

A Comparison of Social Problem Solving in Patients with OCD, PTSD, PD and Non-Patient Controls: To Control of the Intolerance of Uncertainty

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Abstract: This study tested the hypothesis that patients with of OCD, PTSD and PD would score higher than non-patient group on scales of negative problem orientation, impulsivity/carelessness style and avoidance style and score lower than non-patients on scales of positive problem orientation style and rational problem solving style of the SPSI-R. The Social Problem Solving Inventory of Revised and Intolerance of Uncertainty Scale were administered to patients who met DSM-IV criteria for patients with obsessive-compulsive disorder (n = 43), patients with post-traumatic stress disorder (n = 41) and patients with panic disorder (39) and 79 non-patients. A one way Multivariate Analysis of Covariance (MANCOVA) with group (OCD, PTSD, PD and non-patient), the 5 SPSI-R scale, was performed, revealed a significant main effect for group ($p < 0.001$). One follow-up univariate analysis of covariance, controlling for intolerance of uncertainty was conducted for each SPSI-R scale. The results showed that patients with of OCD, PTSD and PD would score higher than non-patient group on scales of negative problem orientation, impulsivity/carelessness style and avoidance style and score lower than non-patients on scales of positive problem orientation style and rational problem solving. These findings suggest that social problem solving may be a core feature of anxiety disorders.

Key words: Social problem-solving, intolerance of uncertainty, anxiety disorders

INTRODUCTION

The ability to effectively solve problems has long been linked to competence in both the social and clinical literature (D'Zurilla and Nezu, 1999; Tisdelle and St. Lawrence, 1986). In fact, deficits in problem-solving ability have been identified in several mental health disorders, including Generalized Anxiety Disorder (GAD) (Dugas *et al.*, 1998; Ladouceur *et al.*, 1998), depression (Marx *et al.*, 1992; Haaga *et al.*, 1995; Goddard *et al.*, 1996; Watkins and Baracaia, 2002), pathological gambling (Sylvain *et al.*, 1997), Post-Traumatic Stress Disorder (PTSD) (Nezu and Carnevale, 1987), personality disorders (McMurrin *et al.*, 2002; McMurrin *et al.*, 2005; Bray *et al.*, 2006; McMurrin *et al.*, 2006) and psychiatric patients (D'Zurilla *et al.*, 1998; Evans *et al.*, 1992; Sadowski and Kelley, 1993).

However, social problem solving, that is, the act of resolving problems that occur in the natural social environment, is comprised of several discrete steps (D'Zurilla and Maydeu-Olivares, 1995) that are not uniformly impaired in relation to psychopathology. Interestingly, deficits in ability are rarely associated with

poor problem-solving skills. Rather, studies have identified negative problem orientation as either the primary or sole component of problem solving where deficits are found (D'Zurilla and Nezu, 1999).

Social problem solving has been defined as the set of instrumental, cognitive-behavioral skills necessary for adaptation in everyday life (D'Zurilla and Nezu, 1982). Most of the research on the relations between social problem-solving variables and worry has been based on the model of social problem solving originally developed by D'Zurilla and Goldfried (1971) and later refined and expanded by D'Zurilla *et al.* (1990, 2001). According to this model, problem-solving outcomes in the real world are largely determined by 2 major, partially independent processes: Problem orientation and problem-solving proper. Problem orientation is a metacognitive process involving the operation of a set of relatively stable cognitive-emotional schemas that describe how a person generally thinks and feels about problems in living, as well as his or her own problem-solving ability. Depending on its nature (positive vs. negative), a person's problem orientation may either facilitate or inhibit problem-solving

performance. Problem-solving proper is the core process in social problem solving, namely, the search for a solution through the application of problem-solving skills. Numerous studies have demonstrated that problem orientation and problem-solving skills are both important for effective real-life problem solving and adjustment (D'Zurilla and Nezu, 1999).

Research on these 2 major problem-solving processes by D'Zurilla *et al.* (2002) has identified a 5-dimensional model of social problem solving. A brief description of the social problem solving dimensions is provided below.

