

THE RELATIONSHIP OF PROBLEM SOLVING SKILL, SELF-  
APPRAISED PROBLEM SOLVING ABILITY AND COPING STYLE TO  
ADJUSTMENT: A LONGITUDINAL ANALYSIS

by

Michael J. Priester

Dissertation submitted to the Faculty of the Virginia  
Polytechnic Institute and State University in partial  
fulfillment of the requirements for the degree of  
DOCTOR OF PHILOSOPHY

in

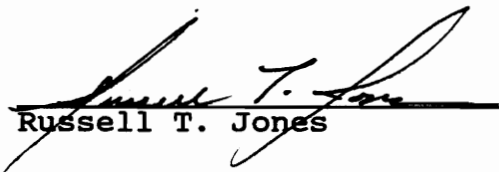
Psychology

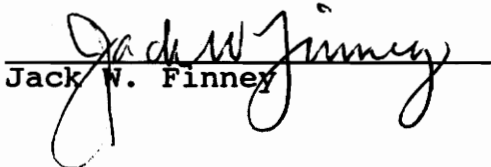
APPROVED:

  
G.A. Crum, Chairman

  
Richard M. Eisler

  
Ellie T. Sturgis

  
Russell T. Jones

  
Jack W. Finney

April, 1994

Blacksburg, Virginia

C.2

LD  
5655  
V850  
1994  
PT-4  
C.2

**THE RELATIONSHIP OF PROBLEM SOLVING SKILL, SELF-  
APPRAISED PROBLEM SOLVING ABILITY AND COPING STYLE TO  
ADJUSTMENT: A LONGITUDINAL ANALYSIS**

by

Michael J. Priester

Committee Chairman: George A. Clum, Ph.D.  
Clinical Psychology

(ABSTRACT)

This study utilized a longitudinal design, to assess the relationship between measures of problem solving skill, self-appraised problem solving ability, and coping style and measures of adjustment: suicidal ideation, depression, psychological symptomatology, general well-being, and the number of visits to the campus health center. Using multiple regression equations, the direct relationships of the cognitive variables to the measures of adjustment were tested. In addition, interactive effects of the cognitive variables with stress, as predicted by the diathesis-stress hypothesis, originally forwarded by Schotte & Clum (1982) were also examined.

Findings demonstrated that the cognitive variables had main effects on the measures of adjustment. Many variables also interacted with stress to account for additional variance in the measures of adjustment. It was also found that the variables accounted for

independent variance in predicting adjustment. Problem solving skill, self-appraised problem solving ability, and coping style were separate and distinct predictors of the process of assimilating or accommodating to stressful events.

## ACKNOWLEDGEMENTS

There have been several persons who have been instrumental to the successful completion of this doctoral dissertation. Foremost, I would like to extend my gratitude to Dr. George Clum for his time spent supervising this project. Dr. Clum has been extremely important to me during my graduate school tenure for providing guidance, theoretical expertise, and understanding throughout this process. I owe my utmost gratitude to him.

My other committee members, Dr. Richard Eisler, Dr. Ellie Sturgis, Dr. Russell Jones, and Dr. Jack Finney have also played important roles in helping this project come to fruition. In addition, each of these faculty members has been important to my professional development. They have all clearly left their impressions upon me academically and clinically.

I owe my research assistants, Kareen Ramsby, Melinda Poteet, and Phillip Schantin, a special thanks for their tireless efforts toward the completion of this project.

Finally, I would like to thank Dr. Jennifer Wertz for her innumerable words of encouragement and support, without which this project would have been even more challenging.

## TABLE OF CONTENTS

Abstract.....	ii
Acknowledgements.....	iv
Table of Contents.....	v
List of Tables and Figures.....	vii
Introduction.....	1
Problem solving skill.....	2
Problem solving appraisal.....	6
Coping strategies.....	9
Integrating the viewpoints.....	13
Hypotheses.....	16
Method.....	18
Subjects.....	18
Procedure.....	20
Criteria Measures.....	25
Predictor Measures.....	27
Stress Measures.....	31
Results.....	33
Correlations among predictor variables.....	34
Correlations between predictors and criterion	36
Multiple regression analyses.....	41
Discussion.....	49
Bibliography.....	79
Tables and Figures (see p. vii for list).....	86

