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Social problem solving predicts decision making styles among US Hispanics

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Abstract

While recent research has explored the psychometric properties of the Social Problem Solving Inventory-Revised (SPSI-R; D'Zurilla, Nezu, Maydeu-Olivares, 2002) in Spain, this research has not extended to North American Hispanics. The purpose of this study is threefold: First, we examine the reliability of the SPSI-R subscales in a sample of US Hispanics. Second, we investigate whether SPSI-R gender differences generalized to this population. Finally, we examine the relationships between social problem solving and decision making styles. Our findings demonstrate that SPSI-R gender differences emerged in this sample of participants. In addition, the SPSI-R demonstrates good reliability and is related to decision making styles.

Keywords: Social problem solving; Decision making styles; Hispanics

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1. Introduction

Social problem solving (SPS) refers to problem solving as it occurs in the real world. SPS has been defined as the general coping strategy by which a person attempts to identify effective coping responses for specific problematic situations (D'Zurilla & Nezu, 1999). Social problem solving is important for psychological adjustment because it influences adaptive functioning across a wide range of stressful situations. Hence, it is not surprising that SPS is related to many different forms of maladjustment and psychopathology, as well as positive psychological adjustment (see reviews in Chang, D'Zurilla, & Sanna, 2004; D'Zurilla & Nezu, 1999).

Most of the research on social problem solving and adjustment is based on a social problem solving model that was originally introduced by D'Zurilla and Goldfried (1971) and later expanded by D'Zurilla and colleagues (D'Zurilla & Nezu, 1982, 1999; D'Zurilla, Nezu, & Maydeu-Olivares, 2002; Maydeu-Olivares & D'Zurilla, 1996). An assumption of this model is that problem solving is largely determined by two general processes: (1) problem orientation and (2) problem-solving style. *Problem orientation* is a cognitive-emotional process that primarily serves as a motivational function in social problem solving. *Problem-solving style* consists of the cognitive and behavioral activities by which a person attempts to understand problems in everyday living and find effective coping responses. Research on these two major problem-solving processes by D'Zurilla et al. (2002) has identified a five-dimensional model of social problem solving. Positive problem orientation and rational problem solving are constructive dimensions that increase the likelihood of positive problem-solving outcomes, whereas negative problem orientation, impulsivity/carelessness style, and avoidance style are dysfunctional dimensions that are likely to produce negative outcomes. A brief description of the SPS dimensions is provided below.

Positive problem orientation (PPO) is a constructive problem-solving cognitive set that involves the general disposition to (a) appraise a problem as a positive challenge, (b) believe that problems are solvable, but take time, effort, and persistence (c) believe in one's personal ability to solve problems and commit oneself to solving problems rather than avoiding them. In contrast, *negative problem orientation* (NPO) is an inhibitive cognitive-emotional set that involves the general tendency to (a) view a problem as a significant threat, (b) doubt one's personal ability to solve problems successfully, and (c) easily become frustrated and upset when confronted with problems in everyday living.

Rational problem solving (RPS) is a constructive problem-solving style that is defined as the deliberate and systematic application of effective problem-solving skills. A rational problem solver systematically gathers facts and information about a problem, identifies obstacles, sets realistic problem-solving goals, generates a variety of possible solutions, anticipates the consequences of the different solutions, judges and compares the alternatives, and then implements a solution while carefully monitoring and evaluating the outcome.

Impulsivity/carelessness style (ICS) is a dysfunctional problem-solving pattern characterized by active attempts to apply problem-solving strategies and techniques, but these attempts are narrow, impulsive, careless, hurried, and incomplete. A person with this problem-solving style typically considers only a few solution alternatives, often impulsively going with the first idea that comes to mind. In addition, he scans alternative solutions and consequences quickly, carelessly, and unsystematically, and inadequately monitors solution outcomes.