Positive problem orientation is a constructive problem-solving cognitive set that involves the general tendency to appraise a problem as a positive challenge, believe that problems are solvable, believe in one's own personal ability to solve problems successfully, believe that successful problem solving take time, effort and persistence and commit oneself to solving problems with dispatch rather than avoiding them. In contrast, negative problem orientation is an inhibitive cognitive-emotional set that involves the general tendency to view a problem as a significant threat to well-being, believe that problems are unsolvable, doubt one's own ability to solve problems successfully and become frustrated and upset when confronted with problems in living. Rational problem solving is a constructive dimension that refers to the knowledge and systematic application of effective problem-solving skills (*viz.* problem definition and formulation, generation of alternative solutions, decision making and solution implementation and verification). Impulsivity/carelessness style is a dysfunctional dimension characterized by impulsive, careless, hurried and incomplete attempts to apply problem-solving skills, whereas avoidance style is another defective dimension that includes the tendencies to put off problem solving, wait for problems to resolve themselves and shift the responsibility for problem solving to others (Maydeu-Olivares and D'Zurilla, 1996).

Several studies have examined the relations between these 2 major components of social problem-solving ability and the experience of worry. In general, the findings have consistently demonstrated that problem orientation, but not problem-solving skills, is significantly related to worry in college students (Davey, 1994; Davey *et al.*, 1996; Dugas *et al.*, 1995; 1997). Specifically, lower problem orientation scores are associated with higher levels of worry. In addition, other studies using clinical samples have found that GAD patients, whose worry is excessive and uncontrollable, have greater deficits in problem orientation (but not problem-solving skills) than other anxiety disorder patients and non-clinical controls (Ladouceur *et al.*, 1998; 1999).

Accordingly, Ladouceur *et al.* (1999) have concluded that poor problem orientation is a broadly specific GAD process variable not shared by other anxiety disorders.

Ladouceur *et al.* (1998) were to examine whether problem-solving skill differ according to GAD symptom level or clinical status. The results show that problem orientation, intolerance of uncertainty and beliefs about worry were similar in subjects meeting GAD criteria by questionnaire and GAD patient. Whereas moderate worries had different scores on these variables. Thus, these variables are more highly affected by GAD symptom level than by clinical status. The results also show that problem-solving skill were unaffected by symptom level and clinical status, thereby indicating that knowledge of problem-solving skill is unrelated to both GAD symptom level and GAD clinical status. Hino *et al.* (2002) with 43 patients with panic disorder and 315 normal subjects were compared in coping strategies. Compared with normal subjects, panic disorder patients obtained significantly higher scores for emotional coping strategies and for seeking social support and escape-avoidance as coping styles ($p < 0.01$). Kenneth *et al.* (2002) showed that different dimensions of social problem-solving ability was related to both worry measures after controlling for trait anxiety. Results of hierarchical multiple regression analyses showed that social problem-solving ability accounted for a significant amount of variance in both worry measures even after trait anxiety was controlled.

The present study attempted to extend or improve upon the previous research in 2 important ways. we used a new multi-dimensional measure of social problem-solving ability, namely, the Social Problem-Solving Inventory-Revised (SPSI-R; D'Zurilla *et al.*, 2001), which assesses dimensions of social problem-solving ability that have not yet been examined of in patients Obsessive-Compulsive Disorder (OCD), PTSD and Panic Disorder (PD). Most of the previous studies in this area used the original theory-driven Social Problem-Solving Inventory (SPSI; D'Zurilla and Nezu, 1990), which consists of 2 major scales that were designed to measure problem orientation and problem-solving proper, defined as the knowledge and use of effective problem-solving skills. The second way that we attempted to improve upon the previous research was to control for the variable of intolerance of uncertainty, which has been found to be strongly related to problem orientation (Ladouceur *et al.*, 1999).

Based on theory and previous studies suggest that clinical patients (anxious, depressive and etc) than non-patients, score highly on many indices of social problem solving, we predicted that patients with of with of OCD, PTSD and PD would score higher than control group on scales of negative problem orientation, impulsivity/

carelessness style and avoidance style of the SPSI-R. In addition, we predicted that patients with of OCD, PTSD and PD would score lower than non-patients on scales of positive problem orientation style and rational problem solving style of the SPSI-R.

