



Worry and Problem Solving Skills in University Students

Usha Barahmand

Department of Psychology, University of Mohaghegh Ardabili, Ardabil, Iran
Telephone: +98 411 477 9644, Cell: +98 914 451 9649, Fax: +98 451 551 6402,
E-mail: usha@barahmand.com

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ABSTRACT The purpose of the present study was to determine the predominant worries of college students and their problem solving abilities. A stratified random sample of 200 students responded to worry, worry and anxiety and problem solving questionnaires. Findings revealed that issues related to the future, job, education and marriage were the major issues of concern among the youth. Men and women differed in their problem solving orientation and style. Men reported greater positive beliefs about worry while women reported greater negative problem orientation and a careless/impulsive style. Furthermore, in men, rational problem solving was associated with worry regarding marriage, while in women, it was associated with worry regarding education. Worry seems to be exerting its impact in the form of difficulties in concentrating, fatigue and sleep problems. Overall, despite holding a pessimistic attitude, students appear to be engaging in problem analysis and goal specification. Regression analysis revealed that generation of alternative solutions and decision making account for a significant proportion of the variance in total worry in men, while in women, negative problem orientation and avoidant style predict total worry.

INTRODUCTION

Worry is a universal experience, but a clear understanding of this phenomenon remains elusive. Borkovec et al. (1983) advanced a definition that describes worry as a chain of thoughts and images, negatively affect-laden and relatively uncontrollable; it represents an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes; consequently, worry relates closely to the fear process. Borkovec (1994) later extended this definition by stating that worry involves predominantly thought activity rather than imagery. In its more benign form, worrying appears to be a relatively common and possibly universal human experience that may even have some adaptive value (Davey 1996). However, when worry becomes excessive and difficult to control, it can be very disturbing, self-defeating, and maladaptive. In fact, excessive and uncontrollable worry has been identified as the central feature of Generalized Anxiety Disorder (DSM-IV, American Psychiatric Association 1994) and appears to be a common phenomenon in depression (Molina et al. 1998; Starcevic 2007).

Determining the nature and function of worry is an important goal if we are to understand the human experience of anxiety. Borkovec et al. (2001) have suggested that the most significant function of worry is probably in its use as an internal avoidance response. Specifically, worry

allows individuals to process emotional topics at an abstract, conceptual level and, consequently, to avoid aversive images, autonomic arousal, and intense negative emotions in the short-run. In this way, worry is negatively reinforced. Consequently, worry is likely to prevent full access to fear structures in memory and may inhibit emotional processing necessary for anxiety reduction. Hence, worry is now recognized as a significant psychological phenomenon worthy of serious empirical investigation into its nature and causes.

According to Martinez (2005), problem solving is the process of moving towards a goal when the path to that goal is uncertain. D'Zurilla and associates (2004) define social problem-solving as a cognitive-behavioral process of identifying effective solutions to resolve "specific problems encountered in everyday living", which "(a) makes available a variety of potentially effective response alternatives for dealing with the problematic situation, and (b) increases the probability of selecting the most effective response from among these various alternatives". According to D'Zurilla's model, problem-solving outcomes in the real world are largely determined by two major, partially independent processes: (1) problem orientation, and (2) 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 (see review by D'Zurilla and Nezu 1999).

Theories of social problem-solving propose that social problem-solving ability is associated with adjustment, such as behavioral competence, psychological functioning and negative emotionality (D'Zurilla and Nezu 2007). This proposal has received good empirical support. For example, some studies using the Social Problem-Solving Inventory find that social problem-solving, particularly the dimensions of positive problem orientation and rational problem-solving, is positively related to the use of active problem-focused coping, positive mood in routine and stressed situations, and academic performance (see D'Zurilla and Nezu 2007).

Based on the views of several investigators that worry often represents defective or dysfunctional attempts to solve problems (Breznitz 1971; Borkovec 1985; Borkovec et al. 1983; Stober et al. 2000), a possible link between social problem-solving processes and worry is worthy of examination.

Most of the research on the relations between social problem-solving variables and worry has consistently demonstrated that problem orientation, but not problem-solving skills, is significantly related to worry in college students (Davey 1996; Dugas et al. 2001). 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 nonclinical controls (Dugas et al. 2005). Accordingly, these researchers have concluded that poor problem orientation is a broadly specific GAD process variable not shared by other anxiety disorders.

The objectives of the study were:

1. To determine the predominant worries among university students and their attitude

towards and perceived impact of these worries.

2. To identify the problem solving abilities of university students.
3. To reveal any possible association between worry and problem solving abilities.

