

Cultural Differences, Perfectionism, and Suicidal Risk in a College Population: Does Social Problem Solving Still Matter?

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The relations between cultural influences, perfectionism, social problem solving, and subsequent suicidal risk (viz., hopelessness and suicide potential) were examined among 148 college students. Hierarchical regression analyses were conducted to determine whether social problem solving predicted suicidal risk (1 month later) beyond what was accounted for by ethnic status (Asian American or Caucasian American) and perfectionism. Results of these analyses indicated that ethnic status (Step 1) was a significant predictor of both hopelessness and suicide potential. Furthermore, perfectionism (Step 2) was found to add significant incremental validity for predicting variance in both outcome criteria. In contrast, social problem solving (Step 3) added significant incremental validity for predicting variance in suicide potential, but not for predicting hopelessness. Results indicate that social problem solving is a more useful predictor of suicide potential than of hopelessness. Implications for future research are discussed.

KEY WORDS: Social problem solving; perfectionism; culture; ethnicity; hopelessness; suicide assessment.

In contrast to popular views, recent studies have indicated that college students experience considerable amounts of stress, and are quite vulnerable to a host of physical and mental illnesses (for a review, see Dunkel-Schetter & Lobel, 1990), including suicide (Kraft, 1980; Webb, 1986). Consistent with these findings, studies have shown that suicide related behaviors, including suicidal ideation, are quite common among college populations. For example, Westefeld and Furr (1987) found the prevalence of suicide ideation across three samples of college students to range from 24 to 46%. Hence, researchers have become quite interested in trying to identify potential predictors of suicidal risk in college populations. One variable that has received considerable attention over the years as an important predictor of adjustment has been social problem solving.

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According to D’Zurilla and Nezu (1990), *social problem solving* refers to problem solving as it occurs in the real world, and is defined as the self-generated cognitive-affective-behavioral process by which a person attempts to discover effective ways of coping with problematic situations encountered in everyday living. The importance of this multifaceted construct has been highlighted in recent years by numerous studies that have found a significant link between problem-solving deficits and maladjustment (for reviews, see D’Zurilla, 1986; Nezu, Nezu, & Perri, 1989; Spivack, Platt, & Shure, 1976). Moreover, a growing number of studies examining suicidal risk in college populations have consistently shown that problem-solving deficits are also significantly associated with greater hopelessness and suicide ideation (e.g., Bonner & Rich, 1988; Dixon, Heppner, & Anderson, 1991; Dixon, Heppner, & Rudd, 1994; Priester & Clum, 1993). Hence, suicide prevention and intervention programs have often included efforts to promote better or more effective problem solving skills and abilities (e.g., Lerner & Clum, 1990). However, the extent to which social problem solving is critical for predicting suicidal risk beyond other important variables remains to be examined.

To begin with, the relation between social problem solving and other established constructs have yet to be explored (see D’Zurilla & Maydeu-Olivares, 1995). For example, according to the social problem solving model of D’Zurilla and Nezu (1990), *problem orientation* refers to a motivational process involving the operation of a set of cognitive-affective schemas that reflect how a person thinks and feels about problems in living, and about his or her own problem-solving ability (see also Chang & D’Zurilla, 1996). However, little is known about those factors that might contribute to the activation of such schemas. One variable that might provide some insights into the social problem-solving process is perfectionism.

According to Frost, Marten, Lahart, and Rosenblate (1990), *perfectionism* refers to a multidimensional phenomenon defined by excessive self-criticism associated with high personal standards, doubts about the effectiveness of one’s actions, concerns about meeting social expectations (typically those of the parents), and an excessive focus on organization and neatness. Recent studies examining such perfectionistic tendencies have found that they are significantly associated with the use of both constructive and dysfunctional coping strategies (see Flett, Russo, & Hewitt, 1994). Because social problem solving, including problem orientation, is also associated with these different types of strategies (D’Zurilla & Chang, 1995), it would be useful to determine if some facets of perfectionism might be associated with constructive or effective problem solving activities, whereas others might be associated with dysfunctional or ineffective activities. For example, problem orientation has recently been found to consist of both a positive (constructive) and a negative (dysfunctional) dimension (Maydeu-Olivares & D’Zurilla, 1996), the latter reflecting negative schemas about one’s problem-solving skills and abilities. Because the tendency to doubt one’s actions involves negative self-schemas regarding one’s problem solving effectiveness, one should find it to be positively associated with negative problem orientation.

A further reason for studying the relations between social problem solving and perfectionism is that the latter, like the former, has also increasingly been linked to poor adjustment, including suicidal risk. For example, Hewitt, Flett, and Weber

(1994) found that college students who had a strong tendency to set high standards for themselves or believed that others expected only excellence in their performance, reported higher scores on measures of suicidal ideation and hopelessness. Hence, insofar as social problem solving and perfectionism should reflect related but not redundant constructs, it would be valuable for both theory and practice to show that social problem solving remains an important predictor of suicidal risk independent of perfectionism.

