

Interpersonal Sensitivity and Social Problem-Solving: Relations with Academic and Social Self-Esteem, Depressive Symptoms, and Academic Performance

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This study investigated the relation between interpersonal sensitivity and social problem-solving as predictors of three outcomes in a college population (N = 207): self-esteem, depressive symptoms, and academic performance. Consistent with predictions, interpersonal sensitivity was related to problem-solving—in particular, negative problem orientation. Both interpersonal sensitivity and social problem-solving were significant predictors of self-esteem and depressive symptoms, each accounting for unique variance. Interpersonal sensitivity was a significant predictor of academic performance, for both males and females. However, in females, social problem-solving was not related to academic performance. In males, negative problem orientation and dysfunctional problem-solving styles were important aspects of problem-solving related to academic performance. The results are discussed in terms of the identification of “at risk” college students.

KEY WORDS: interpersonal sensitivity; social problem-solving; self-esteem; depression; academic performance.

There is a growing body of research examining certain personality dispositions, or ways of thinking and behaving, as vulnerability factors for depression. For example, interpersonal sensitivity (e.g., Boyce, Hickie, & Parker, 1991; Boyce & Parker, 1989) and social problem-solving (see Nezu, 1987; Nezu & D’Zurilla, 1989) have been identified as personality and cognitive-behavioral risk factors for depression. Examination of the link between personality characteristics, cognitive-behavioral appraisals and skills, and psychological adjustment (e.g., depression) is important, as findings may have implications for both psychological theory and the treatment and prevention of psychological problems, through the identification of “at-risk” individuals.

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Interpersonal Sensitivity

Interpersonal sensitivity is a personality style characterized by an excessive awareness of both the behavior and feelings of others (Boyce & Parker, 1989). High interpersonally sensitive individuals are extremely sensitive to interactions with others and they behave in such a way as to minimize the risk of negative evaluation. Boyce and Parker (1989) describe interpersonal sensitivity as a multidimensional construct involving five components: (1) Interpersonal Awareness—hyperattentiveness to the behavior and reactions of others; (2) Need for Approval—the desire to make others happy and minimize conflict; (3) Separation Anxiety—sensitivity to threats toward relationship bonds; (4) Timidity—the inability to be assertive in relationships; and (5) Fragile Inner-Self—an unlike able inner self related to fragile self-esteem and low self-worth. Based on their multidimensional model, Boyce and Parker (1989) have developed an instrument (Interpersonal Sensitivity Measure, IPSM; Boyce & Parker, 1989) to measure interpersonal sensitivity.³

Depressed individuals typically have higher levels of interpersonal sensitivity than nondepressed individuals (e.g., Boyce & Parker, 1989). Many studies show that interpersonal sensitivity is an important risk factor for the onset, maintenance, and recurrence of depression (Boyce, Parker, Barnett, Cooney, & Smith, 1991; Boyce, Parker, Hickie, Wilhelm, Brodaty, & Mitchell, 1990; Boyce, Hickie, Parker, Mitchell, Wilhelm, & Brodaty, 1992; Davidson, Zisook, Giller, & Helms, 1989), including postnatal depression following childbirth (Boyce, Parker et al., 1991; Boyce et al., 1991).

Social Problem-Solving

Social problem-solving is another vulnerability factor associated with depression, and with psychological adjustment more broadly. Theoretical accounts of problem-solving postulate positive and negative self-appraisals and specific cognitive-behavioral skills as important aspects involved in solving interpersonal and social problems encountered in daily life (see D'Zurilla & Goldfried, 1971; Heppner & Krauskopf, 1987; Nezu & D'Zurilla, 1989). Social problem-solving is an important coping strategy mediating the affective experiences associated with daily life stressors or problems (D'Zurilla & Nezu, 1982; Nezu & D'Zurilla, 1989). Effective problem-solving can decrease or minimize psychological stress and negative affective states by enabling a person to more effectively manage daily life problems and their emotional effects.

There is evidence of a strong relationship between problem-solving deficits and depressive symptoms (Nezu & D'Zurilla, 1989). Numerous studies, using different measures of problem-solving, have demonstrated this relationship across the life span: in children and adolescents (e.g., Sacco & Graves, 1984; Sadowski, Moore, & Kelley, 1994), college students (e.g., Blankstein, Flett, & Johnston, 1992; Heppner & Anderson, 1985; Nezu & Ronan, 1987), and middle-aged and elderly adults (Kant,

³The IPSM is different from the interpersonal sensitivity subscale of the Symptom Checklist—90—Revised (SCL-90-R; Derogatis, 1983) as it measures a personality style or trait rather than a set of symptoms (Boyce & Parker, 1989).

D’Zurilla, & Maydeu-Olivares, 1997). Social problem-solving has been linked with suicidal ideation (Sadowski & Kelly, 1993), and recently, Elliott, Shewchuk, Richeson, Pickelman, and Franklin (1996) reported an association between social problem-solving and peripartum and postpartum depression.

