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Brief Report

The Problem of Confounding Social Support and Depressive Symptoms: A Brief Report on a College Sample

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The problem of confounding social support and depressive symptoms was addressed by examining the convergent and discriminant validity of interview and questionnaire measures of social support and depression using the multitrait-multimethod matrix approach. Participants were 40 late-adolescent college students with half the sample selected on the basis of mild to moderate scores on self-reported depressive symptoms. Measures of depression displayed excellent convergent and discriminant validity, and measures of objective features of social networks were found to have moderate convergent and discriminant validity. However, the subjective measures of satisfaction with social support used were found to have neither adequate convergent nor discriminant validity. Implications for the conceptualization and assessment of social support are highlighted.

Social support has been hailed as an important mediating variable in the relation between psychosocial stress and psychological and somatic symptoms (see reviews by Cohen & Wills, 1985; Leavy, 1983). In spite of a large body of empirical research pointing to the importance of social support in managing stress and maintaining personal well-being, a number of fundamental conceptual and methodological problems have gone largely unaddressed (Heller, Swindle, & Dusenbury, 1986; Monroe, 1983). A particularly serious issue involves the possibility that measures of social support are confounded with

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measures of outcome, particularly psychological distress. To the extent that measures of social support and symptoms overlap in their content and their method, the association between these variables may be spuriously high (Monroe & Steiner, 1986; Thoits, 1982). While some degree of confounding between social support and symptoms (as well as with stress) may be inherent in studying these constructs, there is a strong need to minimize the conceptual and operational overlap between these variables (Dohrenwend, Dohrenwend, Dodson, & Shrout, 1984; Lazarus, DeLongis, Folkman, & Gruen, 1985).

The problem of confounded measures may be especially serious, both theoretically and practically, in the context of investigations of the relation between social support and symptoms of depression. This may be of greatest concern when measures of support are subjective and qualitative in their content. Endorsing statements indicating satisfaction with available support, for example, may be viewed as constituting a measure of the individual's pessimism or depressive mood state as well as constituting a description of available support. Most existing social support studies have employed depression measures as a main indicator of psychological outcomes. For example, 44 of the 57 studies reviewed by Cohen and Wills (1985) used a self-report depression measure as a major dependent variable. Thus, it is important to consider whether the social support construct, and particularly variables such as "satisfaction with support" could simply represent clusters of depressive symptoms. In other words, the construct validity of social support instruments needs to be examined. In particular, the discriminant validity of social support measures needs to be demonstrated in relation to measures of psychological symptoms.

The multitrait-multimethod matrix approach outlined by Campbell and Fiske (1959) was used in the current study to assess the convergent and discriminant validity of interview and questionnaire measures of social support and depression. The social support instruments employed included a questionnaire being developed by the authors and an interview measure developed by Barrera (1981). Limited psychometric data are available on each of these instruments. The major advantage of using these particular measures lies in the conceptual similarity between their subscales. Although the two instruments focus on different time spans and somewhat different circumstances in eliciting responses, each provides indices of both quantitative and qualitative subcomponents of support that are comparable conceptually. Strong convergence was expected between interview and questionnaire indices of the same components of social support, and between the two measures of depression, whereas convergence across different aspects of support (e.g., support satisfaction and network size) was expected to be lower. With regard to discriminant validity, correlations between measures of depression and meas-

ures of social support were expected to be lower than the convergent validity coefficients.

METHOD

Participants

Forty undergraduate students enrolled in an Introductory Psychology course at the University of Vermont participated in the study. A total of 21 women and 19 men ranging in age from 18 to 22 ($\bar{X}$ = 19.05, SD = 0.89) were included in this sample. All participants were white. To insure that there was no restriction of range on the depression variable (see Campbell & Fiske, 1959), half of the participants (12 women and 9 men) were selected from a large group of students (n = 332) who were prescreened for depressive symptoms using the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), while the remaining half were recruited by advertisements to the entire class. A mildly to moderately depressed subgroup was selected from among the 25.2% of screened participants (87 students, 56 women and 31 men) who scored above 10 on the BDI, the cutoff for the mildly depressed range. Participants for this subgroup were selected on the basis of their availability to be interviewed at scheduled interview times. In addition, priority was given to scheduling an equal number of men and women, and to including prospective participants with higher screening BDI scores. BDI scores for the final sample of participants ranged from 0 to 25 ($\bar{X}$ = 9.93, SD = 7.12, n = 40).