However, a more serious limitation in this area of research might be the sheer lack of attention given to examining cultural differences in social problem solving ability. (Similar concerns can also be raised about research on perfectionism.) According to the Basic Behavior Science Task Force on the National Advisory Mental Health Council (1996), the examination of cultural differences is a top priority for developing valid theories and effective interventions that can apply to the health needs of diverse groups. And yet, despite a number of studies that have linked problem-solving deficits to maladjustment, they have generally been based on examining the responses of Caucasian college students. Even among "authoritative" books on this topic, one finds very little if any mention of the potential importance of cultural factors on problem-solving ability (e.g., D'Zurilla, 1986; Nezu et al., 1989; Spivack et al., 1976). Nevertheless, there is no reason to presume that the problem solving styles of different cultural groups are necessarily comparable to each other (Berg & Jaya, 1993).

One distinct ethnic group that has received considerable attention for their "exceptional" problem-solving abilities and performance has been Asian Americans (Sue & Okazaki, 1990). However, this group has also been noted for their excessive perfectionistic tendencies (Yee, 1992), including extreme concerns about meeting high parental expectations (Colangelo & Kerr, 1990; Peng & Wright, 1994). On the other hand, one consistent outcome has been that most Asian Americans attempt or commit suicide at a rate considerably lower than that found among Caucasian Americans (Group for the Advancement of Psychiatry, 1989). Such findings suggest that cultural factors between Asian Americans and Caucasian Americans might play an important role in determining problem-solving ability, perfectionism, and suicidal risk. However, no study has examined the relations between these variables across these ethnic groups. Hence, it would be important to show that perfectionism remains an important predictor of suicidal risk beyond ethnic status (i.e., Asian American or Caucasian American), and further, that social problem solving remains an important predictor of suicidal risk beyond both ethnic status and perfectionism.

Given these limitations and concerns, the purpose of the present study was to (a) examine cultural differences between Asian Americans and Caucasian Americans in social problem solving, perfectionism, and suicidal risk; (b) determine if perfectionism is associated with social problem solving; (c) determine if ethnic status (i.e., Asian American or Caucasian American) predicts suicidal risk (viz., hopelessness and suicide potential); (d) determine if perfectionism predicts suicidal risk beyond what is accounted for by ethnic status; and finally, (e) determine if social problem solving predicts suicidal risk beyond what is accounted for by both ethnic status and perfectionism.

Consistent with the noted findings, it was hypothesized that (a) Asian Americans would be more perfectionistic than Caucasian Americans; (b) Asian Americans would have greater problem solving abilities than Caucasian Americans; (c) Asian Americans would have lower suicidal risk than Caucasian Americans; and (d) ethnic status would be an important predictor of suicidal risk. No specific hypotheses were made regarding the extent to which perfectionism and social problem solving were related to each other, and the extent to which they uniquely predicted suicidal risk. However, it was expected that different facets of perfectionism would predict different dimensions of social problem solving, and that both perfectionism and social problem solving would remain important predictors of suicidal risk beyond what can be accounted for by ethnic status.

METHOD

Participants

One hundred and eighty-five (89 self-identified Asian American and 96 self-identified Caucasian American) college students were recruited from a large North-eastern university. (The Asian American group comprised 38 men and 51 women, and the Caucasian American group comprised 32 men and 64 women.) All participants were enrolled in an introductory psychology course and fulfilled a course requirement by participating. Ages ranged from 17 to 34 years, with a mean age of 19.1. Men and women were not found to differ significantly in age, although men ($M = 19.5$, $SD = 2.2$) were generally older than women ($M = 18.9$, $SD = 2.4$).

Measures

Social Problem Solving

The Social Problem-Solving Inventory-Revised (SPSI-R; D'Zurilla, Nezu, & Maydeu-Olivares, 1996) is a 52-item multidimensional measure of real life problem solving based on a factor analysis of the original Social Problem-Solving Inventory (D'Zurilla & Nezu, 1990), and consisting of the following five scales: Positive Problem Orientation (e.g., "When I have a problem, I usually believe that there is a solution for it"), Negative Problem Orientation (e.g., "I usually feel threatened and afraid when I have an important problem to solve"), Rational Problem Solving (e.g., "Before I try to think of a solution to a problem, I usually set a specific goal that makes clear exactly what I want to accomplish"), Impulsivity/Carelessness Style (e.g., "When I am attempting to solve a problem, I usually go with the first good idea that comes to mind"), and Avoidance Style (e.g., "I usually go out of my way to avoid having to deal with problems in my life"). Respondents are asked to rate items across a 5-point Likert-type scale ranging from 0 (*not at all true of me*) to 4 (*extremely true of me*). In support for the validity of the SPSI-R, higher scores on

Positive Problem Orientation and Rational Problem Solving have been found to be associated with the use of more constructive coping activities, whereas higher score on Negative Problem Orientation, Impulsivity/Carelessness Style, and Avoidance Style have been found to be associated with the use of more dysfunctional coping activities (see Chang & D’Zurilla, 1996; D’Zurilla & Chang, 1995). For the present sample, coefficient alphas for the SPSSI-R scales were .83 (Positive Problem Orientation), .89 (Negative Problem Orientation), .84 (Rational Problem Solving), .89 (Impulsivity/Carelessness Style), and .88 (Avoidance Style).