In addition to the link with depression, there is a large body of empirical research demonstrating the relation between problem-solving and other indices of psychological adjustment, in both clinical and subclinical samples. For example, studies have found social problem-solving to be related to positive and negative affect (Chang & D’Zurilla, 1996; Elliott, Sherwin, Harkins, & Maramarosh, 1995), psychological stress (D’Zurilla & Sheedy, 1991; Nezu, 1985), academic competence (D’Zurilla & Sheedy, 1992; Elliott, Godshall, Shrout, & Witty, 1990), anxiety (Nezu, 1985, 1986b), test anxiety (Blankstein, Flett, & Batten, 1989; Blankstein, Flett, & Watson, 1992; Flett & Blankstein, 1994), and worry (Davey, Jubb, & Cameron, 1996; Dugas, Letarte, Rheume, Freeston, & Ladouceur, 1995).

Aims of the Present Study

One objective of our study was to examine the interrelation between interpersonal sensitivity and social problem-solving. Several studies have connected social problem solving to interpersonal behavior and social support (e.g., Wang, Heppner, & Berry, 1997). For example, research conducted by Elliott, Herrick, and Witty (1992) suggests that effective social problem solving (particularly, problem solving appraisal) is associated with higher levels of social support. Other research has found that self-appraised “unsuccessful” problem solvers report more relationship problems than self-appraised “successful” problem solvers (Heppner, Hibel, Neal, Weinstein, & Rabinowitz, 1982). Social problem-solving ability has also been related to assertive behavior (Elliott, Godshall, Herrick, Witty, & Spruell, 1991). Based on this research and on the evidence connecting both interpersonal sensitivity and social problem solving to depression, we expected that these two constructs would overlap. In addition, research has linked the problem-solving orientation component to neuroticism (Chang & D’Zurilla, 1996; Elliott, Herrick, MacNair, & Harkins, 1994), a construct subsuming interpersonal sensitivity. Thus, we predicted that interpersonal sensitivity, particularly those components most strongly associated with depression: fragile inner-self, separation anxiety, and interpersonal awareness (Boyce & Parker, 1989; Boyce et al., 1990; Boyce et al., 1992), would be associated with a negative problem-solving orientation and deficient problem-solving styles.

It has been hypothesized that self-appraised problem-solving ability affects adjustment directly, in part by influencing a person’s self-esteem (D’Zurilla, 1986). However, with the exception of one set of unpublished results (D’Zurilla, Nezu, & Maydeu-Olivares, in press), the link between social problem-solving and self-esteem has not been established. Thus, we included self-esteem as an outcome variable. There are several reasons to expect an association between these measures and self-esteem. First, low self-esteem is a core symptom of depression (Beck, 1967). Second, both depression and self-esteem are associated with similar attributional styles (e.g., Lennen, Herzberger, & Nelson, 1987) and it has been suggested that the tendency to make

complex attributions to internal and external factors by depressed individuals may actually be a motivated attempt to protect low self-esteem (Flett, Pliner, & Blankstein, 1989). Finally, and perhaps most importantly, chronic low self-esteem is considered by some theorists to be an important diathesis for depression (e.g., Brown & Harris, 1978). The present study is unique in that we assessed respondents' trait self-esteem in both academic and social situations, two areas of great relevance to college students (see Flett, Blankstein, Occhiuto, & Koledin, 1994).

Another outcome variable examined was academic performance in an introductory university course, an important adaptational outcome in a university population. Although an association between depression and academic performance has been reported (e.g., Haines, Norris, & Kasky, 1996), it is of interest to determine whether interpersonal sensitivity and social problem-solving are differentially related to various adaptational outcomes. Course performance offered a longitudinal, behavioral outcome measure, less susceptible to impression management and self-deceptive bias (Flett, Blankstein, Pliner, & Bator, 1988; Paulhus, 1991) than self-reported trait self-esteem and depressive symptomatology.

To summarize, the rationale of our study was to examine the interrelation between interpersonal sensitivity and social problem-solving as well as the relation of these constructs to three indices of adjustment: academic and social self-esteem, depressive symptoms, and academic performance. It was predicted that (1) overall level of interpersonal sensitivity and, in particular, the fragile inner-self, separation anxiety, and interpersonal awareness components would be positively related to negative problem orientation and the deficient problem-solving styles and negatively related to positive problem orientation and rational problem solving. It was also expected that (2) interpersonal sensitivity and social problem-solving would be predictive of levels of self-esteem, depressive symptoms, and academic performance.

METHOD

Participants

The participants were 207 undergraduate students enrolled in the full academic year Introductory Psychology course at the University of Toronto at Mississauga. Participants received course credit for participation. Overall, 133 of the participants (64%) were female and 74 (36%) were male. Mean age was 22.4 years with a standard deviation of 6.9 years.