MATERIALS AND METHODS

Subjects: Subjects were patients diagnosed with Obsessive-Compulsive Disorder (OCD; n = 43; age range 26-49, M = 39.6, SD = 7.4), Post-traumatic Stress Disorder (PTSD; n = 41; age range 29-52, M = 40.6, SD = 8.5), Panic Disorder (PD; n = 39; age range 25-47, M = 38.9, SD = 6.8). In addition, a group of non patient subjects (NCS; n = 79; age range 24-41, M = 38.2, SD = 5.7) served as a comparison group. To be included in the present study, subjects in the patient groups had to have a principal DSM-IV diagnosis from one the 3 diagnostic groups mentioned above. In addition, patients who met criteria for more than one of these diagnostic groups were excluded from the present study. Table 1 presents the demographic characteristics of study subjects.

Measures the demographic questionnaire: Demographic information was obtained through a short questionnaire assessing age, sex, education, marital status and Job.

The Social Problem Solving Inventory-Revised (SPSI-R; D’Zurilla *et al.*, 2000). The SPSI-R is a 52-item self-report measure of social problem solving abilities (Maydeu-Olivares and D’Zurilla, 1996).

The SPSI-R subscales consist of 5-point Likert-type items, ranging from 0 (not at all true of me) to 4 (extremely true of me). The SPSI-R is based on a 5-dimensional model of problem solving and provides 5 scales: Positive

Problem Orientation (PPO) consists of 5 items, Negative Problem Orientation (NPO) consists of 10 items, Rational Problem Solving (RPS) consists of 20 items, Impulsivity/Carelessness Style (ICS) consists of 10 items and Avoidance Style (AS) consists of 7 items.

An item from the PPO subscale reads, When my first attempt to solve a problem fails, I believe if I don’t give up, I will eventually succeed. An item from the NPO subscale reads, I worry too much about my problems instead of trying to solve them. An item from the RPS subscale reads, When making decisions, I try to predict the pros and cons of each option. An item from the ICS subscale reads, When I have a problem, I act on the first idea that comes to me. Finally, an item from the AS subscale reads, I wait to see if a problem goes away before trying to solve it myself.

The coefficient alphas for these 5 scales in Maydeu-Olivares *et al.* (2000) were 0.68 and 0.76 (PPO), 0.88 and 0.91 (NPO), 0.92 and 0.93 (RPS), 0.88 and 0.84 (ICS) and 0.90 and 0.88 (AS). Test-retest (3 weeks) reliability estimates for the scales of range from 0.72 for PPO to 0.88 for NPO. Further evidence supporting the reliability and validity of the SPSI-R is reported in D’Zurilla *et al.* (2002).

Intolerance of Uncertainty Scale IUS: The IUS, as described earlier, is a 27-item self-report measure of the intolerance of uncertainty construct (sample items: Uncertainty makes life intolerable; I always want to know what the future has in store for me; when I am uncertain I can’t go forward). Each item is accompanied by a 5-point scale from 1 (Not at all characteristic of me) to 5 (Entirely characteristic of me) (Freeston *et al.*, 1994). Scores on the IUS range from 27 to 135. Psychometric properties of the English version of the scale were recently evaluated by Buhr and Dugas (2002). The IUS demonstrated excellent internal consistency ($\alpha = 0.94$), good test-retest reliability over a 5-week period ($r = 0.78$) and highly significant correlations with measures of worry and depression (Buhr and Dugas, 2002). Based on the recommendations excellent internal consistency in the current study ($\alpha = 0.92$).

Procedure: Subjects from the 3 anxiety disorders groups were all referred for an evaluation in the Center of Psychiatry at the Emam-Hossien Hospital and completed this study as part of their evaluation. Each individual was interviewed using the structured clinical interview for DSM-IV (SCID-IV; First *et al.*, 1996). In addition, a diagnosis was conducted by a staff psychiatrist. For cases in which the interview and diagnosis of psychiatry disagreed, a diagnosis was reached by consensus of the two.