Perfectionism

The Multidimensional Perfectionism Scale (MPS; Frost et al., 1990) is a 35-item multidimensional measure of perfectionism consisting of the following six scales: Concern over Mistakes (e.g., “People will probably think less of me if I make a mistake”), Personal Standards (e.g., “I set higher goals than most people”), Parental Expectations (e.g., “My parents have expected excellence from me”), Parental Criticism (e.g., “I never felt like I could meet my parent’s standards”), Doubts about Actions (e.g., “Even when I do something very carefully, I often feel that it is not quite right”), and Organization (e.g., “Neatness is very important to me”). Respondents are asked to rate items across a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In general, higher scores on the MPS scales have been found to be associated with greater levels of maladjustment (Frost et al., 1990). In addition, the MPS has been validated against other measures of perfectionism (see Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). For the present sample, coefficient alphas were .82 (Concern over Mistakes), .85 (Personal Standards), .86 (Parental Expectations), .85 (Parental Criticism), .79 (Doubts about Actions), and .88 (Organization).

Suicidal Risk

Suicidal risk was measured by the Beck Hopelessness Scale (HS; Beck, Weissman, Lester, & Trexler, 1974) and the Suicidal Probability Scale (SPS; Cull & Gill, 1982).

The HS is a 20-item measure of extreme pessimism or hopelessness. Respondents are asked to indicate either agreement or disagreement to these items which assess negative expectancies for the future (e.g., “My future seems dark to me”). Higher scores on the HS are indicative of greater hopelessness. Scores on the HS have been found to have a high rate of correspondence with clinical ratings of hopelessness (Beck et al., 1974) and have also been found to predict eventual suicides (Beck, Steer, Kovacs, & Garrison, 1985). For the present sample, coefficient alpha was .91.

The SPS is a 36-item measure designed to assess suicidal potential in adolescents and adults. In addition to a total suicide probability score, which was used in the present study, separate scores can be calculated for four clinical subscales:

Hopelessness (e.g., "I feel hopeless that things will get better"), Suicide Ideation (e.g., "I feel the world is not worth continuing to live in"), Negative Self-Evaluation (e.g., "I feel that I am not able to do many things well"), and Hostility (e.g., "I feel hostile toward others"). Respondents are asked to rate the frequency of experiencing a specific thought or feeling across a 4-point Likert-type scale ranging from 0 (*little of the time*) to 3 (*most or all of the time*). Based on a factor analysis of several commonly used self-report measures of suicidality, three of the four SPS subscales have been found to load highly on a factor labeled Suicidal/Negative Ideas, which has been viewed as an important cognitive component of suicidality (see Range & Antonelli, 1990). For the present sample, coefficient alpha using the total SPS score was .88.

Procedure

All study measures were administered in small groups (35 participants or less). At Time 1, all 185 participants completed the SPSI-R and the MPS in that order. At Time 2, 4 weeks later, a subset of these participants completed the HS and the SPS in that order. Of the initial sample, 37 participants (20 Asian Americans, 17 Caucasian Americans) failed to complete measures at Time 2, and thus their responses were not analyzed. This left a total of 148 (69 Asian American, 79 Caucasian American) Time 2 responses that were available for subsequent analyses. Participants were not made aware of the purpose of the study until after the study was completed. To protect the participants' anonymity, only participant numbers were placed on the instruments. In addition, all participants signed consent forms that indicated that all test data would be kept strictly confidential.

RESULTS

Relations Between Social Problem Solving, Perfectionism, and Suicide Potential

Correlations were computed to compare the nomological network of social problem solving, perfectionism, and suicide potential between Asian Americans and Caucasian Americans. Results controlling for the influence of sex and age are presented in Table 1. However, to simplify comparisons between the two ethnic groups and because there were a total of 169 correlations computed, standard significance values were modified using a more conservative Bonferroni adjustment. For example, to obtain a standard $p < .05$ for the total number of correlations computed, an adjusted $p < .0003$ would need to be reached, and so forth. As Table I shows, the pattern and magnitude of the correlations between study measures for Asian American and Caucasian American students differ considerably. For example, scores on the HS were significantly related to two of the SPSI-R scales (*viz.*, Positive Problem Orientation and Negative Problem Orientation) and to three of the MPS

