FACTOR VALIDITY OF SCORES ON A SOCIAL SUPPORT AND CONFLICT MEASURE AMONG CHINESE AMERICANS

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Data collected from the Chinese American Psychiatric Epidemiological Study (CAPES) were used to examine the factor validity of selected social support and conflict indices among 1,152 married Chinese Americans. Gender, age, and a 36-item social interaction scale consisting of six separate indices of social support and social conflict (spouse, family, and friend) were factor analyzed. As expected, cross-cultural validity of scores on all six social interaction indices was confirmed, lending empirical support to the notion that social support and conflict from different sources are distinct constructs in Chinese Americans.

Clinical researchers have long been interested in social interactions because of their potentially powerful beneficial effects on physical and mental health. Given the considerable amount of research in this area, it is surprising

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that information regarding the validity of the scores on the majority of social interaction measures are unavailable (Heitzmann & Kaplan, 1988). Relatively few factor analytic studies have been conducted that provide detailed descriptions of social interaction measures (Tilden, Nelson, & May, 1990; Turner, Frankel, & Levin, 1983). Moreover, only a handful of studies briefly describe both the reliability and validity of scores on the social interaction measures used (Lakey, Tardiff, & Drew, 1994; Major, Zubeck, Cooper, Cozzarelli, & Richards, 1997; Pagel, Erdly, & Becker, 1987; Ruehlman & Wolchik, 1988; Vinokur, Price, & Caplan, 1996).

Studies of social relationships and mental health have focused mainly on positive and negative social interactions. Number of social bonds, social network, frequency, and quality of social contact (e.g., social support) appear to not only enhance one's well-being but also protect one from the deleterious effects of various types of stress (Cohen & Wills, 1985). On the other hand, negative aspects of social relationships (e.g., social conflict) have been found to reduce mental health directly and/or indirectly by exacerbating the negative effects of stress (Abbey, Abramis, & Caplan, 1985; Hirsch & Rapkin, 1986, Lakey et al., 1994; Manne & Zautra, 1989; Rook, 1984; Vinokur & van Ryn, 1993). Although not always consistent, the potential contributory effects of positive (Bagley, 1993; Cheng, 1997; Chun & Kagawa-Singer, 1994; Franks & Faux, 1990; Ho et al., 1995; Krause & Liang, 1993; Liang & Bogat, 1994; Lin, Ensel, Simeone, & Kuo, 1979; Ying & Liese, 1991) and negative (Chun & Kagawa-Singer, 1994; Krause & Liang, 1993; Shek, 1995) social interactions have also been confirmed for Asians and Asian Americans.

Even though studies examining the contributions of support and conflict to mental health in Chinese and Chinese Americans have been conducted, we could find no factor analytic studies confirming the score validity of positive and negative social interaction scales in Chinese or Chinese Americans. Confirming the factor validity of support and conflict scores cross culturally becomes increasingly important as researchers continue to study social relationships across different ethnic groups. Hence, as previously noted, the goal of the present study was to test the factor validity of scores from the Social Interactions Scale, which was used to assess positive (affective support) and negative social interactions (social conflict) in Chinese Americans, using the data from the Chinese American Psychiatric Epidemiological Study (CAPES). The Social Interactions Scale was developed to measure positive and negative social interactions with spouse, family, and friends (Kessler

et al., 1994). We hypothesize that support and conflict from these three sources will be separate yet correlated factors in this Chinese American sample.

Method

Data Collection

Participants in the CAPES included 1,747 Chinese immigrants and native-born Chinese Americans (ages 18-65) who resided in Los Angeles County between 1993 and 1994 and who spoke English, Mandarin, or Cantonese. Only the 1,152 participants who were married were included in the present study (males = 546, females = 606). The majority of the sample was foreign born (1,114 of 1,152), and the mean age, income, education, and years living in the United States were 42.2 years, $18,999, 13 years, and 12.3 years, respectively.