Measures

Interpersonal Sensitivity

Interpersonal sensitivity was measured using the Interpersonal Sensitivity Measure (IPSM; Boyce & Parker, 1989), a 36-item self-report instrument yielding a total score and five subscale scores. Total scores range from 36 to 144. The five subscales measure the five components of interpersonal sensitivity: (1) Interpersonal Aware-

ness (e.g., “I care about what other people feel about me”); (2) Need for Approval (e.g., “I will go out of my way to please someone I am close to”); (3) Separation Anxiety (e.g., “I feel insecure when I say goodbye to people”); (4) Timidity (e.g., “I avoid saying what I think for fear of being rejected”); and (5) Fragile Inner-Self (e.g., “My value as a person depends enormously on what others think of me”). The scale has good psychometric properties including high reliability and validity (with the exception of the “need for approval” subscale; Boyce & Parker, 1989).

Social Problem-Solving

Social problem-solving was measured with the Social Problem-Solving Inventory—Revised (SPSI-R; D’Zurilla, Nezu, & Maydeu-Olivares, in press; Maydeu-Olivares & D’Zurilla, 1996). The SPSI-R measures both positive and negative problem-solving attitudes, strategies, and techniques (D’Zurilla & Maydeu-Olivares, 1995). The 52-item SPSI-R consists of five scales: (1) Positive problem orientation (e.g., “Whenever I have a problem, I believe that it can be solved”); (2) Negative problem orientation (e.g., “I feel threatened and afraid when I have an important problem to solve.”); (3) Rational problem-solving (e.g., “When I am trying to solve a problem, I often think of different solutions and then try to combine some of them to make a better solution”); (4) Impulsivity/carelessness style (e.g., “When I am attempting to solve a problem, I act on the first idea that occurs to me”); and (5) Avoidance style (e.g., “I wait to see if a problem will resolve itself first, before trying to solve it myself”). Many studies show support for the psychometric properties of the SPSI-R (e.g., Chang & D’Zurilla, 1996; D’Zurilla, Nezu, & Maydeu-Olivares, in press).

Academic and Social Self-Esteem

An extended version of Rosenberg’s (1965) Self-Esteem Questionnaire (SEQ) was used to assess self-esteem. Metalsky (1992) extended the scale by having participants answer the 10 items separately for achievement-related situations (which we adapted to “academic” situations), interpersonal-related (“social”) situations, and situations in general. Each item is rated on a 5-point scale. Higher scores reflect greater self-esteem. The social and academic subscales (total across items) of the Extended SEQ were used in testing our predictions.

Depression

Level of depressive symptoms was assessed using the 20-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). This instrument was selected because it was designed as a depression scale for research in a nonclinical, general population, and thus it is appropriate for use in a college population. A number of studies have demonstrated the CES-D to have good psychometric properties (e.g., Boyd, Weissman, Thompson, & Myers, 1982; Radloff, 1977).

Academic Performance

Final grade in the Introductory Psychology course was used as an indicator of academic performance. This grade is a composite of five term tests comprised of

multiple-choice and short answer essay questions, a laboratory component, and a final multiple-choice examination. To avoid bias in self-report, we obtained these data from student records. Course grade was selected as an outcome measure over test performance or grade point average following the recommendation of Smith, Arnkoff, and Wright (1990).

Procedure

Participants completed questionnaire packages in small group testing sessions (approximately 10 participants at a time) during the first semester. Packages were presented in a randomized order to each participant. Participants completed the measures early in the Fall semester and were exposed to only one or two term tests prior to their participation.

RESULTS

Descriptive Statistics

The means, standard deviations, reliabilities, and intercorrelations for the subscales of the IPSM and the SPSSI-R are presented in Table I. Intercorrelations among the IPSM subscales ranged from a low of .04 to a high of .89. Intercorrelations among the SPSSI-R subscales ranged from a low of $-.16$ to a high of .66. Reliabilities for the IPSM subscales ranged from a low of .56 on the need for approval subscale, to a high of .88 for the IPSM total score. Other than the need for approval subscale, the reliability of the IPSM was quite good. Reliabilities for the SPSSI-R ranged from

Table I. Means, Standard Deviations, Reliabilities, and Intercorrelations Among Subscales of the IPSM and the SPSSI-R ($N = 197$)^a

IPSM	NAPPROV	SEPANX	TIMIDITY	FRAGSELF	IPSMTOT	<i>M</i>	<i>SD</i>	α
IPAWARE	.42 ^c	.61 ^c	.52 ^c	.66 ^c	.89 ^c	18.91	3.96	.75
NAPPROV		.10	.26 ^c	.04	.45 ^c	26.37	3.06	.56
SEPANX			.37 ^c	.65 ^c	.79 ^c	18.52	4.76	.79
TIMIDITY				.31 ^c	.71 ^c	20.54	4.40	.75
FRAGSELF					.74 ^c	9.78	3.36	.78
IPSMTOT						94.22	14.26	.88
SPSSI-R	NPO	RPS	ICS	AS				
PPO	$-.43^c$.66 ^c	$-.23^c$	$-.37^c$	11.95	3.55	.68	
NPO		$-.16^b$.59 ^c	.62 ^c	16.45	9.02	.91	
RPS			$-.27^c$	$-.18^c$	44.82	13.05	.92	
ICS				.64 ^c	14.66	6.90	.84	
AS					10.47	6.72	.89	

^aIPAWARE: Interpersonal Awareness; NAPPROV: Need for Approval; SEPANX: Separation Anxiety; TIMIDITY: Timidity; FRAGSELF: Fragile Self; IPSMTOT: Interpersonal Sensitivity Total; PPO: Positive Problem Orientation; NPO: Negative Problem Orientation; RPS: Rational Problem-solving; ICS: Impulsivity/Carelessness Style; AS: Avoidance Style; α : coefficient alpha.