Table 1. Correlations Between All Study Measures, Controlling for Age and Gender

Measures ^a	1	2	3	4	5	6	7	8	9	10	11	12
1. PPO	—											
2. NPO	-.37 (-.40)	—										
3. RPS	-.11 (.67 ^d)	-.14 (-.14)	—									
4. ICS	.36 (.51 ^d)	.36 (-.28)	-.21 (-.28)	—								
5. AS	-.25 (-.31)	.59 ^d (.42 ^d)	-.19 (-.15)	.42 ^c (.57 ^c)	—							
6. CM	-.32 (-.16)	.36 (.42 ^b)	-.24 (-.04)	.17 (.21)	.15 (.21)	—						
7. PS	-.01 (.19)	-.07 (.04)	.15 (.29)	-.19 (-.03)	-.18 (-.14)	.42 ^b (.50 ^c)	—					
8. PE	-.19 (-.07)	.14 (.09)	-.18 (.01)	.22 (.10)	.12 (-.01)	.47 ^c (.32)	.35 (.43)	—				
9. PC	-.32 (-.19)	.27 (.42)	-.36 (-.20)	.16 (.30)	.13 (.34)	.66 ^d (.64 ^d)	.19 (.32)	.62 ^d (.39)	—			
10. DA	-.27 (.05)	.50 ^d (.37)	-.21 (.08)	.20 (.38)	.29 (.30)	.67 ^d (.50 ^c)	.12 (.30)	.32 (.20)	.46 ^c (.54 ^b)	—		
11. OG	.29 (.15)	-.21 (-.18)	.22 (.29)	-.10 (-.34)	-.37 (-.31)	-.03 (.03)	.23 (.51 ^d)	-.01 (.36)	.08 (.13)	-.06 (.13)	—	
12. HS	-.40 ^b (-.36)	.48 ^c (.28)	-.29 (-.32)	.17 (.37)	.24 (.29)	.59 ^d (.22)	-.09 (-.17)	.21 (.13)	.51 ^d (.38)	.49 ^d (.25)	-.26 (-.24)	—
13. SPS	-.02 (.01)	.51 ^d (.21)	.10 (.12)	.29 (.30)	.22 (.28)	.41 ^b (.22)	.08 (.03)	.35 (.19)	.37 (.18)	.53 ^d (.25)	.08 (-.11)	.49 ^d (.46 ^b)

^aMeasures 1 thru 11 assessed at Time 1. Measures 12 and 13 assessed at Time 2. Correlations without parentheses are for Caucasian Americans. Correlations in parentheses are for Asian Americans. For Caucasian Americans, $n = 79$. For Asian Americans, $n = 69$. PPO = Positive Problem Orientation; NPO = Negative Problem Orientation; RPS = Rational Problem Solving; ICS = Impulsivity/Carelessness Style; AS = Avoidance Style; CM = Concern over Mistakes; PS = Personal Standards; PE = Parental Expectations; PC = Parental Criticism; DA = Doubts about Actions; OG = Organization; HS = Hopelessness; SPS = Suicidal Probability Scale.

^b $p < .0003$.

^c $p < .00006$.

^d $p < .000006$.

scales (viz., Concern over Mistakes, Parental Criticism, and Doubts about Actions) for Caucasian Americans, whereas they were not significantly related to any of the SPSSI-R and MPS scales for Asian Americans. Similarly, scores on the SPS scale were significantly related to one of the SPSSI-R scales (viz., Negative Problem Orientation) and two of the MPS scales (viz., Concern over Mistakes and Doubts about Actions) for Caucasian Americans, but were again not significantly related to any of the SPSSI-R and MPS scales for Asian Americans.

It is also worth noting that the pattern of interrelations among the SPSSI-R scales for Caucasian Americans are similar to those found in a sample of 1,058 college students (Maydeu-Olivares & D'Zurilla, 1996). Specifically, positive problem orientation is highly associated with rational problem solving, whereas negative problem orientation is highly associated with avoidance style (and with perfectionistic doubts about one's actions). As Table I shows, these findings are similar to those found for Asian Americans. However, for this ethnic group, negative problem orientation is also highly associated with impulsivity/carelessness style (and significantly related to perfectionistic concerns about making mistakes).

Among measures of perfectionism, Table I also shows that concerns about mistakes were significantly related to personal standards, parental criticism, and doubt about actions for both Caucasian and Asian Americans. Similarly, doubts about actions were significantly related to parental criticism for both ethnic groups. In contrast, concerns about mistakes were significantly related to parental expectations for only Caucasian Americans, whereas personal standards were significantly related to organization for only Asian Americans. Overall, these results indicate important differences (and similarities) between Asian and Caucasian Americans independent of age and sex.

Cultural Differences in Social Problem Solving, Perfectionism, and Suicidal Risk

Table II presents the results of *t* tests comparing differences in social problem solving, perfectionism, and suicidal risk between Caucasian American and Asian American students. Because there were a total of 13 planned comparisons, standard significance values were modified using a more conservative Bonferroni adjustment. For example, to obtain a standard $p < .05$ for the total number of planned comparisons, an adjusted $p < .004$ would need to be reached, and so forth.

As shown in Table II, Asian Americans and Caucasian Americans were significantly different across a number of social problem solving dimensions. For example, Asian Americans were not significantly different in their level of positive problem orientation, but were significantly higher in their negative problem orientation than Caucasian Americans. This set of findings is consistent with previous research showing that positive and negative problem orientation are partially independent constructs (D'Zurilla et al., 1996). In addition, Asian Americans were higher in their impulsivity/carelessness style than Caucasian Americans.