Sampling proceeded in four stages: (a) selection of tracts, (b) selection of blocks within tracts, (c) selection of households within blocks, and (d) selection of individuals within households. In addition, interviews were conducted in English, Mandarin, or Cantonese depending on the respondent's language preference. Weights were applied to the sample data to adjust for demographic variables, nonresponse rates, and differential probabilities of selection within the household, thus weighting the data to population estimates and reducing sampling biases. No differences were found between the weighted and unweighted analyses. Full explanations of sampling methodology, sample characteristics, and data collection procedures have been described in Takeuchi et al. (1998).

Measures

Social Support and Social Conflict. The Social Interactions Scale developed for the National Comorbidity Study (Kessler et al., 1994) was used to assess separate indices of social support and conflict from spouse, family, and friends. Social (affective) support from spouse was measured by asking respondents six questions about how much their spouses appreciated and cared about them and understood their feelings about things, how often they could rely on their spouses for help, and how much they could open up to their spouses about their worries and relax and be themselves around their spouses. Social conflict with spouse was measured by asking respondents six questions about how often their spouses made too many demands on them, made them feel tense, argued with them, criticized them, let them down, and got on their nerves. The same set of questions was asked about their family members (not including their spouses) and friends. Respondents answered these questions using a 4-point scale (1 = *not at all* to 4 = *a lot*). The Social Interactions Scale was translated into Mandarin and Cantonese and then back translated into English to verify the validity of the translations.

Previous psychometric data supporting the validity and reliability of scores on the Social Interactions Scale are not available. For the present sample of married Chinese Americans, coefficient alphas for scores on the Support and Conflict scales were moderately high: .87 and .86 for spouse, .88 and .85 for family, and .89 and .78 for friends, respectively.

Statistical Procedures

The 38 variable-weighted Pearson correlation matrix was factor analyzed using Comrey's minimum residual method of factor analysis, a method that uses the off-diagonal elements of the matrix and does not require communality estimates (Comrey & Lee, 1992). Comrey's factor analytic method is advantageous in that it allows the researcher to manually extract and rotate factors. To be certain that adequate factors were interpreted, nine factors were extracted and iterated 11 times. The factors were then orthogonally rotated by the Tandem Criteria Method I, which places as much variance on the earlier factors as can be justified by the intercorrelations among the variables and thus forces together variables that are correlated and forces apart variables that are not correlated. In addition, this method keeps as much variance as possible on the larger factors and prevents undue dispersal of variance to smaller factors. Visual inspection indicated that only six factors had high enough pattern coefficients to be considered of appreciable importance (the remaining factors were too small in the proportion of variance explained to be further considered), and a six-factor solution was rerotated by Criterion I, and then rerotated by Criterion II. Tandem Criteria II provides results that more closely approximate simple structure by distributing the variance more equally among the retained factors.

Although the orthogonal solution provided a clear factor structure, when pairs of factors were plotted with each other, it appeared that oblique rotations could better satisfy simple structure. Oblique rotations allow for correlations among factors, which is important because social interactions have often been found to be correlated (Abbey et al., 1985; Barrera, Chassin, & Rogosch, 1993; Lepore, 1992). Because the pattern coefficients on Factors I and V were negative (i.e., by chance they emerged from the orthogonal rotations 180 degrees out of phase), the directionality of these two factors was reversed (i.e., the factor was "reflected") by changing the signs in the transformation matrix before oblique rotations were conducted. Needed oblique rotations were then identified by inspection of the pattern coefficients plotted on a 2 × 2 Cartesian coordinate system, and reference vector axes were rotated by "hand." This solution was then fine-tuned through analytic oblique rotations to simple structure using Comrey and Lee's (1992) Program 9,

which searches for alternate new positions on either side of the reference vectors to increase the number of points in the hyperplanes.

Results

The rotated factor pattern solution for the 38 variables is shown in Table 1. Gender and age did not have any pattern coefficients of |.30| or more on any factor. As hypothesized, six factors representing spouse, family, and friend support and conflict were found. Factors are presented in the following order: spouse support, spouse conflict, family support, family conflict, friend support, and friend conflict.