Avoidance style (AS) is another dysfunctional problem-solving pattern characterized by procrastination, passivity and dependency. The avoidant problem solver prefers to avoid problems rather than confront them, puts off problem solving for as long as possible, waits for problems to resolve themselves, and attempts to shift the responsibility for solving their problems to other people.

These five problem-solving dimensions are measured by the Social Problem-Solving Inventory-Revised (SPSI-R; D'Zurilla et al., 2002). Good social problem-solving ability is indicative of high scores on PPO and RPS and low scores on NPO, ICS, and AS. In contrast, poor social problem-ability is indicative of low scores on PPO and RPS and high scores on NPO, ICS and AS.

1.1. Links between social problem solving and decision making styles

As stated above, one aspect of social problem solving involves rational problem solving. D'Zurilla and Goldfried (1971) note that persons with social problems should systematically generate a number of strategies for the problem at hand, which would be followed by a decision-making process to select the best strategy. The decision making process within the SPS paradigm (D'Zurilla & Goldfried, 1971) has been heavily influenced by Edwards' (1961) subjective expected-utility (SEU) framework. Research by Nezu and D'Zurilla (1979, 1981) demonstrate that instructions to improve decision making based on SEU theory can improve social problem solving skills.

Decompositional decision making and holistic decision making has been compared in the behavioral decision making literature (Morera & Budescu, 2001; Ravinder, 1992). Decompositional decision making requires that a decision maker systematically breaks a complex decision into smaller parts, evaluates each part, and aggregates the smaller parts to derive an overall value for the stimulus under consideration. Decision decomposition is the basis behind SEU theory. Holistic decision making requires that the decision maker make mental tradeoffs among various stimuli under consideration and may be related to carelessness. Evidence suggests that decompositional judgments are more temporally stable (Ravinder, 1992), contain less random error (Morera & Budescu, 2001) and have higher external validity (Eils & John, 1980).

Recently, the Decision Making Styles Inventory[1] (DMI; Nygren, 2000) was developed to measure individual differences in decision making styles. The DMI assesses "analytical" decision making, "intuitive" decision making, and "regret-based" emotional decision making. According to Nygren (2000), analytical decision making requires the careful and systematic examination of decision options and it parallels the RPS construct from the SPSI-R. Intuitive decision making relies heavily on human intuition and following one's "gut feeling". Intuitive decision making may be related to impulsivity from the ICS dimension of the SPSI-R. Finally, regret-based decision making occurs when doubt in one's decision-making begin to emerge and is consistent with aspects of the NPO construct of the SPSI-R. The DMI has been shown to possess desirable psychometric properties and has been shown to predict performance in complex multiattribute tasks (Nygren & White, 2001).

Based on the conceptual similarities between the D'Zurilla SPS paradigm and decision making styles, we make the following predictions.

[1] Further information on the DMI can be obtained by emailing Thomas Nygren at Nygren.1@osu.edu.

1. *Analytical decision making.* Analytical decision making should be positively associated with positive problem orientation and rational problem solving. In addition, analytical decision making should be negatively associated with negative problem orientation, impulsivity/carelessness and avoidance style. Individuals who score high on the analytical decision making composite are hypothesized to be ''good'' social problem solvers.
2. *Intuitive decision making*. Intuitive decision making should be positively related to impulsivity/carelessness. As Nygren (2000) has argued that decision makers use both intuitive and analytical decision making strategies in complex multiattribute tasks, we expect that intuitive decision making should also be positively related to PPO. This relationship should not be as strong as the association between PPO and analytical decision making. Conversely, NPO should be negatively related to intuitive decision making. Finally, it is hypothesized that there would be no relation between AS and intuitive decision making.
3. *Regret based decision making.* Negative problem orientation, avoidance style decision making and impulsivity/carelessness was hypothesized to be positively related to regret based decision making, while positive problem orientation and rational problem solving are assumed to be negatively related to regret based decision making.