Appendices.....	115
A - General Consent Form.....	115
B - Medical Record Consent Form.....	117
C - Demographic Information Form.....	118
D - Life Experiences Survey.....	119
E - Personal Problem Solving Evaluation.....	121
F - Student Stress Inventory/Problem Specific Problem Solving Inventory.....	130
G - Coping Strategies Inventory.....	133
H - Brief Symptom Inventory.....	136
I - Modified Scale for Suicidal Ideation.....	139
J - General Well-Being Schedule.....	244
K - Zung Depression Inventory.....	150
L - Problem Solving Inventory.....	151
Vita.....	154

## LIST OF TABLES AND FIGURES

Figure 1 - Overview of study.....	86
Table 1 - Interrater reliabilities for subjective measures on the PPSE.....	87
Table 2 - Key to variable nomenclature.....	88
Table 3 - Intercorrelations among predictor measures.....	89
Table 4 - Intercorrelations between predictor and criteria measures.....	93
Table 5 - Hierarchical multiple regression analyses of predictor variables to suicidal ideation at time 3 (main effects only).....	95
Table 6 - Hierarchical multiple regression analyses of predictor variables to suicidal ideation at time 3 (interaction terms tested)....	96
Table 7 - Hierarchical multiple regression analyses of predictor variables to depressive symptoms at time 3 (main effects only).....	97
Table 8 - Hierarchical multiple regression analyses of predictor variables to depressive symptoms at time 3 (interaction terms tested)....	97
Table 9 - Hierarchical multiple regression analyses of predictor variables to level of psychological distress at time 2 (main effects only).....	99
Table 10 - Hierarchical multiple regression analyses of predictor variables to level of psychological distress at time 2 (interaction terms tested).....	100
Table 11 - Hierarchical multiple regression analyses of predictor variables to level of psychological distress at time 3 (main effects only).....	101
Table 12 - Hierarchical multiple regression analyses of predictor variables to level of psychological distress at time 3 (interaction terms tested).....	102



Table 13	- Hierarchical multiple regression analyses of predictor variables to level of general well-being at time 2 (main effects only)	103
Table 14	- Hierarchical multiple regression analyses of predictor variables to level of general well-being at time 2 (interaction terms tested).....	104
Table 15	- Hierarchical multiple regression analyses of predictor variables to level of general well-being at time 3 (main effects only)	105
Table 16	- Hierarchical multiple regression analyses of predictor variables to level of general well-being at time 3 (interaction terms tested).....	106
Table 17	- Hierarchical multiple regression analyses of predictor variables to the number of visits to the health center at time 2 (main effects only).....	107
Table 18	- Hierarchical multiple regression analyses of predictor variables to the number of visits to the health center at time 2 (interaction terms tested).....	108
Table 19	- Hierarchical multiple regression analyses of predictor variables to the number of visits to the health center at time 3 (main effects only).....	109
Table 20	- Hierarchical multiple regression analyses of predictor variables to the number of visits to the health center at time 3 (interaction terms tested).....	110
Table 21	- Hierarchical Multiple Regression Analyses comparing trait problem solving, state problem solving, self-appraised problem solving ability and coping style.....	111

**THE RELATIONSHIP OF PROBLEM SOLVING SKILL, SELF-  
APPRAISED PROBLEM SOLVING ABILITY AND COPING STYLE TO  
ADJUSTMENT: A LONGITUDINAL ANALYSIS**

Researchers have postulated several cognitive mediating variables to explain the relationship between stress and later psychological adjustment, such as depression and suicidal ideation. Three cognitive mediators which have received notable support in the literature include problem solving skill, problem solving self-appraisal and coping style. Each of these cognitive mediators has been found to be associated with poor adaptational outcomes. However, the majority of the research has examined these variables separately to account for subsequent level of psychopathology. As has been postulated by prior researchers (Cox, 1987, D'Zurilla, 1990, Priester, 1991) it is possible that problem solving ability and coping responses are separate parts of the same process, the process of "dealing with" stress. This paper examines this possibility.

This paper first reviews relevant research pertaining to how interpersonal problem solving skills, self-appraisal of interpersonal problem solving ability, and coping style relates to adaptational

outcomes. Second, the method and results of a study which was conducted to test the relationships between these cognitive diatheses and several adaptational outcomes will be discussed. Third, this paper will attempt to integrate these results into the existing literature and outline areas which are still unanswered from the data in the existing literature.