Only three items were salient with more than one factor at a level of |.30| or higher, suggesting that the rest of the items measure only one factor. Spousal support variable Sp6, which measures the degree to which one can relax and be oneself around one's spouse, evidenced an equally strong though negative pattern coefficient (–.31) with the spousal conflict factor. Likewise, family support variable Fa6, which measured the extent to which one can relax and be oneself around one's family, evidenced a –.37 pattern coefficient on the family conflict factor. Finally, variable Fa11, which asks how often family members let one down when one is counting on them, evidenced a –.30 pattern coefficient on the family support factor.

Correlations between primary factors are presented in Table 2. Spousal support and spousal conflict evidenced the highest correlation (r = –.51), family support and conflict were minimally correlated (r = –.15), and friend support and conflict were virtually uncorrelated (r = –.00). Higher correlations were found among support factors, with spousal support correlating moderately (r = .44) with family support and minimally (r = .20) with friend support and family support correlating moderately (r = .38) with friend support. Higher correlations were also found among conflict factors, with spousal conflict correlating appreciably (r = .50) with family conflict and minimally (r = .24) with friend conflict and family conflict correlating appreciably (r = .50) with friend conflict.

Discussion

The goal of the present study was to test the factor validity of scores on a measure of social support and social conflict from a sample of Chinese Americans. All six social interaction indices (spouse, family, and friend support and spouse, family, and friend conflict) were supported based on six factors with moderate to high pattern coefficients on the appropriate items. Gender and age were not substantially related to any factor, and scores on all six social interaction scale indices had satisfactory reliability coefficients.

Three items were salient with more than one factor. Two of these items asked the extent to which one can relax and be oneself around one's spouse or family, indicating that these items are a reflection of both emotional support and social conflict in close interpersonal relationships. The third item asked how often one's family members let one down when one is counting on them, also indicating that this item may be a source of both support and conflict. No

Table 1
Factor Pattern Coefficients for 36 Social Interaction Variables Across Six Factors

Items[a]	I	II	III	IV	V	VI
Gender	–.03	–.05	.07	.11	.00	–.09
Age	–.03	.08	–.02	–.12	–.08	–.04
Sp1: spouse cares about you	.71	–.04	.10	.00	–.06	.02
Sp2: spouse understands the way you feel	.72	–.10	.05	.03	–.06	–.02
Sp3: spouse appreciates you	.68	–.05	.08	–.03	.01	–.01
Sp4: rely on spouse for help	.67	–.13	.12	.02	–.03	–.02
Sp5: open up to spouse	.73	–.10	.01	–.06	.00	.04
Sp6: relax and be yourself around spouse	.31	(–.31)	–.01	–.04	.11	.01
Sp7: spouse makes too many demands	.21	.72	–.05	.01	.01	.02
Sp8: spouse makes you feel tense	.18	.83	–.04	.02	.00	–.03
Sp9: spouse argues with you	–.09	.69	–.03	–.03	.05	.06
Sp10: spouse criticizes you	.03	.69	–.09	–.01	.01	.02
Sp11: spouse lets you down	–.26	.55	.06	.13	.03	–.03
Sp12: spouse gets on your nerves	–.07	.73	.07	.10	–.01	.03
Fa1: family care about you	–.02	.08	.83	–.03	–.02	.04
Fa2: family understand the way you feel	–.02	.01	.82	–.04	.01	.04
Fa3: family appreciate you	.00	.12	.79	–.12	.07	.03
Fa4: rely on family for help	–.07	.03	.80	–.05	.09	.03
Fa5: open up to family	–.04	.03	.76	–.08	.04	.07
Fa6: relax and be yourself around family	–.06	.12	.46	(–.37)	.10	.03
Fa7: family make too many demands	.11	.13	–.07	.56	.05	.06
Fa8: family make you feel tense	.01	.00	–.07	.77	.02	.05
Fa9: family argue with you	–.10	–.08	–.02	.64	.05	.07
Fa10: family criticize you	–.11	–.02	–.01	.67	–.01	.11
Fa11: family let you down	–.04	–.07	(–.30)	.53	–.06	.04
Fa12: family get on your nerves	.07	–.10	–.12	.78	.01	.06
Fr1: friends care about you	.02	–.08	.11	.05	.77	–.04
Fr2: friends understand the way you feel	.03	–.04	.09	–.02	.76	.02
Fr3: friends appreciate you	.10	.06	.02	–.08	.81	.02
Fr4: rely on friends for help	.08	.03	.08	–.01	.76	–.03
Fr5: open up to friends	–.01	–.02	.07	.00	.76	–.04
Fr6: relax and be yourself around friends	–.06	–.04	–.03	–.13	.57	–.04
Fr7: friends make too many demands	.22	.26	–.02	.12	.04	.41
Fr8: friends make you feel tense	.12	.12	.00	.05	–.01	.73
Fr9: friends argue with you	.07	.07	–.06	–.07	.05	.70
Fr10: friends criticize you	–.03	.02	–.08	.02	.04	.64
Fr11: friends let you down	–.13	–.03	–.01	.11	–.26	.45
Fr12: friends get on your nerves	–.04	.00	.06	.09	–.06	.69