^b $p < .05$.

^c $p < .01$.

a low of .68 for the positive problem orientation component to a high of .92 for the rational problem-solving component. Overall, these results indicate that the SPSI-R has good reliability.

Interpersonal Sensitivity, Social Problem-Solving, and Adjustment

Data was analyzed using correlational and multiple hierarchical regression analyses. The interrelation between the IPSM and the SPSI-R was examined first. Relations between interpersonal sensitivity and social problem-solving and the prediction of self-esteem, depression, and academic performance were examined second. In the prediction of these outcomes, the IPSM subscales were entered in the first block followed by the SPSI-R scales in the second block. This sequence was theoretically based on the grounds that interpersonal sensitivity is viewed as a predisposing personality style present at a young age, whereas social problem-solving would be developed over time and with experience. However, it is also possible that social problem-solving may mediate the relationship between interpersonal sensitivity and criterion variables. To show that interpersonal sensitivity and social problem-solving account for unique variance in criterion variables, the reverse analyses were also conducted with the SPSI-R scales entered first followed by the IPSM subscales.

In each case, analyses were conducted first on the combined sample and then separately for each gender. However, with the exception of the analyses using academic performance as the criterion (see below), no gender differences emerged; thus, only the combined sample analyses are reported.

It is theoretically possible that social problem-solving could operate as a moderator of the relation between interpersonal sensitivity and adjustment outcomes. We examined this possibility by entering a final block in the regression equations that included all meaningful interactions between interpersonal sensitivity and social problem-solving. This block was not significant in any of the analyses and accounted for less than 2% of the variance in criterion variables. These interaction effects will not be discussed further.

Interrelation Between Interpersonal Sensitivity and Social Problem-Solving

Pearson correlation coefficients computed between the IPSM and the SPSI-R components are presented in Table II. As expected, interpersonal sensitivity total score was inversely related to positive problem-solving orientation and positively related to negative problem orientation and the maladaptive problem-solving styles.

Regression Analyses

Since both the IPSM and the SPSI-R are multidimensional measures, a series of hierarchical multiple regression analysis was conducted to examine the relations between these measures. Results are reported in Table III. In this series of analyses, social problem-solving was examined as a predictor of the total score on the IPSM and each of its subscales. Social problem-solving accounted for 34% of the variance

Table II. Correlations Between the Six Interpersonal Sensitivity Dimensions and the Five Problem-Solving Dimensions ($N = 197$)^a

IPSM	SPSI-R				
	PPO	NPO	RPS	ICS	AC
IPAWARE	-.30 ^c	.51 ^c	-.05	.29 ^c	.36 ^c
NAPPROV	.01	.04	.13	-.11	-.02
SEPANX	-.20 ^c	.59 ^c	-.05	.31 ^c	.35 ^c
TIMIDITY	-.09	.27 ^c	.11	.06	.26 ^c
FRAGSELF	-.24 ^c	.46 ^c	-.09	.39 ^c	.41 ^c
IPSMTOT	-.24 ^c	.54 ^c	.01	.27 ^c	.39 ^c

^aIPAWARE: Interpersonal Awareness; NAPPROV: Need for Approval; SEPANX: Separation Anxiety; TIMIDITY: Timidity; FRAGSELF: Fragile Self; IPSMTOT: Interpersonal Sensitivity Total; PPO: Positive Problem Orientation; NPO: Negative Problem Orientation; RPS: Rational Problem-Solving; ICS: Impulsivity/Carelessness Style; AS: Avoidance Style.

^b $p < .05$.

^c $p < .01$.

in the total interpersonal sensitivity score. The significant predictor was negative problem orientation. Those higher on negative problem orientation tended to also be higher on interpersonal sensitivity.

These results indicate that interpersonal sensitivity and social problem-solving are related and overlap to some extent. As predicted, negative problem orientation was the strongest predictor of all aspects of interpersonal sensitivity (except need for approval).