### Problem Solving and Adjustment

Platt and Spivack (1972) developed a measure of problem solving ability, The Means-End Problem Solving Procedure (MEPS: Platt & Spivack, 1975), which could parsimoniously assess a subject's level of problem solving ability. The format of the MEPS requires a subject to solve a hypothetical problem by furnishing alternatives which will result in a prespecified end. The MEPS is based on a hypothetical model of problem solving ability originated by D'Zurilla & Goldfried (1971). Platt & Spivack (1975) utilized the MEPS to examine the relationship between adjustment and problem solving ability in hospitalized psychiatric patients. They found depressed psychiatric inpatients to have poorer problem solving skills than nondepressed staff members (Platt & Spivack, 1975). In a subsequent study using the MEPS, mildly depressed college students were found to perform significantly worse on interpersonal

problem solving tasks, but not on impersonal problem solving tasks than their nondepressed peers (Gotlieb & Asarnow, 1979). The Gotlieb and Asarnow (1979) study concluded that interpersonal problem solving ability was related to depression, and impersonal problem solving ability was not. Other recent studies have also supported the existence of interpersonal problem solving deficits in depressed and suicidal individuals (McLeavey, Daly, Murray, O'Riordan, & Taylor, 1983; Spirito, Overholser, & Stark, 1989; Zemore & Dell, 1983).

Clum, Patsiokas & Luscomb (1979) first proposed a problem solving diathesis-stress model of parasuicidal behavior stating that stress produces demands on an individual to which the individual must adapt. Individuals with an extensive repertoire of problem solving skills are well prepared to reduce the effects of stress or deal with the stressor itself. Conversely, poor problem solvers are ill-prepared for stress, solve problems poorly, and become depressed. Suicidal behavior then becomes a solution to problems that poor problem solvers otherwise see as insoluble.

Two cross-sectional studies were conducted by Clum and his associates to test the problem solving diathesis stress hypothesis. Schotte & Clum (1982)

found college students with poor problem solving skills who were under a high amount of life stress to be significantly more suicidal compared to those who were good problem solvers, or those under low stress. Schotte & Clum (1987) found suicidal psychiatric inpatients to evince significantly more problem solving deficits than nonsuicidal inpatients. Bonner and Rich (1987, 1988) have also conducted two cross-sectional studies which support the problem solving diathesis-stress hypothesis.

More recent studies testing the problem solving diathesis-stress hypothesis have utilized longitudinal designs to test whether problem solving deficits precede depressed mood. Nezu & Ronan (1988) provided the first longitudinal support of the problem solving diathesis-stress hypothesis. They found that deficits in generating relevant alternatives, as measured by a modified version of the MEPS, had both direct effects and interactive effects with stress on the level of depressive symptoms three months later.

In another longitudinal study, Schotte, Cools and Payvar (1990) found that problem solving skills in hospitalized psychiatric patients improved concurrently to improvements in depressed mood, a finding contrary to the problem solving diathesis stress hypothesis.

Specifically, the patients improved in their ability to generate more relevant alternatives to a problem. The patients' tendency to generate irrelevant solutions or high numbers of cons to this potential solution remained unimproved. To further test whether problem solving deficits operated as a diathesis, another longitudinal study of the problem solving diathesis-stress hypothesis (Priester & Clum, 1993b) found problem solving skills measured at the beginning of the study to predict levels of depression, hopelessness and suicidal ideation two weeks later, above and beyond the level of symptoms at time 1. Using a modified version of the MEPS, this study found that number of relevant alternatives, number of cons to these alternatives, and number of irrelevant alternatives were all significant predictors of later depression, hopelessness and suicidal ideation. Several of these problem solving variables were also found to interact with stress in predicting post stress adjustment. Although the direct effects of problem solving on stress were not explicitly predicted by the problem solving diathesis stress hypothesis, it may be that one's problem solving skills can be so impaired that even a minor amount of stress will trigger depressive symptoms. Therefore, the results of the Priester and Clum study were

interpreted as supportive of the problem solving diathesis-stress hypothesis.