METHOD

Participants

The participants in this study were 200 undergraduate college students (50% female) enrolled in various undergraduate courses at the University of Mohaghegh Ardabili. The participants' mean age was 20.45 years ($S.D.=1.87$). The distribution of the participants' number of years in college was as follows: 27.2% were in their first year, 24.3% in their second year, 28.7% in their third year, 19.8% in their fourth year. All students were given a battery of self-report questionnaires that included the WAQ, WW II, and SPSI-R.

Measures

1. *Why Worry-II* (WW-II; Gosselin et al. 2003; English translation: Holowka et al. 2000; Persian translation: Barahmand and Jahanmohammadi 2004) ($\alpha = .93$) includes 25 items rated on a 5-point Likert scale in two subscales. Given that the goals of the present study did not include the assessment of specific types of positive beliefs about worry, only the WW total score was retained for the statistical analyses. The internal consistency estimate computed with this sample is $[\alpha] = .90$.
2. *Worry and Anxiety Questionnaire* (WAQ; Dugas et al. 2001; Persian translation: Barahmand and Jahanmohammadi 2004) ($\alpha = .73$) containing 6 items assessing worry themes and DSM-IV diagnostic criteria for GAD. Items are rated on a 5-point Likert-type scale, ranging from 0 (not at all) to 5 (very severely). The Persian version of the WAQ demonstrates adequate test-retest reliability at 4 weeks ($r = .79$; Barahmand 2004) and has good psychometric properties in the adolescent population. The internal consistency estimate computed with this sample is $[\alpha] = .72$.
3. *Social Problem-Solving Inventory-Revised* (SPSI-R; D'Zurilla et al. 2001). The SPSI-

Table 1: Types of worry endorsed by the students

Worry	Life	Education	Marriage	Job	Future	Other
A lot	17.5	36.2	28.8	25.0	36.2	18.8
A little	71.2	52.5	60.0	63.8	52.5	70.0
Total	88.8	88.8	88.8	88.8	88.8	88.8
Missing	11.2	11.2	11.2	11.2	11.2	11.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

R is a 52-item self-report inventory that consists of five major scales that measure two different problem orientation dimensions (positive and negative problem orientation) and three different problem-solving proper dimensions (rational problem solving, impulsivity/carelessness style and avoidance style). *Positive Problem Orientation* (PPO) taps a constructive cognitive set which includes the general tendencies to (1) appraise a problem as a challenge, (2) believe in one's own problem-solving ability, (3) believe that problems are solvable, and (4) believe that successful problem solving takes time and effort. *Negative Problem Orientation* (NPO) measures a dysfunctional cognitive-emotional set consisting of the general tendencies to (1) appraise a problem as a threat, (2) doubt one's own problem-solving ability, and (3) believe that problems are intolerable (i.e. easily become frustrated and upset when confronted with problems). *Rational Problem Solving* (RPS) assesses a constructive cognitive-behavioral pattern involving the deliberate and systematic application of specific problem-solving skills [i.e., problem definition and formulation (PDFS), generation of alternative solutions (GASS), decision making (DMS), and solution implementation and verification (SIVS)]. *Impulsivity/Carelessness Style* (ICS) assesses a deficient cognitive-behavioral pattern characterized by impulsive, careless, hurried, and incomplete at-

tempts to apply problem-solving skills. *Avoidance Style* (AS) measures a defective behavioral pattern involving the tendencies to (1) put off problem solving for as long as possible, (2) wait for problems to resolve themselves, and (3) shift the responsibility for problem solving to others. Greater problem-solving ability is indicated by higher scores on Positive Problem Orientation and Rational Problem Solving, and lower scores on Negative Problem Orientation, Impulsivity/Carelessness Style, and Avoidance Style. The internal consistency estimate computed with this sample is α [alpha] = .86.

RESULTS

The predominant worries endorsed by students were worry about the future (36.2%), education (36.2%), marriage (28.8%), job (25%) and life in general (17.5%) (Table 1). Most students reported difficulty concentrating (23.8% to 62.5%), fatigue (27.5% to 61.3%) and interference with life (38.8% to 60%) as the major impact of their worries. Sleep disturbance appeared to be severe in a sizeable proportion (13.8%) of the students. These results are displayed in table 2.