Table III. Summary of Hierarchical Regression Analysis: Predicting Interpersonal Sensitivity from Social Problem-Solving ($N = 182$)^a

Predictor variable	R^2	B	$SE B$	β
Equation 1: Outcome = IPSMTOT	.34 ^d			
NPO		.83	.14	.51 ^d
Equation 2: Outcome = IPAWARE	.31 ^d			
NPO		.19	.04	.43 ^d
PPO		-.25	.11	-.22 ^b
Equation 3: Outcome = NAPPROV	.05			
Equation 4: Outcome = SEPANX	.36 ^d			
NPO		.36	.05	.67 ^d
Equation 5: Outcome = TIMIDITY	.18 ^d			
NPO		.13	.05	.27 ^b
ICS		-.15	.06	-.24 ^b
AS		.19	.06	.29 ^c
Equation 6: Outcome = FRAGSELF	.29 ^d			
NPO		.11	.04	.30 ^c

^aIPSMTOT: Interpersonal Sensitivity Total; IPAWARE: Interpersonal Awareness; NAPPROV: Need for Approval; SEPANX: Separation Anxiety; TIMIDITY: Timidity; FRAGSELF: Fragile Self; PPO: Positive Problem Orientation; NPO: Negative Problem Orientation; RPS: Rational Problem-Solving; ICS: Impulsivity/Carelessness Style; AS: Avoidance Style.

^b $p < .05$.

^c $p < .01$.

^d $p < .001$.

Interpersonal Sensitivity, Social Problem-Solving, and the Prediction of Self-Esteem, Depressive Symptoms, and Academic Performance

Pearson correlations between the IPSM and SPSSI-R subscales and the three outcome measures are presented in Table IV. All components of the IPSM (except need for approval) were inversely related to social and academic self-esteem scores. Consistent with Boyce and Parker's (1989) model of interpersonal sensitivity that relates the fragile inner-self component to low self-esteem, there was a strong inverse relation between the fragile self component and both social and academic self-esteem. Separation anxiety was also strongly inversely related to self-esteem. The higher the level of separation anxiety, the lower the self-esteem. All components of the SPSSI-R were also significantly related to self-esteem scores. Negative problem orientation evidenced the strongest inverse relation with self-esteem.

All components of the IPSM (except need for approval) were significantly related to depressive symptoms such that the higher the level of interpersonal sensitivity, the higher the level of depressive symptoms. All components of the SPSSI-R, with the exception of the rational problem-solving scale, were also significantly related to depressive symptoms. The higher the scores on the negative prob-

Table IV. Correlations Between Interpersonal Sensitivity, Social Problem-Solving, and Outcome Measures: Depression, Self-Esteem, and Academic Performance^a

	Self-esteem		Depression (<i>N</i> = 206)	Academic performance	
	Social (<i>N</i> = 202)	Academic (<i>N</i> = 202)		Female (<i>N</i> = 124)	Male (<i>N</i> = 66)
IPSM					
IPAWARE	-.53 ^d	-.41 ^d	.40 ^d	.04	.05
NAPPROV	.10	.07	-.01	.09	.11
SEPANX	-.56 ^d	-.55 ^d	.52 ^d	-.14	-.31 ^c
TIMIDITY	-.32 ^d	-.20 ^d	.23 ^d	.12	.01
FRAGSELF	-.64 ^d	-.51 ^d	.35 ^d	.06	-.16
IPSMTOT ^b	-.63 ^d	-.52 ^d	.47 ^d	.01	-.09
SPSSI-R					
PPO	.41 ^d	.35 ^d	-.23 ^d	-.01	.14
NPO	-.60 ^d	-.57 ^d	.57 ^d	-.02	-.16
RPS	.20 ^d	.15 ^c	-.06	.03	.05
ICS	-.34 ^d	-.28 ^d	.30 ^d	-.01	-.34 ^d
AS	-.46 ^d	-.35 ^d	.30 ^d	.00	-.39 ^d
<i>M</i>	39.66	38.22	36.62	68.73	69.15
<i>SD</i>	7.78	7.96	11.06	9.69	9.33

^aIPAWARE: Interpersonal Awareness; NAPPROV: Need for Approval; SEPANX: Separation Anxiety; TIMIDITY: Timidity; FRAGSELF: Fragile Self; IPSMTOT: Interpersonal Sensitivity Total; PPO: Positive Problem Orientation; NPO: Negative Problem Orientation; RPS: Rational Problem-Solving; ICS: Impulsivity/Carelessness Style; AS: Avoidance Style.

^bTotal IPSM score (IPSMTOT) was calculated without including the need for approval (NAPPROV) as this subscale had a very low reliability and was weakly correlated with the other subscales of the IPSM. Correlational analyses revealed that need for approval was not related to any of the indices of psychological adjustment. Future use of the IPSM should consider the utility of including this component when examining a nonclinical population.

^c*p* < .05.

^d*p* < .01.

lem orientation scale, impulsivity/carelessness scale, and avoidance scale, the higher the level of depressive symptoms. Conversely, the higher the score on the positive problem orientation scale, the lower the level of depressive symptoms.

Gender differences were found with respect to academic performance. For females, neither interpersonal sensitivity nor social problem-solving were related to academic performance. However, for males, aspects of both factors were related to academic performance. With respect to interpersonal sensitivity, separation anxiety was negatively related to academic performance ($r = -.31, p < .05$) and with respect to social problem-solving, both maladaptive problem-solving styles were significantly negatively related to academic performance.