1.2. Why study social problem solving among US Hispanics?

US Hispanics are one of the more underrepresented samples in psychological research in the United States (Hall, Bansal, & Lopez, 1999) and the largest ethnic minority in the United States (US Bureau of the Census, 2000). Cross-cultural research provides some insight into the need to study social problem solving among this population. Among Hispanics, simpatía is described as a cultural script, where higher frequencies of positive social behavior and a lower frequency of negative social behavior are expected to occur (Triandis, Marín, Lisansky, & Betancourt, 1984). Simpatía influences how an individual engages in social problems and situations (Triandis et al., 1984).

Moreover, the simpatía cultural script is related to the notion of collectivism, where individuals adhering to collectivistic values place more emphasis on goals of the group rather than individual goals. Hofstede (1980) found that Spain and many Latin American countries could be considered as collectivist, while the US was described as the most individualistic country in the world. Marín and Triandis (1985) have also found that US Hispanics have collectivistic tendencies.

To date, the only research that has investigated cultural differences on the SPSI-R is a study by Maydeu-Olivares, Rodríguez-Fornells, Gómez-Benito, and D'Zurilla (2000), where these authors found impulsivity and carelessness (ICS) was partially measurement invariant when Spaniards and North Americans were compared. These authors also found differential correlations between ICS and the other social problem solving variables across the two groups. In sum, impulsivity was conceptualized differently between Spaniards and Americans. Given the possible shared cultural traits between US Hispanics and Spaniards, US Hispanics may have different conceptualizations of social problem solving variables.

In addition to the cross-cultural literature, research has shown that social problem solving deficits are related to depression and hopelessness among college students (D'Zurilla, Chang, Nottingham, & Faccini, 1998a). Recent research has also shown that Hispanic college students had statistically higher observed scores on the Beck Depression Inventory than did Anglo students

(Contreras, Fernandez, Malcarne, Ingram, & Vaccarino, 2004). Given these results, one may question whether the magnitude of the relationship between social problem solving deficits and depression is the same for US Anglos and US Hispanic students. While the current research does not examine these relationships, an important first step in assessing relationships between SPS and important outcome variables would involve the establishing of the psychometric properties of the SPSI-R among US Hispanic students.

1.3. Aims of research project

The general aim of the present research was three-fold. First, we wanted to explore the internal consistency of the SPSI-R in a North American sample of Hispanic respondents. In addition, we wanted to determine whether gender differences on each of these subscales were present. Prior research with predominantly Caucasian samples in the United States has shown that men typically have higher PPO scores and lower NPO scores than their female counterparts (D'Zurilla, Maydeu-Olivares, & Kant, 1998b; Maydeu-Olivares, Morera, & D'Zurilla, 1999). Finally, we wanted to determine the extent to which social problem solving was related to decision making styles.

2. Method

2.1. Participants

The participants in this study were 958 North American undergraduate college students (387 men, 565 women and six missing responses) enrolled in an introductory psychology course at the University of Texas at El Paso. The mean age for this group was 19.94 years (SD = 3.34 years). All participants signed consent forms indicating that all measures would be kept strictly confidential. Eight hundred and forty of the respondents identified themselves as Hispanic, 77 identified themselves as Mexican American, 40 identified themselves as Mexican national and one person was Puerto Rican.

2.2. Measures

All participants completed a demographic background measure which assessed a participant's age, ethnicity and gender. After completing the demographic measure, participants completed the *Social Problem Solving Inventory-Revised* (SPSI-R, D'Zurilla et al., 2002). In addition, 754 of the 958 respondents completed the *Decision Making Styles Inventory* (DMI, Nygren, 2000). For these 754 participants, they completed the SPSI-R prior to completing the DMI. No statistical differences on any SPSI-R subscale existed between participants who did and did not complete the DMI. Finally, as prior research in El Paso demonstrates that Hispanic students are fairly acculturated (Culhane, Morera, & Hosch, 2004), an English version of the SPSI-R was administered in the study.