A series of independent samples t-tests was run with gender as the between groups variable to detect any gender differences in problem solving skills. Women were found to score higher on negative problem orientation and impulsive/carelessness style while men scored

Table 2: Perceived impact of worry

Impact	Fatigue	Difficulty concentrating	Irritability	Muscle tension	Sleep disturbance	Interference with life
Not at all	5.0	8.8	17.5	40.0	25.0	1.2
Little	33.8	27.5	43.8	31.2	38.8	38.8
Moderate	27.5	23.8	26.2	23.8	13.8	38.8
A lot	28.8	32.5	10.0	3.8	8.8	20.0
Severe	5.0	6.2	1.2	0.0	13.8	1.2
Missing	0.0	1.2	0.0	1.2	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 4: Correlations between worry, positive beliefs about worry and problem solving in males

	Worry	PWB	Life	Education	Marriage	Job	Future	Other
PPO	-.024	.354*	.034	-.189	.370*	.261	-.110	-.088
NPO	.373*	.059	.168	.142	-.309	-.263	.076	-.020
DFS	-.087	.329*	-.150	-.066	.519**	.475**	-.150	-.265
GASS	-.123	.061	-.022	.123	.234	.302	.032	-.287
DMS	.139	.337*	-.028	.100	.390*	.326	-.060	-.360*
SIVS	.115	.319*	-.058	.047	.401*	.142	-.043	-.072
ICS	.235	.215	-.038	.114	-.213	-.017	.030	-.081
AS	.338*	.227	.358*	.275	.052	-.096	-.280	-.017

*p<.05; **p<.01

higher only on positive beliefs about worry. These results are presented in table 3.

Table 3: Sex differences with regard to problem solving skills^a

	Sex	Mean	Std. Deviation	t	Sig.
PWB	Male	61.5286	12.36555		
	Female	55.3699	16.58012	1.998	.050
PPO	Male	16.4103	3.80939	.838	.405
	Female	15.6053	4.59459		
NPO	Male	19.2821	6.25741	-2.925	.005
	Female	23.9744	7.82535		
PDF	Male	16.6923	4.48479	1.680	.097
	Female	15.1500	3.64129		
GAS	Male	16.7000	4.03955	1.366	.176
	Female	15.5000	3.81629		
DM	Male	16.0250	4.05404	1.464	.147
	Female	14.7000	4.03955		
SIV	Male	16.1250	3.99479	.731	.467
	Female	15.4750	3.95479		
ICS	Male	21.1500	4.94871	-2.049	.044
	Female	23.6750	6.01872		
AS	Male	16.1750	4.44273	-.138	.890
	Female	16.3000	3.60342		

^aPWB, Positive Worry Beliefs; PPO, Positive Problem Orientation; NPO, Negative Problem Orientation; PDF, Problem Definition and Formulation; GAS, Generative of Alternative Solutions; DM, Decision Making; SIV, Solution Implementation and Verification; ICS, Impulsivity/Carelessness Style; AS, Avoidant Style

On account of the gender differences observed, all further analyses were performed se-

parately for the two groups. The correlations among the study measures for each of the gender groups are presented separately in tables 4 and 5. Among the problem solving variables, only negative problem orientation and avoidant style correlated significantly with worry among males while in females, worry was associated with problem orientation, both positive and negative, and generation of alternative solutions. In males, positive beliefs about worry were related to all the indices of rational problem solving except the generation of alternative solutions. By contrast, in females, positive beliefs about worry were only associated with impulsive/carelessness style of problem solving. Differential associations between the type of worry and problem solving skills were noted, which are also displayed in tables 4 and 5.

An attempt was made to determine whether the problem solving skills could predict the amount of variance in worry experienced by the students. Again, two separate regression analyses were conducted. As can be seen in males, problem definition, generation of alternative solutions and decision making accounted for a significant proportion of the variance in worry (Table 6), while in females, negative problem orientation and avoidant style made significant contributions to the prediction of worry (Table 7).

Table 5: Correlations between worry, positive beliefs about worry and problem solving in females

	Worry	PWB	Life	Education	Marriage	Job	Future	Other
PPO	-.589**	.103	.130	-.114	.425*	-.030	.032	-.088
NPO	.532**	.228	.076	.103	-.310	-.184	-.243	.263
DFS	-.224	-.013	.053	-.408*	.313	-.006	.044	.347*
GASS	-.380*	-.152	-.044	-.411*	.294	.120	-.011	.084
DMS	.064	.158	-.017	-.332	.137	-.032	-.085	.333
SIVS	-.080	.082	-.049	-.237	.021	-.151	.017	.400*
ICS	.306	.456**	.012	.121	-.198	-.140	-.107	.207
AS	-.282	.271	.077	-.080	.254	-.317	-.069	.137

*p<.05; **p<.01

Table 6: Statistics for each of the variables in the final step of the regression equation with worry as the dependent variable in males

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	13.669	5.754		2.376	.025
PPO	.222	.276	.185	.805	.428
NPO	-.072	.186	-.099	-.384	.704
DFS	-1.142	.546	-1.078	-2.093	.046
GASS	-.782	.324	-.662	-2.412	.023
DMS	1.568	.484	1.346	3.237	.003
SIVS	.156	.272	.126	.573	.571
ICS	.015	.205	.017	.075	.941
AS	.244	.177	.239	1.383	.177

$R^2 = .444$; $\Delta R^2 = .444$, $P < .05$.