Although Schotte, et al. (1990) found subjects to generate a higher number of relevant means as their depression improved, no other measures of problem solving skill were found to improve as depression improved. Because the number of relevant means generated is more affected by motivational factors, than are other measures of problem solving skill, e.g., the number of irrelevant means or cons, it is possible that an increase in the level of motivation to complete the MEPS, was more responsible for the increase in the number of relevant means, rather than improved problem solving ability, per se. The different conclusions evinced on the Schotte, et al (1990) study and the Priester and Clum (1993) study underscored the need for additional longitudinal studies to determine whether problem solving defects act as diatheses to the stress-adjustment relationship.

#### Problem solving appraisal: measuring a different aspect of problem solving

Another measure of problem solving has been examined in the literature. Heppner and Petersen (1982) have taken issue with the fact that the MEPS measures problem solving ability via the procedure of

solving hypothetical problems. Because of this, Heppner and Petersen developed the Problem Solving Inventory (PSI), a self-report measure of problem solving ability. The PSI asks subjects to appraise their problem solving ability on a 1-6 scale. The PSI was found to correlate with poor adaptational outcome as reflected by: anxiety (Nezu, 1985, 1986), depression (Nezu, 1986) and confused thinking, as measured by the Sc scale of the MMPI (Heppner & Anderson, 1985). In a cross-sectional study, Nezu and Ronan (1985) tested the problem solving diathesis-stress model using the PSI. Verifying this model via path analysis, Nezu and Ronan found that the level of current problems affected depression directly and indirectly through the level of self-appraised problem solving ability. Two other cross-sectional studies also found low self appraised problem solving ability to be related to depression (Nezu, et al., 1986) but not to hopelessness and suicidal ideation, when in interaction with stress (Dixon, Heppner & Anderson, 1991). Longitudinal support for the diathesis-stress model of problem solving appraisal was still needed for a more stringent test of the model.

Longitudinal tests of problem solving appraisal



Nezu and Ronan (1988) utilized a prospective design to test whether self-appraised problem solving ability could act as a trait diathesis which would predispose individuals to later depression. Nezu & Ronan's results indicated that poor self-appraised problem solving ability was significantly predictive of depression, three months later. Problem solving appraisal was found to predict depression both alone and in interaction with stress. Priester & Clum (1993) conducted another longitudinal study and found essentially the same result: poor self-appraised problem solving ability predicted depression above and beyond pre levels of depression, both alone and in interaction with a measure of stress.

The results of these two longitudinal studies lend additional support to the hypothesis that problem solving self-appraisal can serve as a diathesis to predispose individuals to depression. Unlike problem solving skill in solving hypothetical situations, problem solving self-appraisal has been more consistently related to depression, than to hopelessness or suicidal ideation (Dixon, Heppner & Anderson, 1991).

Overall, it appears that problem solving theorists have been very involved with investigating the

moderating effects of problem solving on stress and psychological adaptation. However, there has been an alternative way of conceptualizing the stress- psychopathology relationship. Several researchers have examined the link between what people actually do to cope with the stress that they are faced with, and how these "coping strategies" affect adaptational outcome. The coping strategy theorists have generally investigated this relationship differently than have the problem solving theorists.

#### Coping strategies: state vs. trait

Lazarus & Folkman (1984) have taken issue with the way researchers have measured individual responses to stress. Lazarus and his colleagues have stated that measuring the way in which people "generally cope" or "would cope" with a stressor is flawed. Rather, they advocate measuring coping responses retrospectively, after the person has experienced the stressor. Lazarus and Folkman (1984) have stated that asking subjects how they "would cope" with a stressor has generally yielded poor predictions of how they actually do cope with stressors. Lazarus and Folkman call their technique the "situational approach to coping", because they believe that the subject's situational appraisals of the stressor determine the use of specific coping

strategies. Some past research has supported this assumption and has found stressor characteristics to be stronger determinants of coping than subject characteristics (Folkman & Lazarus, 1980).

### Coping Style and Adjustment

A substantial amount of research has found that the way in which individuals cope with stressors affects their subsequent adjustment (Coyne, Aldwin & Lazarus, 1983; Folkman & Lazarus, 1986; Kolenc, Hartley & Murdock, 1990; Leon, Ben-Porath & Hjembo, 1990; Mitchell, Cronkite & Moos, 1983).