Social Problem-Solving Inventory-Revised (SPSI-R). The SPSI-R consists of five major scales: Positive Problem Orientation (PPO), Negative Problem Orientation (NPO), Rational Problem

Solving (RPS), Impulsivity-Carelessness Style (ICS) and Avoidance Style (AS). The SPSI-R subscales consist of five-point Likert-type items, ranging from "0" (not at all true of me) to "4" (extremely true of me). The PPO subscale consists of five items, the NPO subscale consists of 10 items, the RPS subscale consists of 20 items, the ICS subscale consists of 10 items and the AS subscale consists of seven 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". Higher SPSI-R subscale scores are indicative of increased PPO, NPO, RPS, ICS and AS. The coefficient alphas for these five 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). Further evidence supporting the reliability and validity of the SPSI-R is reported in D'Zurilla et al. (2002).

Decision Making Styles Inventory (DMI). The DMI consists of three scales that measure Analytical Decision Making (ANL), Intuitive Decision Making (INT) and Regret Based Decision Making (REG). Each of the DMI subscales consist of 15 Likert-type items, which are scored on a six-point scale ranging from "1" (strongly disagree) to "6" (strongly agree). An item from the analytical subscale reads, "I feel that if I plan my decisions carefully, I will make good decisions". An item from the intuitive decision making subscale reads, "I think that relying on one's gut feeling is a sound decision making principle". Finally, an item from the regret-based decision making scale reads, "I tend to be someone who worries a lot over decisions I've made". Higher DMI subscale scores indicate increased analytical, intuitive or regret-based decision making. The coefficient alphas reported in Nygren (2000) were 0.88 for ANL, 0.86 for INT and 0.86 for REG. Further support for the validity of the DMI is provided in Nygren and White (2001).

2.3. Procedure

Analysis of the data proceeded as follows. We first assessed the internal consistency of the SPSI-R scale scores. Next, we assessed gender differences on any of the SPSI-R scales. Finally, we investigated the relationship between the DMI and SPSI-R.

3. Results

3.1. Interrelationships among the SPSI-R subscales

Table 1 presents the means, standard deviations, coefficient alphas, and intercorrelations among the SPSI-R scales. As Table 1 shows, the internal reliability estimates for the different scales are acceptable and most are quite good. The PPO is the shortest scale in terms of number of items and has the lowest reliability estimate. As expected, RPS and PPO are positively related to one another, while NPO, ICS and AS are positively related to one another. Correlations between these two sets of variables are negative.

Table 1
Means, standard deviations, coefficient alphas, and correlations for the SPSI-R subscales

	PPO	NPO	RPS	ICS	AS
PPO	1.00				
NPO	−0.46	1.00			
RPS	0.65	−0.26	1.00		
ICS	−0.25	0.54	−0.38	1.00	
AS	−0.45	0.70	−0.30	0.61	1.00
Mean	13.79	14.73	48.97	12.39	9.33
Standard deviation	3.40	8.12	13.20	6.96	5.52
Alpha	0.64	0.88	0.92	0.84	0.81

Notes. $N = 958$; PPO = positive problem orientation; NPO = negative problem orientation; RPS = rational problem solving; ICS = impulsivity/carelessness style; AS = avoidance style.
All correlations are statistically significant, $p < 0.01$.

3.2. Gender differences on the SPSI-R

D'Zurilla et al. (1998a, 1998b) reported statistical mean differences on the PPO, NPO and ICS subscales. Women obtain higher NPO and ICS scale scores and lower PPO scale scores. Maydeu-Olivares et al. (2000) also recently found statistical differences on the NPO subscale among Spanish college students, where women had higher scores. We examined gender differences in a sample of US Hispanic respondents. As six people did not report their gender, these analyses are based on a sample size of 952 individuals, of which 387 were men and 565 were women.

In addition to reporting tests of statistical significance, we also report the magnitude of the gender effect using Cohen's *d*. Cohen (1988) provided heuristic values to define "small", "medium" and "large" effect sizes. Values of Cohen's *d* less than 0.20 were considered "small" effects. Values of Cohen's *d* equivalent to 0.50 were considered "medium" effects. Values of Cohen's *d* equivalent to 0.80 were considered "large" effects. Computations for the effect size estimates were performed using the T-TEST software.