Table 1: Demographic characteristics of study subjects

Demographic characteristics	OCD F(%)	PTSD F(%)	PD F(%)	None F(%)
Sex Female	18(41.9)	18(43.9)	20(51.3)	41(51.9)
Male	25(58.1)	23(56.1)	19(48.7)	38(48.1)
Education				
Who did not completed high school(%)	30(69.8)	30(73.1)	31(79.5)	47(59.5)
Completed high school(%)	4(9.3)	6(14.7)	5(12.8)	12(15.2)
Completed college(%)	9(20.9)	5(12.2)	3(7.7)	20(25.3)
Marital status				
Married or cohabiting(%)	12(27.9)	18(43.9)	11(28.2)	29(36.7)
Never married(%)	30(69.8)	21(51.2)	27(69.2)	48(60.8)
Divorced, departed, widowed(%)	1(2.3)	2(4.9)	1(2.6)	2(2.5)
Job				
No	12(27.9)	16(39)	11(28.2)	25(31.6)
Yes	31(72.1)	25(61)	28(71.8)	54(68.4)

Subjects in the nonpatient comparison group were recruited by advertisements posted in the community, seeking individuals without a history of mental health problems. Participants in this group received an interview based on the screening questions from the SCID-IV to ensure that they did not have a history including any of the major forms of psychopathology. Individuals for whom this interview was inconclusive (e.g. for which there was some indication of a possible problem) were excluded from the study.

Then, each subject completed the questionnaire and returned it to the researcher. The questionnaires took approximately 25 min to complete. The study measures were administered in the following order: Demographic questionnaire, the social problem solving inventory-revised and intolerance of uncertainty scale.

RESULTS

A one-way analysis of variance with age as the dependent variable established that there was no significant difference ($F(3, 154) = 0.95, NS$). A one way Multivariate Analysis of Covariance (MANCOVA) with group (OCD, PTSD, PD and non-patient), the 5 SPSSI-R scale as the dependent variables and intolerance of uncertainty as the covariate variable, was performed, revealed a significant main effect for GROUP (Pillai-Bartlett trace = 453, $F(15, 582) = 7.93, p < 0.001$). One follow-up univariate one-way covariance was conducted for each SPSSI-R scale in order to target differences detected by the MANCOVA. To control for Type I errors, when performing multiple covariances, the Bonferroni method was used to determine the significance level alpha: $\alpha/c 0.00135$. Pair wise comparisons were conducted following significant results ($\alpha = 0.05$); these are shown in Table 2.

In order to examine the specific between group effects for each SPSSI-R scales, univariate analyses of covariance were performed; these are shown in Table 2.

The analyze of covariance performed on the SPSSI-R scales PPO revealed a significant effect of group ($F(3, 196) = 27.49, p < 0.001$). Post hoc tests (LSD) showed that patients OCD, PTSD and PD groups had significantly lower scores on the PPO scale than non-patients. The

OCD, PTSD and PD groups were not significantly different with regard to their use of PPO scale.

The analyze of covariance performed on the SPSSI-R scales NPO revealed a significant effect of group ($F(3, 196) = 20.33, p < 0.001$). Post hoc tests showed that patients with of OCD, PTSD and PD had significantly higher scores on the NPO scale than non-patients group. Also, patients with of OCD had significantly higher scores on the NPO scale than patients with of PD. Patients with of PTSD had significantly higher scores on the NPO scale than patients with of PD. The OCD group was found to be no different from the PTSD group.

The analyze of covariance performed on the SPSSI-R scales RPS revealed a significant effect of group ($F(3, 196) = 13.99, p < 0.001$). Post hoc tests showed that patients OCD, PTSD and PD groups had significantly lower scores on the RPS scale than non-patients. The OCD, PTSD and PD groups were not significantly different with regard to their use of RPS scale.

The analyze of covariance performed on the SPSSI-R scales ICS revealed a significant effect of group ($F(3, 196) = 10.02, p < 0.001$). Post hoc tests showed that patients OCD, PTSD and PD groups had significantly higher scores on the ICS scale than non-patients. The OCD, PTSD and PD groups were not significantly different with regard to their use of ICS scale.

The analyze of covariance performed on the SPSSI-R scales AS revealed a significant effect of group ($F(3, 196) = 3.79, p = 0.01$). Post hoc tests showed that patients OCD, PTSD and PD groups had significantly higher scores on the AS scale than non-patients. The OCD, PTSD and PD groups were not significantly different with regard to their use of AS scale.