With regard to the mediating relationship of coping to life stress and health, Lazarus and Folkman (1984) have postulated three ways that coping can influence one's health outcomes following a stressor: 1) coping can reduce the direct impact of a stressor on a person by either removing the stressor or by reducing the emotional impact of an uncontrollable event; 2) coping can negatively influence health outcomes when emotion focused coping includes the use of potentially self-damaging substances such as alcohol or drugs or when it involves risky behaviors to elevate one's mood, such as unprotected sexual encounters or fast driving; and 3) denial of symptoms, when used as an emotion

focused coping strategy, can lead to an avoidance of adaptive health maintenance and an exacerbation of existing health conditions. Coping researchers have conducted several studies investigating how individuals who use denial and avoidance to cope show poorer health outcomes. Katz, Weiner, Gallagher & Hellman (1970) found that women who minimized the significance of a breast lump were able to reduce their psychological distress, but this reduction in distress led to a delay in seeking medical treatment. Goldstein (1980) found that patients with kidney failure who tended to deny the seriousness of their condition as a means of coping with the feared consequences of kidney disease often failed to comply with prescribed activities, such as diet and treatment regimens. Finally, Folkman, Lazarus, Gruen, and DeLongis (1986) found the tendency to use confrontive, distancing and avoidance coping strategies to be negatively correlated with health status, as measured by a self-report questionnaire which assessed the existence of specific somatic symptoms.

Several studies have compared the coping styles of depressed individuals with the coping strategies of nondepressed individuals. These studies have shown that individuals in clinical populations rely on more

emotion oriented coping strategies, (Billings & Moos, 1984; Coyne, Aldwin & Lazarus, 1983; Mitchell, Cronkite & Moos, 1983) and avoidance strategies to reduce emotional arousal (Folkman & Lazarus, 1986; Leon, Ben-Porath & Hjembo, 1990; Spirito, Overholser & Stark, 1989) than do non depressed individuals. The conclusion drawn by many of these studies was that an overuse of emotion focused strategies resulted in poor adaptational outcomes.

However, Kolenc, Harley & Murdock (1990) assessed mildly depressed and nondepressed college students and found that some emotion focused strategies were correlated with depression while others were not. Problem focused strategies were not correlated with depression, but rather, were correlated with the emotion focused strategies that did not correlate with depression. Kolenc, et al. concluded that the problem focused strategies, and some of the emotion focused strategies acted as moderator variables which correlated with the error variance, rather than depression. This means that the use of some emotion focused strategies seemed to serve the same purpose as the problem focused strategies: to insulate an individual from depression, after a stressor.

A factor analysis of the Coping Strategies Inventory, conducted by Tobin, Holroyd, Reynolds and Wigal in 1989, helped to provide a conceptual base for the findings of Kolenc, et al. (1990). Tobin, et al. found that the "emotion/problem" focused factor was subordinate to an "engagement/disengagement" factor. That is, some problem and emotion focused strategies helped subjects work on solving the problem posed by a stressor, i.e., the process of engagement, while other problem and emotion focused strategies acted to remove the person from the problematic situation or alienate potential support resources, i.e., the process of disengagement. Tobin, et al. stated that the overuse of disengagement strategies is more likely to result in depressive mood after encountering a stressor. It was further stated that the engagement/disengagement differentiation of coping strategies appeared to be more fruitful in predicting adaptation than did the emotion/problem focused differentiation (Tobin, et al., 1989).

Integrating the problem solving skill, problem solving appraisal and coping viewpoints

Although some studies have examined problem solving appraisal and problem solving skill together, (Heppner & Petersen, 1982; Nezu & Ronan, 1988;

Priester, 1990) most researchers studying problem solving and coping as mediators of stress have conducted research relatively independent from one another. It has been stated by Cox (1987) and D'Zurilla (1990) that coping strategies, problem solving skill and self-appraised problem solving ability are different parts of the same process. Research on self-appraised problem solving ability appears to concentrate on the efficacy expectations and beliefs regarding problem solving ability. Problem solving skill research has been centered on delineating the steps involved in solving interpersonal problems and how the process can go awry. Coping strategy research has focused on the actual behaviors and thoughts used to resolve a stressor and the output of the process of problem solving (Priester, 1993). If it is the case that coping strategies and problem solving self-appraisal and problem solving skills are three separate parts of the process of "dealing with" stress, then it is reasonable to expect that measures of these constructs should account for different parts of the variance in adaptational outcome after subjects encounter stress.