Asian Americans also differed considerably from Caucasian Americans across a number of perfectionism dimensions (see Table II). Specifically, Asian Americans

Table II. Ethnic Group Differences in Social Problem Solving, Perfectionism, and Suicidal Risk^a

Criterion	Ethnic group				<i>t</i> (1, 146)	<i>p</i>
	Caucasian		Asian			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Social problem solving						
Positive problem orientation	13.09	3.55	12.60	3.91	.88	ns
Negative problem orientation	14.51	8.25	18.33	7.75	-3.25	< .004
Rational problem solving	46.17	14.12	46.45	11.56	-0.15	ns
Impulsivity/carelessness style	10.69	6.61	15.63	7.09	-4.90	< .00008
Avoidance style	8.14	5.77	10.27	5.50	-2.57	ns
Perfectionism						
Concern over mistakes	20.91	7.07	24.81	6.65	-3.44	.0008
Personal standards	23.72	5.33	22.83	4.35	1.10	ns
Parental expectations	15.27	4.01	17.26	4.32	-2.91	< .004
Parental criticism	8.52	3.39	11.16	3.18	-4.86	< .00008
Doubts about action	9.73	3.04	11.52	2.86	-3.67	< .0008
Organization	22.21	5.24	22.42	4.47	-0.26	ns
Suicidal risk						
Hopelessness	3.18	3.39	5.43	4.95	-3.27	< .004
Suicide potential	30.03	8.62	36.09	10.92	-3.76	< .0008

^aFor Caucasian Americans, $n = 79$; for Asian Americans, $n = 69$. All criteria were assessed at Time 1, except suicidal risk measures, which were assessed at Time 2.

have more concerns about making mistakes, parental expectations, parental criticisms, and doubts about their actions than Caucasian Americans. On the other hand, significant ethnic differences were not found in personal standards and organization.

As Table II also shows, compared to Caucasian Americans, Asian Americans reported significantly more hopelessness and suicide potential at Time 2.

Ethnic Status and Perfectionism as Predictors of Social Problem Solving

Table III presents the results of stepwise regression analyses showing the extent to which SPSI-R scales are influenced by ethnic status and perfectionism. For each regression equation, age, sex, ethnic status, and scores on the MPS were included in the starting equation. As Table III shows, Parental Criticism and Organization together accounted for 10% of the variance in Positive Problem Orientation, $F(2, 145) = 8.25, p < .001$. Doubts about Actions, Organization, and ethnic status, in that order, accounted for 31% of the variance in Negative Problem Orientation, $F(3, 144) = 21.84, p < .001$. Parental Criticism, Personal Standards, and Organization, in that order, accounted for 18% of the variance in Rational Problem Solving, $F(3, 144) = 10.29, p < .001$. Ethnicity, Doubts about Actions, and Organization, in that order, accounted for 29% of the variance in Impulsivity/Carelessness Style, $F(3, 144) = 19.83, p < .001$. And, Doubts about Actions, Organization, and ethnic status, in that order, accounted for 27% of the variance in Avoidance Style, $F(3, 144) = 17.38, p < .001$.

Table III. Stepwise Regression Analyses Showing Amount of Variance Accounted for by Predictors of Social Problem Solving^a

Criterion measures	β	R^2	ΔR^2	df	F
Positive problem orientation					
Parental criticism	-.14	.06		1,146	10.12 ^c
Organization	.14	.10	.04	1,145	6.04 ^b
Negative problem orientation					
Doubts about actions	.32 ^d	.26		1,146	50.07 ^d
Organization	-.11	.29	.03	1,145	6.72 ^b
Ethnic status	.13	.31	.02	1,144	5.10 ^b
Rational problem solving					
Parental criticism	-.36 ^d	.07		1,146	11.75 ^d
Personal standards	.24 ^c	.15	.07	1,145	12.43 ^d
Organization	.17 ^b	.18	.03	1,144	5.08 ^b
Impulsivity/carelessness style					
Ethnic status	.29 ^d	.18		1,146	31.17 ^d
Doubts about actions	.15	.24	.07	1,145	13.00 ^d
Organization	-.16 ^b	.29	.05	1,144	9.90 ^c
Avoidance style					
Doubts about actions	.32 ^d	.13		1,146	21.78 ^d
Organization	-.30 ^d	.24	.11	1,145	21.97 ^d
Ethnic status	.12	.27	.02	1,144	4.22 ^b

^a $N = 148$.^b $p < .05$.^c $p < .01$.^d $p < .001$.

As Table III also shows, there were both common and distinct determinants of “constructive” and “dysfunctional” problem solving as measured by the SPSI-R (Chang & D’Zurilla, 1996; D’Zurilla & Chang, 1995). That is, Organization accounted for significant amounts of variance in each of the SPSI-R scales. In contrast, ethnic status and Doubts about Actions accounted for significant amounts of variance in the three “dysfunctional” scales only (viz., Negative Problem Orientation, Impulsivity/Carelessness Style, and Avoidance Style), whereas Parental Criticism accounted for significant amounts of variance in the two “constructive” scales only (viz., Positive Problem Orientation and Rational Problem Solving). Hence, these results indicate that perfectionism and ethnic status are important predictors of social problem solving.