Instruments

The Social Support Scale. The SSS (Slavin, 1985; Slavin, Compas, & Davis, 1984) is a self-report questionnaire measure of several components of social support. In Part 1 of the instrument, respondents are instructed to identify the important people in their lives who are available to give help or support (available network). Each listed relationship is then rated on two qualitative scales (openness and conflict) identified through a multidimensional scaling analysis as the most salient features of social relationships for this age group (Slavin et al., 1984). Part 2 of the SSS assesses appraisals of the support received in coping with two recent stressful events, chosen by the respondent. For the purposes of the current study, four subscales were extracted from the SSS: *available network* (the number of important relationships listed in Part 1, 1 item); *utilized network* (the number of categories

of support provided by network members during the events listed in Part 2, 16 items, Cronbach's alpha = .86); *conflicted network* (sum of conflict ratings for relationships listed in Part 1, 10 items, alpha = .77); and *satisfaction* (sum of satisfaction ratings for support received during the events listed in Part 2, 4 items, alpha = .73).[2]

The Arizona Social Support Interview Schedule. The ASSIS (Barrera, 1981) is a structured interview designed to assess a range of social support variables. The current study employed four subscales of the ASSIS similar to those that have been investigated in previous research with this instrument (Barrera, 1981; Barrera, Sandler, & Ramsey, 1981), including (a) available network (6 items, Cronbach's alpha = .88); (b) utilized network (4 items, alpha = .82); (c) conflicted network (2 items, alpha = .72); and (d) satisfaction (5 items, alpha = .55). Two-day test–retest reliabilities have been reported by Barrera (1981) for three variables similar to the subscales used here: total network, $r(43) = .88$; conflicted network, $r(43) = .54$; and satisfaction, $r(43) = .69$.

The Beck Depression Inventory. The BDI (Beck et al., 1961) is a 21-item questionnaire assessing cognitive, affective, and behavioral dimensions of depressive symptomatology. The BDI has been widely used with college student samples and has been shown to be reliable and valid in these groups (Bumberry, Oliver, & McClure, 1978).

The Schedule for Affective Disorders and Schizophrenia—Change Version. The SADS-C (Endicott & Spitzer, 1978) is a structured interview schedule for assessing a number of dimensions of psychopathology. It contains 45 items pertaining to symptoms experienced during the past week (Endicott, Cohen, Nee, Fleiss, & Sarantakos, 1981). The SADS-C can be used to generate two measures of depression: the Depression Syndrome Scale (DSS) and a version of the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960). All items from the SADS-C which are included in either the DSS or the extracted HRSD were included in the depression interviews. This included 25 of the 45 SADS-C items. The DSS was selected for major analyses because of its superior internal consistency in the current study (DSS alpha = .85; HRSD alpha = .77). Interrater reliability for the DSS, calculated on a sample of 12 randomly selected SADS-C interviews, was high, $r = .95$. Perfect agreement was reached on an average of 77% of interview items. There was no difference in percent agreement based on interviewer, $F(2, 9) = 1.07$, ns.

[2]Several additional variables can be extracted from the SSS (e.g., an index of perceived openness) but were not used in the present study. Additional information about the SSS is available from the first author.