It has also been postulated by Cox (1987) and Priester (1992) that problem solving appraisal and

coping are related, so that a tendency to appraise one's problem solving ability as low, is associated with the use of disengagement coping strategies when stress is encountered. If an individual believes that he/she has a poor or substandard ability to deal with stressors, it is likely that he/she will attempt to disengage when faced with stress. It is also possible that one's problem solving appraisal may be associated with poor problem solving skill, in much the same fashion as described above: poor appraisal of problem solving ability acts as a "self-fulfilling prophecy" and interferes with the ability to generate relevant alternatives to the problem, which in turn results in the person being overly critical of their alternatives, as evinced by a high number of cons for each alternative.

Finally, if problem solving skills constitute a stable diathesis, it is possible that problem solving skills may determine the selection of coping strategies. That is, if individuals are not able to think of ways to solve the difficulties they are faced with, it is quite possible that will disengage to avoid the stressful encounter. On the other hand, it is also possible that problem solving skills are more situationally determined and better assessed within the



context of a particular situation. If this latter assumption is true, problem solving skills may predict psychological adjustment better if they are measured using a paradigm similar to the Folkman & Lazarus (1980) paradigm to measure coping strategies. In this paradigm, subjects are asked to recall their "worst problem over the past month" and are asked to list all of the methods of coping they used to cope with the problem. If the subject was asked to identify their worst interpersonal problem within the past month, a similar method, using the MEPS format, could assess problem solving skills for that particular problem.

The present study therefore aimed at addressing two problems in the problem solving and coping literatures. First the issue of whether problem solving deficits are a true diathesis was further examined by utilizing a longitudinal design. Second the question of whether self-appraised problem solving ability, problem solving skills, and coping strategies independently predict adjustment was also addressed.

#### **Hypotheses of the current study**

Several hypotheses are tested in this study:

1) Problem solving skill level by itself and in interaction with level of life stress will predict the level of psychological symptoms and level of general

well-being over a three month period, and will predict the level of depression and suicidal ideation at the end of the semester.

2) The level of problem solving self-appraisal, by itself and in interaction with level of life stress, will predict the level of psychological symptoms and level of general well-being over a three month period, and will predict the level of depression and suicidal ideation at the end of the semester.

3) The amount of disengagement coping, by itself and in interaction with level of life stress, will predict the level of psychological symptoms and level of general well-being over a three month period, and will predict the level of depression and suicidal ideation at the end of the semester.

4) Problem solving ability, problem solving self-appraisal and coping style, will independently account for variance in adjustment, as defined by the presence of psychological symptoms and level of general well-being throughout the three month period and by levels of depression and suicidal ideation at the end of the three month period.

There are also three exploratory hypotheses that will be tested by this study:

5) Problem solving skill, problem solving self-appraisal and coping style, will independently account for variance in the amount of health care usage, as measured by the number of visits to the campus health center reported by health center staff.

6) Problem solving skill will be measured in two ways:

a) using the PPSE (Clum, 1991) which assesses problem solving ability using hypothetical situations, and b) using the PSPSI (Priester, 1993) which assesses problem solving ability using the subject's self-identified "worst stressor" of the past month. It is predicted that the PSPSI will correlate significantly with PPSE scores.

7) The relationship of engagement coping to adjustment will be explored, especially with regard to emotional vs. problem focused engagement coping.

## **Method**

### Subjects

Three hundred and thirty seven male and female college freshmen attended the first assessment session of this study. These subjects were all self-referred, recruited from the introductory psychology pool at the start of the semester to participate in a longitudinal study on stress and coping. The subjects received extra credit for their participation. Of the 337 subjects

who came to the first assessment session, 52.2% were female and 44.8% were male; 3.0% of the sample failed to indicate their gender. The ages of the subjects ranged from 18 to 20 years. 93.8% of the subjects indicated that they lived in the campus dormitories, 3.0% lived off-campus at home and 3.2% did not indicate where they lived. The subject sample was primarily Caucasian, according to self-reported information, with this ethnicity comprising 82.5% of the sample. An additional 7.1% of the subjects categorized themselves as Asian/Pacific Islanders, 5.1% endorsed the African-American category, and 1.5% indicated that they were hispanic/white. None of the subjects endorsed the hispanic/black category, although 3.9% did not indicate an ethnicity. Of the 337 subjects who came to the first session, 298 had complete data for this session, with the remainder having missing data due to deletions, errors or omissions. 296 subjects attended the second assessment session, and 286 of these subjects had complete data on all the measures given during this session. 297 subjects attended the third assessment session; 287 subjects completed all of the inventories given during the third session without error or omission. There were, in total, 224 subjects who had complete data for all three assessment

sessions. It is the data from these 224 subjects on which subsequent analyses will be based. No significant differences at time 1 in any of the predictor or criterion measures were found between subjects in the study and those who were deleted.