Ethnic Status, Perfectionism, and Social Problem Solving as Predictors of Suicidal Risk

To test the hypothesis that social problem solving would be a significant predictor of suicidal risk beyond what is accounted for by ethnic status and perfectionism, separate hierarchical regression models were conducted for predicting HS and SPS scores. For each prediction model, the same three steps were executed. For the first step, ethnic status was entered into the equation to determine whether it made a significant contribution to the model. For the second step, all six MPS

Table IV. Hierarchical Regression Analyses Showing Amount of Variance in Subsequent Suicidal Risk Accounted for by Ethnic Status, Perfectionism, and Social Problem Solving^a

Suicidal risk measures	<i>R</i>	<i>R</i> ²	ΔR^2	<i>df</i>	<i>F</i>
Hopelessness scale					
Ethnic status	.27	.07		1,146	11.61 ^c
MPS	.61	.37	.30	6,140	11.14 ^c
SPSI-R	.64	.41	.04	5,135	1.90
Suicide probability scale					
Ethnic status	.30	.09		1,146	14.14 ^c
MPS	.52	.27	.18	6,140	5.72 ^c
SPSI-R	.59	.35	.08	5,135	3.42 ^b

^a*N* = 148. MPS = Multidimensional Perfectionism Scale; SPSI-R = Social Problem Solving Inventory-Revised.

^b*p* < .01.

^c*p* < .001.

scores were simultaneously entered into the equation to determine whether perfectionism added significant incremental validity to the prediction model. And last, for the third and final step, all five SPSI-R scores were simultaneously entered into the equation to determine whether social problem solving made any further significant contributions to the model.

Results of these hierarchical regression analyses for predicting hopelessness and suicide potential are presented in Table IV. As Table IV shows, ethnic status accounted for an initial 7% of variance in hopelessness. An additional 30% of the variance in hopelessness was accounted for by perfectionism. In contrast, inclusion of social problem solving into the equation did not significantly augment the existing prediction model. However, the full model accounted for 41% of the variance in HS scores, $F(12, 135) = 7.95, p < .001$.

For suicide potential, ethnic status accounted for an initial 9% of the variance. An additional 18% of the variance in suicide potential was accounted for perfectionism. But unlike the results for the HS, inclusion of social problem solving into the equation significantly augmented this prediction model, accounting for an additional 8% of the variance in suicide potential. The full model accounted for 35% of the variance in SPS scores, $F(12, 135) = 6.07, p < .001$. Overall, these results indicate that in addition to ethnic status and perfectionism, social problem solving is a unique predictor of suicide potential, but not hopelessness.

DISCUSSION

The present study investigated the extent to which cultural differences between Asian American and Caucasian American students were reflected in differences in social problem solving, perfectionism, and suicidal risk. In addition, perfectionism was examined as a unique predictor of social problem solving and subsequent suicidal risk beyond ethnic status. Finally, the present study also examined the predictive utility of social problem solving in accounting for subsequent suicidal risk beyond what was accounted for by both ethnic status and perfectionism. Given these

somewhat diverse objectives, the present findings for ethnic status, perfectionism, and social problem solving are discussed separately.

Cultural Differences in Social Problem Solving, Perfectionism, and Suicidal Risk

Significant cultural differences were found in social problem solving, perfectionism, and suicidal risk. To begin with, results from computing partial correlations (controlling for age and sex) indicated that the nomological network of these variables differed between Asian and Caucasian Americans. For example, although negative problem orientation was positively associated with perfectionistic doubts about one's actions for both ethnic groups, the correlation was stronger and significant only for Caucasian Americans. In contrast, although negative problem orientation was positively associated with impulsivity/carelessness style again for both ethnic groups, the correlation stronger and significant only for Asian Americans. Taken together, these findings suggest that for Caucasian Americans, negative problem orientation has more to do with negative self-schemas regarding their problem-solving effectiveness than for Asian Americans, whereas for Asian Americans, negative problem orientation has more to do with impulsive or careless problem solving than for Caucasian Americans. In addition, it is worth recalling that there were several significant associations found between measures of social problem solving and perfectionism and with the two suicidal risk measures for Caucasian Americans, but none found for Asian Americans. Hence, cultural differences appear to have an important influence on the relationship between several of the variables examined in the present study.

Consistent with expectations, Asian Americans were generally more perfectionistic than Caucasian Americans. Specifically, Asians, compared to Caucasians, had stronger concerns about making mistakes, parental expectations, parental criticism, and doubts about their actions. On the other hand, little support was found for Asian Americans having greater social problem solving abilities than Caucasian Americans. That is, in contrast to expectations, Asian Americans were found to have a higher negative problem orientation and an impulsivity/carelessness style (which are believed to reflect dysfunctional facets of social problem solving) than Caucasian Americans. However, it is worth noting that there were no significant differences between these ethnic groups on avoidance style and the two constructive facets of problem solving (*viz.*, positive problem orientation and rational problem solving).