Procedure

Students who had signed up for the social support study and those who had been selected on the basis of their scores on the screening instrument were contacted by telephone and invited by one of the investigators to participate in the study. Where schedules permitted, two appointments were made with participants and they were included in the retested group. Participants completed both self-report questionnaires and participated in both interviews, described above, during individual testing sessions. Retest sessions were conducted in the same manner as initial sessions, with 21 of the participants (11 women) retested. Mean time between initial and retest sessions was 16.76 days (SD = 2.86 days). Depression interviews were conducted by three graduate students in a PhD training program in clinical psychology. Social support interviews were conducted by two advanced undergraduate students majoring in psychology. Interviewers were trained extensively by the investigators. All depression interviews were videotaped and all social support interviews were audiotaped. Interviewers were blind to how individual participants were recruited for the study and to their screening BDI scores.

RESULTS

Mean Comparisons

T test comparisons of means for the major variables revealed no significant effects for the order of presentation of measures or for the gender of the participant on any variable. Analyses of variables extracted from the ASSIS and the SADS-C interviews revealed no significanct interviewer effects. Comparisons of those participants who were retested with those who were not retested during initial testing revealed significantly lower BDI depression scores ($t = 2.82$, $p < .01$) and significantly higher ASSIS satisfaction scores ($t = 2.89$, $p < .01$) among retested participants. The reduced range in these variables suggests test-retest reliabilities obtained may represent conservative estimates of the stability of these indices. Test-retest reliabilities appear in parentheses on the diagonal of the multitrait-multimethod matrix shown in Table I. These coefficients, based on the retested group ($n = 21$), ranged from low to high in magnitude. Only the test-retest coefficient for the ASSIS conflicted network variable failed to reach significance, $r(21) = .32$.

Table I. Multitrait-Multimethod Matrix for Social Support and Depression ($N = 40$)[a]

Variable	1	2	3	4	5	6	7	8	9	10
1. SSS available	(.79)[c]									
2. SSS utilized	.57[c]	(.62)[c]								
3. SSS conflicted	.37[d]	.11	(.58)[d]							
4. SSS satisfaction[b]	.46[c]	.41[d]	.00	(.58)[d]						
5. BDI depression	−.10	−.03	.04	−.57[c]	(.88)[c]					
6. ASSIS available	.34[d]	.48[c]	.19	.48	−.32[e]	(.85)[c]				
7. ASSIS utilized	.39[d]	.51[c]	.31[e]	.52[c]	−.26[e]	.85[c]	(.87)[c]			
8. ASSIS conflicted	.30[e]	.26	.39[d]	−.13	.27[e]	.19	.28[e]	(.32)		
9. ASSIS satisfaction	−.12	.07	−.24	.29[e]	−.58[c]	.35	.25	−.32[e]	(.50)[d]	
10. DDS depression	.04	.18	−.05	−.28[e]	.70[c]	−.05	−.07	.17	−.31[e]	(.82)[c]

[a]The area surrounded by broken lines is the heterotrait-heteromethod block. The areas surrounded by solid lines are heterotrait-monomethod triangles. Values in parentheses are test-retest reliability coefficients. All values are Pearson's r correlation coefficients. $N = 21$ for retest coefficients.

[b]$N = 39$, incomplete data for one subject.

[c]$p < .001$.

[d]$p < .01$.

[e]$p < .05$.

Examination of the Multitrait-Multimethod Matrix

Table I displays the Pearson's *r* values for the multitrait-multimethod matrix constructed for the present study. The matrix includes four components of social support that are displayed as separate traits along with depression. Interpretation of the matrix is based primarily on inspection and comparison of various groups of coefficients, as outlined by Campbell and Fiske (1959). Some interesting alternative methodologies for analyzing multitrait-multimethod data have been proposed recently (see Cole, 1987) using confirmatory factor analysis, based on large-sample theory. Given the constraints imposed by the sample size for the current study, the simple inspection method appears to be the best strategy for interpreting these data.

Evidence of convergent validity is drawn primarily from inspection of the coefficients appearing in the heteromethod block, enclosed by broken lines in Table I. The center diagonal of this block, called the validity diagonal, displays correlations between two methods of measuring the same trait. The coefficients for the four social support variables, while statistically significant, are only low to moderate in magnitude, ranging from .29 to .51.