Table 7: Statistics for each of the variables in the final step of the regression equation with worry as the dependent variable in females

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	19.459	3.228		6.028	.000
PPO	-.126	.189	-.138	-.668	.509
NPO	.286	.099	.537	2.893	.007
DFS	.159	.273	.142	.582	.565
GASS	-.370	.207	-.342	-1.787	.085
DMS	.276	.217	.270	1.273	.213
SIVS	-.081	.226	-.076	-.357	.724
ICS	.049	.146	.071	.334	.741
AS	-.564	.200	-.488	-2.815	.009

$R^2 = .656$; $\Delta R^2 = .656$, $P < .01$

DISCUSSION

The major worries reported by the students included worries about the future (36.3%), education (36.3%) and marriage (28.8%). About 20% of the students reported their worries as excessive and 11% experienced significant difficulty controlling their worries. The perceived impact of worry was reported as concentration difficulties (40%), fatigue (33%) and sleep disturbances (22%). Sex differences were noted only with regard to attitudes about worry, with boys endorsing more positive beliefs about worry. As regards problem solving styles, girls hold greater negative problem orientation and use an impulsive, careless style more than boys. Total worry scores were associated positively with both positive and negatively with negative problem orientation and the generation of

alternative solutions. Positive beliefs about worry correlated with decision making as well as with impulsivity and avoidance in problem solving. These findings indicate that worry is probably used by students as a coping strategy. Only worry regarding marriage was associated with the dimensions of rational problem solving involving the rational, deliberate, and systematic application of effective problem-solving skills, generating as many appropriate solution options as possible before making a decision select the most effective solution. This finding indicates that students are actively engaged in coping with the issue of marriage. The positive association between worry about job and negative problem orientation indicates a negative cognitive, emotional and motivational set concerning this worry, and the positive association between job worry and problem definition and formulation implies the assessment and analysis of the problem into concrete and specific terms and the specification of realistic goals and objectives. It is likely that students are engaging in worry to analyze the problems and specify goals despite holding a pessimistic attitude. Students' worry regarding their lives in general is associated with an avoidant problem solving style, reflecting the likely threat experienced by them.

When the variables are examined within each gender, a different picture emerges. The positive correlation between positive problem orientation, positive beliefs about worry and rational problem solving skills, and that between negative problem orientation and worry in males implies that young boys regard worry as essential to problem solving. However, when worry becomes excessive, they consider it a threat and probably use an avoidant coping style as indicated by the positive association between worry and avoidant coping style. Furthermore, the association between marriage and job related worry and problem definition and formulation as well as decision making indicates that males engage in assessment and analysis of problems in these areas and analyze them into specific realistic goals, evaluating possible solutions in regard to the consequences and try to select the most effective solution.

In girls, the equally strong association between positive and negative problem orientation and worry indicates that worry is considered both as threatening and challenging, and the negative association between worry and

generation of alternative solutions implies that worry may not facilitate rational problem solving strategies. This is further supported by the negative association between problem definition and formulation and generation of alternative responses and worry regarding education related worry. Considering that educational issues are reported as a source of worry by a majority of the students, it appears that females find education related worry as threatening, not being able to specify concrete, realistic goals or generate appropriate solutions.

Findings from regression analyses reveal that generation of alternatives and decision-making predict worry in males, while negative problem orientation and avoidant style help predict worry in females. Put together, findings indicate that while worry may be a coping strategy in university boys, it is considered a threat among university girls. In other words, university boys tend to engage in worry for the purpose of problem solving, weighing different solutions before arriving at a suitable option, while their female counterparts focus on the emotional aspects of problems and inadequacies in their abilities, and therefore, tend to avoid solving problems.

The present findings confirm the implications suggested by Belzer et al. (2002) for the treatment of anxiety disorders involving excessive worrying. A problem-solving therapy program that included a cognitive restructuring component to reduce the negative thinking associated with a negative problem orientation (e.g. exaggerated threat appraisals, negative self-efficacy beliefs) and a problem-solving skills component focusing on the deliberate, systematic, and effective application of problem-solving skills in the natural environment would be useful. In addition to reducing dysfunctional worrying directly, the strategy of increasing competent problem-solving experiences is also the most powerful way to strengthen and maintain a more positive problem orientation (D'Zurilla and Nezu 1999).

In closing, caution should be exercised when interpreting the relationships found in this study between social problem solving and worry. These being a correlational study, different interpretations are plausible. However, the findings obtained confirm Belzer et al.'s (2001) conclusion that social problem solving and worry do overlap.

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