As also expected, ethnic status was an important predictor of suicidal risk, accounting for a significant amount of the variance in measures of both hopelessness and suicide potential, 7 and 9%, respectively. However, in contrast to expectations, Asian Americans scored higher on both suicide risk measures compared to Caucasian Americans. This was significant for both the HS and the SPS. But as noted earlier, Asian Americans have been found to be less likely to attempt suicide than Caucasian Americans (Group for the Advancement of Psychiatry, 1989). These apparently contradictory set of findings raise the possibility that for Asian Americans, expressions of heightened hopelessness and suicide potential (e.g., suicide ideation

and negative self-evaluation) might not be as strongly linked to risk for attempting suicide as they are often found for non-Asian Americans (e.g., Beck et al., 1985).

To further examine this issue, I conducted additional analyses to determine if Asian Americans and Caucasian Americans differed significantly across all of the SPS subscales. Results of these post-hoc analyses comparing Caucasian Americans and Asian Americans indicated significant differences on Hopelessness ($M = 8.95$, $SD = 5.43$ vs. $M = 12.31$, $SD = 5.83$, respectively), $t(1, 146) = -3.61$, $p < .001$, Suicide Ideation ($M = 1.28$, $SD = 2.30$ vs. $M = 4.32$, $SD = 3.56$, respectively), $t(1, 146) = -6.25$, $p < .0001$), Negative Self-Evaluation ($M = 16.10$, $SD = 4.57$ vs. $M = 14.36$, $SD = 4.98$, respectively), $t(1, 146) = 2.21$, $p < .05$), and Hostility ($M = 3.70$, $SD = 3.16$ vs. $M = 4.97$, $SD = 3.03$, respectively), $t(1, 146) = -2.50$, $p < .05$). Hence, consistent with the present findings obtained for the HS, Asian Americans also had higher scores on the Hopelessness subscale of the SPS than Caucasian Americans.

Given these differences in hopelessness, it is worth mentioning the results of recent cultural studies examining the constructs of optimism and pessimism. Specifically, Chang (1996a, 1996b) found that Asian Americans were consistently more pessimistic but not less optimistic than Caucasian Americans. Based on these findings, Chang (1996b) has argued that heightened pessimism might reflect an important culture-specific sensibility among Asian Americans. Because pessimism is strongly related both conceptually and empirically to hopelessness (e.g., Beck et al., 1974; Chang, D'Zurilla, & Maydeu-Olivares, 1994; Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992), it is then not too surprising that Asian Americans in the present study reported greater hopelessness on both the HS and the SPS. However, this would not necessarily account for Asian Americans' higher suicide ideation scores on the SPS compared to Caucasian Americans.

At least three important implications are worth future consideration given these cultural differences between Asian Americans and Caucasian Americans. First, norms for Asian Americans, and the various ethnic subgroups that compose this "categorical group" (e.g., Japanese American, Chinese American, and Korean American) are needed to provide more meaningful profiles of ethnic Asians at potential risk for self-harm.³ Second, future research needs to examine the potential contribution of other relevant variables that can help to identify those Asians who might be at most risk for attempting or completing suicide. For example, beyond the variables assessed in the present study, lack of optimism might place some Asian Americans at heightened risk for depression or suicide (Chang, 1996a; see also,

³Although the present study assessed cultural differences based on respondents self-identification to one of two ethnic categories (viz., Caucasian American vs. Asian American), it is important to note that increasingly greater attention has been placed over the years on the limitations of such methods in studying cultural differences (see Betancourt & López, 1993). According to Phinney (1996), ethnic culture represents a multidimensional, rather than a unidimensional phenomenon that reflects a number of important individual-difference determinants (e.g., country of origin, degree of acculturation, ethnic identity). Clearly, it would be important to extend the present findings in future studies that take into account the influence of more specific cultural dimensions on perfectionism, social problem solving, and suicidal risk. For example, one might examine cultural differences in social problem solving between different Asian American ethnic groups and compare them with non-Asian American groups. Nevertheless, the present study provides an important step toward the growing need to examine cultural differences in the determinants of health between different ethnic groups.

Wong & Ujimoto, in press). Finally, it would be valuable to further examine the cultural differences obtained in the present study (e.g., negative problem orientation, impulsivity, doubts about action) by studying the nomological network of these variables with other relevant criteria (e.g., academic performance, social activity). Clearly, additional research is needed to address these and other related concerns regarding cultural differences between Asian Americans and Caucasian Americans.

Perfectionism as a Predictor of Social Problem Solving and Suicidal Risk

In addition to the above findings for ethnic status, the present study also found that perfectionism was an important predictor of social problem solving. Specifically, all three of the dysfunctional dimensions of social problem solving (viz., negative problem orientation, impulsivity/carelessness style, and avoidance style) were significantly predicted by doubts about one's action. In contrast, the two constructive dimensions of social problem solving (viz., positive problem orientation and rational problem solving) were significantly predicted by parental criticism. Organization was a significant predictor of all five problem solving dimensions. Taken together, these results provide further evidence that both social problem solving and perfectionism reflect constructive and dysfunctional dimensions. Moreover, given that positive problem orientation and negative problem orientation were predicted by different facets of perfectionism (including ethnic status for the latter), these results also provide further support for the view that problem orientation does not reflect a unitary phenomenon (Chang & D'Zurilla, 1996; D'Zurilla et al., 1996).