The results t-test showed that compared to man, the woman patients had higher on the negative problem orientation and impulsivity/carelessness style scores the OCD group ($p < 0.01$). Whole the man OCD patients had higher of rational problem scores than woman ($p = 0.02$). The results showed that the woman PD patients scored significantly higher on the negative problem orientation than man ($p = 0.03$). The man PTSD patients had higher of rational problem orientation scores than man ($p < 0.01$). Woman non-patient subjects had higher of negative problem orientation and

Table 2: Means (standard deviations) and univariate analyses of covariance for each SPSSI-R scales

SPSSI-R scales	Group				F-value	P-value
	OCD	PTSD	DP	None		
PPO	13.81(3.49)	14.07(4.12)	13.50(4.89)	19.17(4.29)	27.49	0.001
NPO	35.95(7.45)	32.97(5.25)	30.45(7.21)	25.33(8.45)	20.33	0.001
RPS	58.16(11.57)	55.60(16.85)	53.53(16.46)	69.92(15.37)	13.99	0.001
ICS	31.93(7.71)	30.32(3.50)	30.48(4.48)	25.46(7.59)	10.02	0.001
AS	21.05(6.47)	19.42(4.26)	19.84(3.13)	17.58(4.95)	3.79	0.01
IUS	106.58(17.87)	98.66(12.98)	102.01(13.21)	97.61(16.86)	--	

Notes. SPSSI-R scales: PPO = Positive Problem Orientation, NPO = Negative Problem Orientation, RPS= Rational Problem Solving, ICS = Impulsivity/Carelessness Style, AS = Avoidance Style IUS = Intolerance of Uncertainty Scale

Table 3: Means (standard deviations) for each SPSP-R scales and intolerance of uncertainty

SPSP-R scales	Sex	Group							
		OCD		PTSD		PD		None	
		M(SD)	t(P)	M(SD)	t(P)	M(SD)	t(P)	M(SD)	t(P)
PPO	man	14.39(3.99)	0.91	12.95(3.43)	-1.84	12.02(3.84)	-1.73	23.42(5.15)	4.89
	woman	13.40(3.11)	(0.36)	15.25(5.13)	(0.07)	14.68(5.72)	(0.09)	18.26(3.49)	(0.001)
NPO	man	32.01(6.77)	-3.28	32.14(5.84)	-1.04	28.25(4.62)	-2.21	20.07(13.25)	-2.67
	woman	38.80(6.68)	(0.002)	33.85(4.53)	(0.30)	33.11(8.60)	(0.03)	26.46(6.64)	(0.009)
RPS	man	62.83(11.77)	2.37	49.03(12.37)	-2.79	50.60(10.97)	-1.25	75.79(10.83)	1.59
	woman	54.80(10.38)	(0.02)	62.60(18.35)	(0.008)	57.11(20.29)	(0.22)	68.66(15.97)	(0.12)
ICS	man	27.22(6.43)	-3.94	30.48(4.21)	0.30	30.20(4.80)	-0.19	23.86(6.41)	-0.87
	woman	35.32(6.79)	(0.001)	30.15(3.64)	(0.77)	30.47(4.31)	(0.85)	25.80(7.82)	(0.38)
AS	man	19.33(6.33)	-1.49	19.76(3.42)	1.01	20.35(3.48)	0.63	15.78(4.19)	-1.59
	woman	22.28(6.41)	(0.14)	19.05(3.58)	(0.32)	19.68(3.15)	(0.54)	17.97(5.04)	(0.12)
IUS	man	104.17(18.94)	-0.75	96.67(14.16)	0.06	101.32(8.99)	-0.32	84.93(24.37)	-3.29
	woman	108.32(17.24)	(0.46)	98.65(11.97)	0.95	102.68(16.64)	(0.75)	100.34(24.37)	(0.001)

intolerance of uncertainty scores than man counterparts, whole the men had higher of positive problem orientation the non-patient group ($p < 0.01$); these are shown in Table 3.

DISCUSSION

The results of this study both support and extend previous research findings on the different between social problem solving in the patients OCD, PTSD, PD and non-patients. Our findings replicate and confirm the results of previous studies which showed that patients than non-patients, score highly on scales of negative problem orientation, impulsivity/carelessness style and avoidance style and score lower than non-patients on scales of positive problem orientation style and rational problem solving (D'Zurilla *et al.*, 1998; Evans *et al.*, 1992; Sadowski and Kelley, 1993).

