA and FR were analyzed here. A MANOVA (unique sum of squares method) was conducted with FA and FR (latent variable scores) as dependent variables, and gender and age group as between-subjects factors, thus a 2×2 design. The latent variable scores were obtained by saving the factor scores in LISREL 8.52 and then imported into SPSS 11.0 for the MANOVA analysis.

The results showed significant main effects for gender (Pillai's $F(2,2100) = 17.38$, $P < 0.001$) and age (Pillai's $F(2,2100) = 11.20$, $P < 0.001$). Univariate tests showed that girls perceived less FA ($d = -0.11$, $F(1,2101) = 5.97$, $P < 0.025$) but more FR ($d = 0.19$, $F(1,2101) = 17.97$, $P < 0.001$) than boys. And while there was no age difference in FR ($F(1,2101) = 0.45$, n.s.), older adolescents perceived less FA than younger ones ($d = -0.19$, $F(1,2101) = 17.56$, $P < 0.001$). This suggests that friends' support becomes increasingly more important relative to family support as the adolescent grows.

There was also a significant age by gender interaction effect (Pillai's $F(2,2100) = 8.57$, $P < 0.001$). Further univariate analyses showed that the interaction effect was true for both FA ($F(1,2101) = 10.22$, $P < 0.001$) and FR ($F(1,2101) = 12.62$, $P < 0.001$). Post hoc comparisons using the Bonferroni method showed that the younger males perceived significantly more family

support, and the older females perceived significantly more friends support, than the other three age-gender groups.

4. Discussion

The initial findings suggested that neither could the 2- nor the 3-factor model reproduce the covariance matrix of the items. A correlated error between two SO items had to be incorporated into the model. With this correlated error, the 3-factor model provided good fit to the data, whereas the 2-factor model was less than satisfactory.

Although the 3-factor model was well-fitting, the SO items appeared to be less unidimensional than those for the other two factors in terms of Cronbach's alpha coefficient and the items' loadings on the factor. This might have something to do with the ambiguity of the term "significant other," which indirectly led to the strong correlation between SO and FR. Equating a significant other with a best friend by many adolescents might be the reason why Chou (2000) found that the SO and the FR items were loaded on the same factor. Another potential cause of this problem might be the fact that all the MSPSS items are positively worded, thus inflating the correlation between SO and FR which in fact are more distinguishable from each other. Future research should examine the degree to which responses to the MSPSS items are affected by an acquiescence response style and how this might determine the factor structure observed.

Perhaps the most unexpected finding in the present study was SO's complete redundancy with the higher-order factor. This suggests that despite the "noise" present in two of the items, the SO subscale is actually a measure of general or overall social support, and is largely redundant with the other two subscales which measure specific sources of support (particularly FR). These findings raise two measurement and conceptual issues. First, if an overall composite score is computed from all twelve items, that score will be highly biased toward friends' support, while being interpreted as general support. Second, either (a) FR and FA are actually measuring support from specific significant others in these two domains, or (b) SO is actually measuring combined friends' and family support. We feel that it is the latter. Given these observations, we recommend reserving the SO items for the measurement of a general sense of support, with the items modified to reflect that emphasis rather than "significant other." In fact, the potential ambiguity of the present SO items was acknowledged by the developers, who said, "it is important to explore specifically what subjects consider as constitutive of ... "special person" in the Significant Other subscale...special person could be taken to refer to a number of different individuals (e.g., girlfriend or boyfriend, spouse, minister, psychotherapist, etc.) (Zimet et al., 1990, p. 616).

Group comparisons focused on FA and FR showed interesting differences that parallel those reported in the literature. Throughout adolescence, people become increasingly less reliant on the family for support. Furman and Buhrmester (1992) provided an analysis of why this should be the case. Possible reasons include the development of mutual interests among friends, the need for developing and validating self-identity through friendship, the arousal of sexuality issues following puberty that are best shared among same-age peers, the need for autonomy from parents, and increased conflicts with parents. In addition, there is some evidence that the autonomy needs are problematic for girls who are brought up to value closeness with parents, thus creating more

frustration among girls than boys in their relationship with parents (Honess et al., 1997). This might explain why the girls perceived less support from the family than the boys.

As friendship stability does not vary by age during adolescence (Berndt, 1982), the finding of no age difference in FR should not be surprising. On the other hand, that girls report more support from friends than boys is a rather robust finding in the literature (see, e.g., Canty-Mitchell & Zimet, 2000; Eker et al., 2000; Furman & Buhrmester, 1992; Zimet et al., 1988). Girls also report more intimacy with their same-sex friends than boys (Lempers & Clark-Lempers, 1993; cf. Berndt, 1982), a phenomenon still begging a viable explanation (see Cheng & Chan, 1999; Reis, Senchak, & Solomon, 1985). One possible explanation, which needs further examination, is gender differences in self-disclosure. As females are more likely to disclose to friends than males across all ages (Davidson & Duberman, 1982; Reisman, 1990), they might as well perceive greater support from friends. If mutual disclosure is the determining factor, then the gender difference should be more pronounced in emotional support than the other kinds of support. We summed scores of items 9 and 12 to form a proxy measure of emotional support, and items 6 and 7 to form a measure of other support (see Table 1). The results did suggest a stronger gender effect size for emotional than for other support ($d = 0.191$ vs. 0.166). Along this line, Stokes and Wilson (1984) reported female superiority in emotional support in undergraduate students, but not in other kinds of support (tangible assistance, cognitive information, and directive guidance) as measured by the Inventory of Socially Supportive Behaviors.