Note. I = Spousal Support; II = Spousal Conflict; III = Family Support; IV = Family Conflict; V = Friend Support; VI = Friend Conflict. Pattern coefficients ≥|.30| are underlined. Values in parentheses are factor coefficients greater than |.30| that appear on a second factor.
a. Items 1 and 2 were age and gender (male = 1, female = 2). Text of remaining items is truncated.

Table 2
Correlations Among Primary Factors: Spousal Support (I), Spousal Conflict (II), Family Support (III), Family Conflict (IV), Friend Support (V), and Friend Conflict (VI)

		II	III	IV	V	VI
	1.00	-.51	.44	-.17	.20	-.07
II	-.51	1.00	-.23	.50	-.01	.24
III	.44	-.23	1.00	-.15	.38	-.07
IV	-.17	.50	-.15	1.00	-.01	.50
V	.20	-.01	.38	-.01	1.00	-.01
VI	-.07	.24	-.07	.50	-.01	1.00

factorially complex items were indicated for the friend support and conflict factors, supporting the notion that obligatory and intimate relationships are more highly associated than voluntary relationships such as with friends (Abbey et al., 1985; Barrera et al., 1993; Lepore, 1992).

One limitation of self-report measures is the potential for response bias. For example, respondents could exaggerate reports of social support and underestimate reports of negative interactions (Rook, 1984), potentially inflating the correlations among factors. Despite this limitation, the relatively low correlations between the support and conflict factors across specific sources (spouse, family, and friend) provide strong evidence that social support and conflict are relatively distinct and independent constructs. Consistent with the literature, social support and conflict factors were inversely correlated when they were from obligatory or intimate relationships such as with a spouse or family (Abbey et al., 1985; Barrera et al., 1993; Lepore, 1992). However, when support and conflict came from voluntary relationships such as with a friend, the correlations were lower (Abbey et al., 1985; Barrera et al., 1993; Lakey et al., 1994; Lepore, 1992; Stephens, Kinney, Norris, & Ritchie, 1987). In addition, with the exception of spousal support and conflict, support factors across different sources were more highly correlated with each other than support and conflict from the same source.

Overall, the findings from the present study lend empirical support to the hypothesis that Chinese Americans perceive a salient distinction not only between social support and social conflict but also among support and conflict from different sources, providing evidence for cross-cultural validity of their scores on the Social Interactions Scale. The distinction between differential positive and negative social interactions is particularly meaningful for Chinese Americans. Because of their collectivistic cultural values, which promote taking care of members in the group and emphasize maintaining group harmony (Uba, 1994), Chinese Americans are likely to be particularly sensitive to the presence of interpersonal tension and conflict and consequently are likely to be very vulnerable to the negative effects of such interpersonal problems. Their collectivistic values, which also emphasize duty to

one's family and saving one's own and family's face, make the distinction between kin and nonkin relationships important as reflected in their circumscribed help-seeking patterns (Ho et al., 1995; Lin & Lin, 1978). The Social Interactions Scale will have great research and clinical utility by allowing us to examine the complex roles that support and conflict from various sources may play in the stress and coping process of Chinese Americans.

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