Regression Analyses

A series of hierarchical regression analyses was used to predict self-esteem, depressive symptoms, and academic performance from the IPSM and SPSI-R scales. In the first set of analyses, the relation between interpersonal sensitivity, social problem-solving, and academic and social self-esteem was examined. Results are summarized in Table V.

The IPSM subscales accounted for 53% and 38% of the variance in social self-esteem and academic self-esteem, respectively. This indicates that interpersonal sensitivity is strongly associated with low self-esteem. In the second block, the SPSI-R subscales accounted for an additional 10% of the variance in both social and academic self-esteem with negative problem orientation a significant predictor and as expected, negatively related.

When the SPSI-R subscales were entered first in the analyses (lower portion of Table V), they accounted for 37% and 46% of the variance in social self-esteem and academic self-esteem, respectively. Consistent with the findings reported above, negative problem orientation was a significant predictor of both social and academic self-esteem. In the second block, the IPSM subscales accounted for an additional 11% and 17% of the variance in social self-esteem and academic self-esteem, respectively. Thus, both interpersonal sensitivity and social problem-solving account for unique variance in both social and academic self-esteem.

In the next analysis, the relation between interpersonal sensitivity, social problem-solving, and level of depressive symptoms was examined. Results are presented in Table VI.

The IPSM subscales accounted for 30% of the variance in the level of depressive symptoms. In the second block, the SPSI-R subscales accounted for an additional 9% of the variance in the level of depressive symptoms. The only significant predictor was negative problem orientation, which was positively related. When the SPSI-R subscales were entered first in the analyses they accounted for 37% of the variance in depression score with negative problem orientation the only significant predictor. In the second block, the IPSM subscales accounted for an additional 5% of the variance in depression score. Thus, both interpersonal sensitivity and social problem-solving account for unique variance in depressive symptoms.

Since the Pearson correlations suggested that the link between interpersonal sensitivity and social problem-solving and academic performance differed as a

Table V. Summary of Hierarchical Regression Analysis: Interpersonal Sensitivity and Social Problem-Solving Predicting Social and Academic Self-Esteem ($N = 182$)^a

	Social self-esteem				Academic self-esteem			
	R^2	B	$SE B$	β	R^2	B	$SE B$	β
Block Number 1								
IPSM Dimensions	.53 ^e				.38 ^e			
IPA WARE		-.45	.18	-.23 ^c				
NA PPROV		.62	.15	.25 ^e		.39	.18	.15 ^c
SEPANX		-.33	.12	-.20 ^c		-.63	.14	-.37 ^e
TIMIDITY								
FRAGSELF		-.86	.19	-.37 ^e		-.54	.22	-.22 ^e
Block Number 2								
SPSI-R Dimensions	.10 ^{b,e}				.10 ^{b,e}			
PPO								
NPO		-.30	.07	-.34 ^e		-.36	.09	-.39 ^e
RPS								
ICS		.18	.08	.16 ^c				
AS								
Block Number 1								
SPSI-R Dimensions	.37 ^e				.46 ^e			
PPO								
NPO		-.53	.08	-.58 ^e		-.47	.07	-.53 ^e
RPS								
ICS								
AS								
Block Number 2								
IPSM Dimensions	.11 ^{b,e}				.17 ^{b,e}			
IPA WARE								
NA PPROV						.46	.14	.18 ^d
SEPANX		-.38	.15	-.22 ^d				
TIMIDITY								
FRAGSELF		-.61	.21	-.25 ^d		-.89	.17	-.38 ^e

^aIPA WARE: Interpersonal Awareness; NA PPROV: Need for Approval; SEPANX: Separation Anxiety; TIMIDITY: Timidity; FRAGSELF: Fragile Self; PRO: Positive Problem Orientation; NPO: Negative Problem Orientation; RPS: Rational Problem-Solving; ICS: Impulsivity/Carelessness Style; AS: Avoidance Style.

^b R^2 change.

^c $p < .05$.

^d $p < .01$.

^e $p < .001$.

function of gender, this relation was examined in separate regression analyses of each gender. These results are summarized in Table VII.

In the first block, IPSM subscales accounted for 11% of the variance in academic performance for females compared to 18% for males. In the second block, the incremental contribution of the SPSI-R subscales was not significant for females whereas social problem-solving accounted for 22% of additional variance in final grade for males. When the SPSI-R subscales were entered first in the analyses, followed by the IPSM subscales, results almost identical to that reported above were found. Social problem-solving did not account for a significant portion of the variance in grade for females, but accounted for 23% of the variance in grade for males. Interpersonal sensitivity accounted for an additional 11% of the variance in

Table VI. Summary of Hierarchical Regression Analysis: Interpersonal Sensitivity and Social Problem-Solving Predicting Depression ($N = 197$)^a