We found statistical differences on the PPO, NPO and RPS subscales. Like North American and Spanish college students, Hispanic men had higher PPO scores than their female counterparts, $F(1,950) = 41.14$, $p = 0.000$; Cohen's $d = 0.422$; men: $M = 14.62$, SD = 3.26; women: $M = 13.21$, SD = 3.39. Like North American college students, Hispanic men had lower NPO scores than their female counterparts; $F(1,950) = 38.36$, $p = 0.000$; Cohen's $d = 0.409$; men: $M = 12.82$, $SD = 7.87$; women: $M = 16.08$, SD = 8.05. These results replicate D'Zurilla et al. (1998a, 1998b). Surprisingly, Hispanic men had statistically higher RPS scores than their female counterparts, $F(1,950) = 7.61$, $p = 0.000$; Cohen's $d = 0.18$, men $M = 50.37$, SD = 12.98; women: $M = 47.98$, SD = 13.32. As the size of this effect was not practically meaningful, we hesitate to make any conclusions concerning gender differences on this subscale. There were no statistical differences on the ICS or AS scales across gender in this sample of respondents.

3.3. Interrelations among the DMI subscales

As mentioned earlier, a subset of the North American Hispanic respondents also completed the DMI (Nygren, 2000). Table 2 depicts the intercorrelations among DMI scales, as well as their

Table 2
Means, standard deviations, coefficient alphas, and correlations for the DMI subscales

	Analy	Intuit	Regr
Analy	1.00		
Intui	0.17**	1.00	
Regr	0.06	−0.04	1.00
Means	66.44	57.15	58.56
Standard deviation	11.32	10.31	17.50
Alpha	0.90	0.83	0.82

Notes. $N = 745$; DMI scales: Analy = Analytical, Intuit = Intuitive, Regr = Regret.
** $p < 0.01$.

means and standard deviations. The internal reliability estimates for the different scales are quite good. While the scores from the analytical and intuitive subscales from the DMI are related, their relationship does not approach the magnitude of the inter-relationships among the SPSI-R subscales. The other DMI subscales were not related to one another, which is consistent with earlier findings (Nygren, 2000; Nygren & White, 2001).

3.4. Interrelations between the SPSI-R and the DMI

Given that the SPSI-R subscales were reliable and that the relations among the SPSI-R subscales was consistent with prior research, we sought to explore the relationship between the SPSI-R and the DMI. We first report the correlations among the DMI and SPSI-R subscales. As seen in Table 3, the hypothesized relationships between the DMI and the SPSI-R were generally supported. PPO was positively associated with the Intuitive and Analytical decision making and negatively related to regret-based decision making. NPO was positively related to regret-based decision making and negatively related to analytical and intuitive decision making. RPS was positively related to analytical decision making. ICS was positively related to intuitive and regret based decision making and negatively related to analytical decision making. Finally, AS was positively related to regret-based decision making and negatively related to analytical decision making.

Table 3
Correlations between the DMI and the SPSI-R subscales

	Analy	Intuit	Regr
PPO	0.42**	0.11**	−0.26**
NPO	−0.31**	−0.09*	0.60**
RPS	0.66**	−0.06	−0.03
ICS	−0.53**	0.14**	0.15**
AS	−0.37**	0.01	0.35*

Notes. $N = 745$; SPSI-R scales: PPO = positive problem orientation, NPO = negative problem orientation, RPS = rational problem solving, ICS = impulsivity/carelessness style, AS = avoidance style; Analy = Analytical, Intuit = Intuitive, Regr = Regret.
* $p < 0.05$.
** $p < 0.01$.