This is the first study that reports a CFA on the MSPSS, and suggests why it is important to re-examine the factorial validity of this measure. There are conceptual as well as empirical grounds to believe that the measurement of significant other support is confounded substantially with friends' support in adolescents. Although we do not believe so, there is a possibility that the results might be specific to the Hong Kong adolescents. Future research employing a cross-cultural sample will confirm if the present finding can be generalized to other cultural groups.

Having said this, the study provides support for the validity of the FA and FR subscales of the MSPSS in Hong Kong adolescents. This is encouraging because perceived support in two prime domains can be assessed in a relatively brief manner and thus, the scale's utility in research will be enhanced. The status of the SO subscale is less clear and needs further examination and possibly modification of the items in line with what it actually measures. Because of established factorial invariance, one can rule out the possibility that age and gender differences found in this study were due to measurement disparity between subgroups of the population. That older adolescents tend to receive less family support than younger ones might be a matter of concern as life events and symptoms increase with age for them (Xiaojia, Lorenz, Conger, Elder, & Simons, 1994). In other words, the older adolescents are facing more problems when less support from the family (esp. parents) is available to them. There might be a need to look into the needs of these adolescents and what may be done to support their adjustment and transition into adulthood.

Acknowledgements

The preparation of this manuscript was supported in part by the Wanchai District Board, for which we are appreciative.

References

Berndt, T. J. (1982). The features and effects of friendships in early adolescence. *Child Development, 53*, 1447–1460.

Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS: basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum.

Canty-Mitchell, J., & Zimet, G. D. (2000). Psychometric properties of the multidimensional scale of perceived social support in urban adolescents. *American Journal of Community Psychology, 28*, 391–400.

Chan, A. C. M., Cheung, C. K., & Cheng, S. -T. (1999). *A report on youth mental health in Wanchai*. Report submitted to the Wanchai Provisional District Board, Hong Kong.

Cheng, S.-T., & Chan, A. C. M. (1999). Sex, competitiveness, and intimacy in same-sex friendship in Hong Kong adolescents. *Psychological Reports, 84*, 45–48.

Chou, K.-L. (2000). Assessing Chinese adolescents' social support: the multidimensional scale of perceived social support. *Personality and Individual Differences, 28*, 299–307.

Dahlem, N. W., Zimet, G. D., & Walker, R. R. (1991). The multidimensional scale of perceived social support: a confirmation study. *Journal of Clinical Psychology, 47*, 756–761.

Davidson, L. R., & Duberman, L. (1982). Friendship: communication and interactional patterns in same-sex dyads. *Sex Roles, 8*, 809–822.

Eker, D., Arkar, H., & Yaldiz, H. (2000). Generality of support sources and psychometric properties of a scale of perceived social support in Turkey. *Social Psychiatry and Psychiatric Epidemiology, 35*, 228–233.

Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development, 63*, 103–115.

Honess, T. M., Charman, E. A., Zani, B., Cicognani, E., Xerri, M. L., Jackson, A. E., & Bosma, H. A. (1997). Conflict between parents and adolescents: variation by family constitution. *British Journal of Developmental Psychology, 15*, 367–385.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis' conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.

Kazarian, S. S., & McCabe, S. B. (1991). Dimensions of social support in the MSPSS: factorial structure, reliability, and theoretical implications. *Journal of Community Psychology, 19*, 150–160.

Lai, J. C. L., Hamid, P. N., Lee, W. M., & Yu, H. (1996). *Optimism and social support as stress buffers among Hong Kong adolescents*. Paper presented at the 26th International Congress of Psychology, August 12–16, Montreal, Canada.

Lempers, J. D., & Clark-Lempers, D. S. (1993). A functional comparison of same-sex and opposite-sex friendships during adolescence. *Journal of Adolescent Research, 8*, 89–108.

McDonald, R. P. (1985). *Factor analysis and related methods*. Hillsdale, NJ: Lawrence Erlbaum.

Reis, H. T., Senchak, M., & Solomon, B. (1985). Sex differences in the intimacy of social interaction: further examination of potential explanations. *Journal of Personality and Social Psychology, 48*, 1204–1217.

Reisman, J. M. (1990). Intimacy in same-sex friendship. *Sex Roles, 23*, 65–82.

Stanley, M. A., Beck, J. G., & Zebb, B. J. (1998). Psychometric properties of the MSPSS in older adults. *Aging and Mental Health, 2*, 186–193.

Stokes, J. P., & Wilson, D. G. (1984). The inventory of socially supportive behaviors: dimensionality, prediction, and gender differences. *American Journal of Community Psychology, 12*, 53–69.

Xiaojia, G., Lorenz, F. O., Conger, R. D., Elder, G. H., & Simons, R. L. (1994). Trajectories of stressful life events and depressive symptoms during adolescence. *Developmental Psychology, 30*, 467–483.

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*, 30–41.

Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric properties of the multidimensional scale of perceived social support. *Journal of Personality Assessment, 55*, 610–617.