	Depression			
	R^2	B	$SE B$	β
Block Number 1				
IPSM Dimensions	.30 ^e			
IPAWARE		.77	.30	.27 ^c
NAPPROV		-.57	.26	-.16 ^c
SEPANX		1.04	.20	.44 ^c
TIMIDITY				
FRAGSELF				
Block Number 2				
SPSI-R Dimensions	.09 ^{b,e}			
PPO				
NPO		.77	.12	.44 ^c
RPS				
ICS				
AS				
Block Number 1				
SPSI-R Dimensions	.37 ^e			
PPO				
NPO		.86	.11	.68 ^c
RPS				
ICS				
AS				
Block Number 2				
IPSM Dimensions	.05 ^{b,e}			
IPAWARE				
NAPPROV				
SEPANX		.66	.21	.28 ^d
TIMIDITY				
FRAGSELF				

^aIPAWARE: Interpersonal Awareness; NAPPROV: Need for Approval; SEPANX: Separation Anxiety; TIMIDITY: Timidity; FRAGSELF: Fragile Self; PPO: Positive Problem Orientation; NPO: Negative Problem Orientation; RPS: Rational Problem-Solving; ICS: Impulsivity/Carelessness Style; AS: Avoidance Style.

^b R^2 change.

^c $p < .05$.

^d $p < .01$.

^e $p < .001$.

grade in females and 17% in males. These results indicate that interpersonal sensitivity accounts for unique variance in academic performance for both females and males. Social problem-solving also accounts for unique variance in academic performance, but only for males. Thus, it seems that social problem-solving, particularly a negative problem orientation, is strongly related to academic performance in males.

DISCUSSION

This study brought together two previously independent lines of research by examining the link between interpersonal sensitivity (a personality vulnerability

Table VII. Summary of Hierarchical Regression Analysis: Interpersonal Sensitivity and Social Problem-Solving Predicting Academic Performance^a

	Academic performance							
	Females (<i>N</i> = 118)				Males (<i>N</i> = 64)			
	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β
Block Number 1								
IPSM Dimensions	.11 ^c				.18 ^c			
IPAWARE								
NAPPROV								
SEPANX		-.76	.25	-.39 ^d		-.97	.36	-.44 ^d
TIMIDITY								
FRAGSELF		1.04	.45	.37 ^c				
Block Number 2								
SPSI-R Dimensions	.01 ^b				.22 ^{b,d}			
PPO								
NPO						.77	.23	.74 ^d
RPS								
ICS								
AS						-.79	.27	-.52 ^d
Block Number 1								
SPSI-R Dimensions	.00				.23 ^d			
PPO								
NPO						.47	.19	.46 ^c
RPS								
ICS								
AS						-.70	.29	-.46 ^c
Block Number 2								
IPSM Dimensions	.11 ^{b,c}				.17 ^{b,c}			
IPAWARE								
NAPPROV								
SEPANX		-.81	.27	-.42 ^d		-1.36	.39	-.63 ^d
TIMIDITY		.52	.26	.23 ^c		-.97	.36	-.44 ^d
FRAGSELF		1.13	.47	.40 ^c				

^aIPAWARE: Interpersonal Awareness; NAPPROV: Need for Approval; SEPANX: Separation Anxiety; TIMIDITY: Timidity; FRAGSELF: Fragile Self; PPO: Positive Problem Orientation; NPO: Negative Problem Orientation; RPS: Rational Problem-Solving; ICS: Impulsivity/Carelessness Style; AS: Avoidance Style.

^b*R*² change.

^c*p* < .05.

^d*p* < .01.

^e*p* < .001.

factor) and social problem-solving (a cognitive-behavioral risk factor) and their joint relation to social and academic self-esteem, depressive symptoms, and academic performance. Our study revealed several significant findings: (1) interpersonal sensitivity and social problem-solving are distinct yet related constructs; (2) both interpersonal sensitivity and social problem-solving accounted for unique variance in both social and academic self-esteem; (3) both interpersonal sensitivity and social problem-solving accounted for unique variance in depressive symptoms; (4) there were interesting gender differences with respect to the relation between interpersonal sensitivity, social problem-solving and academic performance.

As predicted, interpersonal sensitivity was negatively related to positive prob-

lem orientation and positively related to negative problem orientation and dysfunctional problem-solving styles. Hierarchical regression analyses revealed that negative problem orientation was the strongest predictor of interpersonal sensitivity. Thus, the high interpersonally sensitive student is more likely to view problems as threatening and unsolvable, have low self-efficacy with respect to problem-solving efforts, and become easily discouraged when attempting to problem solve.

Interpersonal sensitivity and social problem-solving are not overlapping constructs in terms of content. A content analysis comparing items of the IPSM with those of the SPSI-R reveals relatively no similarity. Thus, the association that emerged between these two constructs is likely a result of the causal relations between the unique features of interpersonal sensitivity and social problem-solving, rather than content similarity.