Table 4
Standardized path coefficients in predicting DMI scales from SPSI-R Scales

	R^2	Age	Gender	PPO	NPO	RPS	ICS	AS
Analytical	0.52	0.02	0.03	0.00	0.02	*0.53*	*−0.32*	−0.04
Intuitive	0.08	*0.09*	*0.08*	0.03	*−0.29*	*0.11*	*0.30*	0.08
Regret	0.42	*−0.05*	*0.10*	−0.04	*0.73*	*0.12*	*−0.17*	−0.06

Notes. SPSI-R scales: PPO = positive problem orientation, NPO = negative problem orientation; RPS = rational problem solving, ICS = impulsivity/carelessness style, AS = avoidance style. Gender: 0 = male; 1 = female. Italicized coefficients are statistical at the 0.05 level.

Given the high degree of association among the SPSI-R scales, we used path analysis to control for SPSI-R subscale associations and predict DMI scales from the SPSI-R scales. In these analyses, we also included age and gender as predictors. Table 4 presents the standardized regression coefficients for 745 respondents who provided complete data on the DMI, SPSI-R, age and gender. The squared multiple correlation coefficient is also reported in Table 4.

As seen in Table 4, age, gender and the SPSI-R explain a substantial amount of variability of the Analytical and Regret-based decision making. RPS and ICS are predictive of analytical decision making. As expected, higher RPS scores was predictive of analytical decision making and lower ICS scores was predictive of analytical decision making. Age, gender, NPO, RPS and ICS are also predictive of regret-based decision making. Older respondents had lower regret scores than younger respondents and women had higher regret-based scores. NPO was the strongest predictor of regret-based decision making, where individuals with higher NPO scores had higher regret-based scores. Individuals with higher RPS scores had higher regret-based scores and individuals with higher ICS scores had lower regret-based scores. These findings suggest that individuals who consider the pros and cons of a social problem tend to experience more regret, while individuals with high ICS scores experience less regret.

While age, gender and the SPSI-R did not explain as much variability in intuitive decision making, there were a number of statistical relationships between the predictors and this DMI subscale. Older individuals and women had higher intuitive scores. Individuals with higher NPO scores had lower intuitive scores, while individuals with higher RPS and ICS scores had higher intuitive scores.

4. Discussion

While prior studies have focused on forms of psychological maladjustment (D'Zurilla & Nezu, 1999; Chang et al., 2004), the present study assessed the relationship between the SPSI-R and decision making styles. We saw that PPO and RPS was positively related with analytical decision making, while NPO, ICS and AS were negatively related to analytical decision making.

When the DMI was submitted to a path analysis, we saw that RPS and ICS were predictive of all three DMI dimensions. In Table 4, we see that individuals with higher RPS scores have higher analytical, higher intuitive and higher regret based scores. While a good social problem solver has a high RPS composite, it is interesting to note that a good social problem solver may use different decision making styles. This finding is consistent with the work of Payne, Bettman, and Johnson

(1993), which suggests that people use multiple strategies when making decisions. In addition, ICS is important in predicting decision making styles, as it is predictive of all three DMI dimensions. Finally, NPO seems to exert a strong influence on regret-based decision making and influences intuitive decision making.

Several limitations of this study should be noted. First, decision making styles and social problem solving were assessed using self-report methods, which could lead to inflated relationships due to common source variance. A second limitation of this study is the use of a cross-sectional correlational design, which does not allow definite conclusions regarding the direction of the cause-effect relationships between decision making styles and social problem solving. A final limitation is concerned with the generalizability of the findings to a more heterogeneous population of Hispanic college students.

In terms of the generalizability of SPSI-R studies to college students, these findings support earlier research by D'Zurilla and associates. The direction of the gender differences on the NPO and PPO subscales is consistent with previous findings (D'Zurilla et al., 1998a, 1998b; Maydeu-Olivares et al., 1999). The score reliability estimates of the SPSI-R subscales were also adequate. While other studies have not investigated the relationship between SPSI-R and individual differences in decision making, many of the predicted relationships emerged. In summary, the present results provide further support for the validity of the problem-solving dimensions as measured by the SPSI-R.

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