The results were also consistent with the hypothesis that social problem solving are more generally associated with psychological disturbance, as evidenced by elevated social problem solving in patients with OCD, PTSD and PD when compared with control subjects. The results of this study provide further support for the social problem solving model of psychological disorder and are consistent with D'Zurilla *et al.* (1990, 1995, 1999), application of social problem solving abilities in understanding the development and maintenance of anxiety disorders. These findings add to a growing body of evidence that shows cross-sectional and causal relationships between social problem solving abilities and psychological disturbances including GAD (Dugas *et al.*, 1998; Ladouceur *et al.*, 1998), depression (Marx *et al.*, 1992; Haaga *et al.*, 1995; Goddard *et al.*, 1996; Watkins and Baracaia, 2002) post-traumatic stress disorder (Nezu and Camevale, 1987), personality disorders (McMurrin *et al.*, 2002, 2005, 2006; Bray *et al.*, 2006).

Based on the items in the SPSP-R, individuals who score high on the rational problem solving dimension report that they carefully and systematically gather facts and information about a problem, identify demands and obstacles, set a realistic problem-solving goal, generate a variety of different solutions, anticipate the possible consequences of each, systematically compare and judge the alternatives and then choose and implement a solution while carefully monitoring and evaluating the outcome. In contrast, high scores on impulsivity/carelessness style indicate patients, who consider only a few solution alternatives, often impulsively going with the first idea to come to mind, scan alternatives and consequences quickly, carelessly and unsystematically and monitor and evaluate solution outcomes carelessly and inadequately.

The score highly on scales of negative problem orientation, impulsivity/carelessness style and avoidance style in the patients than non-patients indicated negative problem orientation are as a cognitive-emotional set whereby problems are seen as a threat, perceived self-efficacy in solving problems is low and problems cause feelings of upset and frustration. Amongst all the facets of problem solving, negativity is thought to be a primary contributor to dysfunction (D'Zurilla and Nezu, 1999). NPO with emphasis on the emotional, optimism about finding solutions and a commitment to putting in the effort required to effect a successful solution (Robichaud and Dugas, 2005ab). Our findings suggest that, in problem solving therapy for anxiety disorders, it is important to focus on negative problem orientation to reduce feelings of threat and frustration and to enhance self-efficacy.

Finally, deficits in rational problem solving are associated with anxiety disorders. This consistent findings by Ladouceur *et al.* (1998) and Dugas *et al.* (2002), who showed that rational problem solving was predictive of dimensions of psychological well-being in

their student sample. Rational problem solving includes the skills of problem definition, goal setting, generating alternatives, option analysis, decision making and solution implementation. These skills are core to both the social problem solving model of anxiety disorders and to social problem solving therapy and therefore, it is predictable that low RPS is significantly associated with anxiety disorders. It is likely that rational problem solving could co-exist with maladaptive problem solving styles (i.e., ICS and AS). It may be that low RPS is as predictive as high ICS or high AS, but in the absence of a maladaptive style rational problem solving becomes important.

Differences between patients and non-patients show that negative problem orientation is the most important target for OCD and PTSD groups. These results suggest ways in which social problem solving therapy might be adapted in the clinical arena so as to target specific dysfunctions associated with anxiety disorders.

The findings of this study have important implications for future research and clinical practice. Because the SPSI-R only assesses the process of social problem solving (i.e. problem-solving attitudes and skills) and not the outcome of problem solving (i.e. the quality of solutions to specific problems, the occurrence or avoidance of solution implementation), future research should use social problem-solving performance tests to determine if worriers' actual problem-solving performance is, in fact, detrimentally affected by their negative problem orientations and their impulsive/careless problem solving style, as suggested by the results of this study. The absence of such measures is a serious deficiency in the research on social problem solving and anxiety disorders. A major obstacle to correcting this deficiency is the lack of construct valid social problem-solving performance tests. The problems associated with the construction of these tests and some recommendations for test development have been discussed by D'Zurilla and Maydeu-Olivares (1995). Finally, another important issue for future research is the identification of the possible situational and personal (e.g. cognitive, emotional) factors that may influence the quality of the problem-solving component of catastrophic worrying, resulting in rational problem solving some of the time and impulsive/careless problem solving other times.

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