Aspects of both interpersonal sensitivity and social problem-solving were uniquely related to both social and academic self-esteem. These results are consistent with a previous finding showing an association between interpersonal sensitivity and Rosenberg (1965) "general" self-esteem (Boyce & Parker, 1989). With respect to social problem-solving, all aspects were associated with both social and academic self-esteem with negative problem orientation evidencing the strongest relations.

Both interpersonal sensitivity and social problem-solving accounted for unique variance in the prediction of depressive symptomatology. The higher the level of interpersonal sensitivity, the higher the level of depressive symptoms. With respect to social problem-solving, negative problem orientation evidenced the strongest association with depressive symptomatology.

Interpersonal sensitivity accounted for a significant portion of the variance in academic performance in both males and females. With respect to social problem-solving and academic performance, interesting gender differences emerged. In females, social problem-solving was not a significant predictor. In males, social problem-solving accounted for a significant portion of the variance in academic performance, even greater than interpersonal sensitivity. These findings are consistent with those of previous studies examining the relation between social problem-solving ability and subsequent level of academic competence in college students, with the exception that our results were found only in males (D'Zurilla & Nezu, 1990; D'Zurilla & Sheedy, 1992).⁴

Previous studies looking at interpersonal sensitivity have focused primarily on women and clinical samples and depression as an outcome (Boyce et al., 1991). The results of our study demonstrate that interpersonal sensitivity is a potential "risk" factor for depressive symptoms, low self-esteem, as well as academic performance in a young college sample, for both males and females. In addition, the results of our study are consistent with previous research demonstrating a link between social problem-solving and adjustment. The finding that negative problem orientation was consistently the strongest predictor of both low self-esteem and depressive symptoms is congruent with other studies showing that problem orientation plays a more important role than problem-solving skills in adaptational outcomes (e.g., D'Zurilla & Sheedy, 1991; Haaga, Fine, Roscow Terrill, Stewart, & Beck, 1995).

⁴D'Zurilla and Sheedy (1992) did not examine these relations separately for males and females.

What does it mean when a student has high levels of interpersonal sensitivity? Our findings inform us that potentially at risk students are characterized by high levels of interpersonal awareness, separation anxiety, and fragile inner-self, the three aspects of interpersonal sensitivity most informative of adjustment (Boyce & Parker, 1989). Moreover, the at risk student is also characterized by maladaptive social problem-solving—particularly, negative problem orientation. These findings suggest a basis for future identification of at risk college students as well as directions for counseling efforts.

The implications of our findings are unique to the college student experience. Most first-year college students are faced with the stressful life event of leaving home and support systems, perhaps for the first time, and adjusting to a completely new environment where they face both social and intellectual challenges (Sher, Wood, & Gotham, 1996). The findings of our study suggest that negative problem orientation is an important target for counseling with university students—in particular, those students who might be at risk due to personality vulnerability (i.e., high interpersonal sensitivity). Problem-solving therapy (see Nezu, Nezu, & Houts, 1993, for review) has been effective in reducing distress, depression, and hopelessness (Arean, Perri, Nezu, Schein, Christopher, & Joseph 1993; Lerner & Clum, 1990; Nezu, 1986a), particularly therapy that targets problem orientation (e.g., Nezu & Perri, 1989). Thus, counseling efforts focused on brief interventions directed at both motivational aspects of coping with problems as well as self-defeating cognitions would be beneficial in protecting the at risk interpersonally sensitive student from potential mood disturbance as well as bolstering coping processes and improving positive psychosocial adjustment.

Limitations of this study suggest directions for future research. Our study was directed at examining college students. Thus, these results are not generalizable to a noncollege student population. Future researchers should examine interpersonal sensitivity and social problem-solving in other populations (e.g., psychiatric patients) and in different age groups (e.g., the elderly).

There is a distinct possibility that interpersonal sensitivity and social problem-solving are related to several forms of negative affectivity, such as anxiety, and are not specific to the experience of depressive symptoms in college students (e.g., Gotlib, 1984; Watson & Clark, 1984, Watson, Weber, Smith Assenheimer, Clark, Strauss, & McCormick, 1995). Future researchers should examine this issue by looking at the relationship between interpersonal sensitivity, social problem-solving, and other measures of mood and distress that discriminate between anxiety and depression.

As personality factors are usually interrelated in complex ways, future researchers should examine the relation between interpersonal sensitivity and social problem-solving and other personality factors such as perfectionism (e.g., Blatt, 1995) and attachment (e.g., Griffin & Bartholomew, 1994) that may influence adaptational outcomes. Our study focused only on interpersonal sensitivity as a personality vulnerability factor. Future researchers should also assess other risk factors such as minor and major stressful life events (e.g., Kanner, Coyne, Schaefer, & Lazarus, 1981) or social support (e.g., Cutrona & Russell, 1990), which may interact with personality in the prediction of psychological adjustment (see Coyne & Whiffen,

1995). Finally, causality should not be inferred from our design. It is essential that future prospective research establishes that interpersonal sensitivity and social problem-solving are causes or correlates of adaptational outcomes, such as depressive symptoms.

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