To demonstrate discriminant validity, the values in the validity diagonal must be higher than correlation coefficients for variables that have neither trait nor method in common. In Table I these are the values lying on either side of the validity diagonal. The values that represent relations between depression and components of social support are of most interest here. Five of these eight coefficients are statistically significant, including all the correlations between the variables derived from the social support interview (ASSIS) and the depression questionnaire (BDI). Similarly, satisfaction with social support, as measured by the social support questionnaire (SSS) was moderately related to the interview index of depression (DSS). Most important, these significant discriminant validity coefficients ($-.32$, $-.26$, $-.58$, $-.28$), although smaller than the convergent validity coefficient for depression (.70), are similar in magnitude to the convergent validity coefficients for social support (.34, .51, .39, .29). Values in the validity diagonal can also be compared to coefficients representing relations between measures of different traits that employ the same method, shown in the two heterotrait-monomethod triangles, enclosed by solid lines in Table I. The variable satisfaction with support failed to meet this criterion for discriminant validity for both interview measures and questionnaire measures.

DISCUSSION

Results of the current study provide mixed evidence regarding the construct validity of the social support measures investigated, and by implica-

tion, the empirical separability of self-reported social support from self-reported depressive symptoms. The strong convergence of the two indices of depression compared with their weaker relations with social support variables clearly illustrates the construct validity of these measures. By the same token, the lack of strong convergence between indices purporting to measure the same social support variables and the lack of contrast between their convergent validity coefficients and their correlations with depression, raise questions about the degree to which the social support indices are measuring any construct that is clearly distinct from depressive symptoms.

This problem is most acute, as predicted, for the most qualitative social support variables in the matrix, the satisfaction indices. Correlations between satisfaction and depression, ranging from $-.29$ to $-.58$, equaled or exceeded the convergent validity coefficient for the two satisfaction indices (.29). The more quantitative social support variables (available network, utilized network, conflicted network) show a pattern of moderate convergence, with coefficients ranging from .34 to .51. There was some contrast between these convergent validity coefficients and their correlations with depression indices, which were quite low. However, some relation between social support and depression was expected, and is generally of interest to researchers in the social support field.

The finding that components of interview social support (ASSIS) are consistently related to questionnaire depression (BDI) and much less consistently related to interview depression (DSS) is rather puzzling. One possible explanation is that both the BDI and the ASSIS are subject to a response bias, such as a tendency to rate problems as serious, which the greater interviewer involvement in assigning DSS depression ratings circumvents. Thus, although the ASSIS and the DSS are both interview methods, they vary in the degree to which participants' self-reports determine the scores assigned, and this may mean there actually is greater method similarity between the BDI and the ASSIS than there is between the ASSIS and the DSS.

One obvious obstacle to high convergence among social support scales is the low to moderate estimates of reliability obtained for some subcomponents. Reliability is a necessary condition for validity since the high measurement error associated with unreliable scales makes high correlations with any other scale unlikely. Thus, it is not possible to draw strong conclusions about social support as a construct from this limited study because these results reflect particular difficulties associated with the specific measures employed. The characteristics of the college student sample and the small sample further restrict the generalizability of these results. With these limitations in mind, findings presented here support a need for caution in interpreting the results of studies of social support and disorder, particularly those that draw conclusions about the positive effects of social support primarily from

the relation between highly subjective social support indices and self-reported depressive symptoms.

The superior construct validity demonstrated for the depression measures in the current study provides a helpful model of the direction needed within the area of social support measurement. In large part, this superior validity can be attributed to the relatively clear consensus within the field concerning the nature of the construct "depression," including the cluster of symptoms that constitute it and which tend empirically to co-occur, and the types of self-reports that are relevant to the construct. No such consensus exists in the area of social support. Future attempts to demonstrate the convergent validity of social support measures need to be careful to maximize the similarities between the conceptual and operational definitions of social support variables used while at the same time employing dissimilar measurement methods.

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