Beyond what was accounted for by ethnic status, perfectionism was found to add significant incremental validity to predicting responses on both suicidal risk measures. For hopelessness and suicide potential, perfectionism was found to account for an additional 30 and 18% of the variance in these measures, respectively. Hence, the finding that perfectionism is a significant predictor of scores on both the HS and SPS is consistent with previous research linking perfectionism with suicidality in a college population (e.g., Hewitt et al., 1994). However, given that studies on perfectionism and suicidal risk have been based almost entirely on Caucasians, the present findings provide an important extension to the literature by having examined the relations between these constructs in a non-Caucasian group. Overall, the present results suggest that perfectionism is an important predictor of suicidal risk independent of ethnic status.

The finding that perfectionism accounted for such a large amount of the variance in hopelessness is worth additional comment. According to some researchers, hopelessness represents a sufficient proximal determinant of suicidal behaviors, including suicidal attempts (Beck et al., 1985), as well as of depression (Abramson, Metalsky, & Alloy, 1989). Because the present findings suggest that an important predictor of hopelessness (independent of ethnic status) is perfectionism, it is important in future research to examine the causal relations between perfectionism and hopelessness across time. Moreover, one might also examine the extent to which hopelessness moderates the link between perfectionism and adjustment. For example, one might expect that perfectionistic individuals experiencing high levels

of hopelessness would be at greatest risk for attempting suicide or becoming depressed compared to those with low levels of hopelessness. Again, it is important to address these concerns in future research.

Social Problem Solving as a Predictor of Suicidal Risk

In contrast to general expectations, only partial support was found for the predictive utility of social problem solving in accounting for suicidal risk. Specifically, consistent with expectations, social problem solving accounted for a significant 8% of additional variance in suicide potential beyond what was accounted for by ethnic status and perfectionism. On the other hand, social problem solving did not add significant incremental validity in predicting hopelessness beyond what was accounted for by ethnic status and perfectionism. Taken together, these results provide a mixed picture regarding the critical role of social problem solving in predicting suicidal risk.

As noted earlier, a number of studies have previously linked social problem solving to hopelessness. In addition, some studies have gone on to show that hopelessness mediates between problem-solving deficits and suicidal ideation (e.g., Dixon et al., 1994). However, the present findings indicate that there may be no significant link between social problem solving and hopelessness once ethnic status and perfectionism is taken into account. In contrast, results from the present study indicate that the link between problem-solving deficits and hopelessness might itself be largely mediated by perfectionism (and ethnic status; see above discussion on perfectionism). Hence, efforts to modify social problem solving (e.g., decreasing a negative problem orientation) in distressed students might prove to be more valuable for reducing elements of suicide potential (e.g., suicide ideation and negative self-evaluations), but less useful for decreasing feelings of hopelessness. In contrast, interventions that focus on modifying perfectionistic tendencies (e.g., decreasing excessive concerns about making mistakes) might prove to be important for managing the latter.

However, it is worth noting given that the two measures of suicidal risk employed in the present study were found to have less than 25% of their variance in common with each other, it would be premature to draw any strong conclusions regarding social problem solving and suicidal risk. What is needed now are comparative studies that examine the extent to which scores on the SPS and HS are predictive of overt suicidal behaviors (e.g., attempts to commit suicide) in a college population. In the absence of such studies, it is difficult to determine if both of these suicidal risk measures are to be given equal weight.

Relatedly, because the present findings are based on a "normal" population (e.g., college students), it would also be important to determine if social problem solving might play a more important role than perfectionism in predicting both hopelessness and suicide potential among more select populations. For example, in a study of psychiatric patients, Hewitt, Flett, and Turnbull-Donovan (1992) found that some perfectionistic tendencies were significantly associated with suicide potential, while some were not. In contrast, D'Zurilla, Chang, Nottingham, and Faccini

(1995) found that problem-solving deficits progressively increased across normal, general psychiatric, and suicidal populations. Hence, it appears that the link between social problem solving and suicidal risk might get stronger for more distressed populations, which might not be the case with perfectionism. This raises the possibility that for some populations, social problem solving might be an important predictor of both hopelessness and suicide potential beyond perfectionism. Clearly, additional research would be useful in addressing the generalizability of the present findings for other populations. Lastly, given that the present study did not assess for suicidal risk at Time 1, future studies on social problem solving controlling for initial levels of adjustment would be useful in addressing issues of causality.

CONCLUSION

Overall, the present study provides support for the role of social problem solving as an important predictor of suicide potential, but not hopelessness, independent of ethnic status and perfectionism. Future studies can help to further clarify the link between social problem solving and suicidal risk (as well as other outcomes) by examining the influence of other variables which might moderate and mediate this relationship (D'Zurilla & Maydeu-Olivares, 1995). Nonetheless, results from the present study strongly reinforce the value of a pluralistic model of suicide related behaviors in which multiple determinants are considered.

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