### Procedure

To initially participate, subjects indicated the time and date they would attend the first assessment session, by signing up in a folder placed in the 5th floor lobby of Derring Hall. The folder described the study as "a study on semester stress". When the subjects completed the first assessment session, there was an opportunity for the subjects to sign up for a time to take the second session, held one month later. This same procedure was used for subjects to indicate the time that they would attend the third and final assessment, two months following the first assessment session. It was made clear to subjects that they would not be subject to any penalty or prejudice if they chose not to continue with the study.

On the rare occasions when a subject could not attend a session exactly 1 month later, he or she was allowed to sign up for an assessment time that would be closest to one month following their last assessment time, given that the time was at least 1 month

following their latest assessment. In no case did this time period exceed 1 month, 5 days following their last assessment. Subjects who failed to show up for their appointment were called one time, at the phone number they furnished, and invited to participate in the next available assessment time. During this phone call, the absentee subjects were asked if they still chose to participate in the study. If they replied positively, they were rescheduled at the next available assessment time. If a rescheduled subject failed to appear for a second time, they were not recontacted.

During the first assessment session, subjects completed the consent form for the study (Appendix A), the consent form to obtain the number of visits to the Student Health Center over the 1992/1993 school year (Appendix B), the request for demographic information (Appendix C), and the following inventories (Appendices D-L): 1) the Life Experiences Survey; 2) the Personal Problem-Solving Evaluation; 3) the Student Stress Scale/Problem Specific Problem Solving Inventory; 4) the Coping Strategies Inventory; 5) the Brief Symptom Inventory; 6) the Modified Scale for Suicidal Ideation; 7) the General Well-Being Scale; 8) the Zung Depression Inventory; and 9) the Problem Solving Inventory.

During session two, subjects completed only the state measures of problem solving, coping and psychological distress: 1) the Personal Problem-Solving Evaluation; 2) the Student Stress Inventory/ Problem Specific Problem Solving Inventory; 3) the Coping Strategies Inventory; 4) the Brief Symptom Inventory; 5) the Modified Scale for Suicidal Ideation; 6) the General Well-Being Scale; and 7) the Zung Depression Inventory.

In session three, subjects were given the same inventories as in session two, with one addition. Subjects were randomly determined to receive either the Personal Problem Solving Evaluation or the Problem Solving Inventory for purposes of obtaining test-retest reliability. The design of the study is illustrated in Figure 1, to better illustrate the procedure.

After each session, subjects who met any of the following criteria were contacted immediately, briefly interviewed to determine their current mental state, and given referrals to the Student Counseling Services if warranted: 1) subjects who endorsed high levels of psychological distress on the Brief Symptom Inventory's (BSI) subscales or subjects who endorsed the items on the BSI pertaining to "thoughts of death or dying" or "having urges to beat, injure, or harm someone"; 2)

subjects who endorsed three or more items on the Zung Depression Scale as having been experienced "a good part of the time" or "most or all of the time"; or 3) subjects who scored three or higher on the Modified Scale for Suicidal Ideation.

-----

Insert Figure 1 about here

-----

### Measures

The subjects were given measures of coping style, interpersonal problem solving ability, health status, life stress, general well-being, psychological distress, depression, and suicidal ideation. Coping style was measured via the Coping Strategies Inventory (Tobin, Holroyd, & Reynolds, 1984). This inventory is a self-report instrument, based on the interview form of the Ways of Coping Scale (Folkman & Lazarus, 1980), wherein subjects are asked to endorse the ways that they coped with the "worst problem or stressor" of the past month..

Interpersonal problem solving ability was measured in three ways: 1) the subject's ability to solve hypothetical problems that she/he is given; 2) the subject's ability to solve the "worst problem or stressor" that she/he has faced in the past month; and



3) the subject's self-appraised problem-solving ability. The assessments which provide these measures, are, respectively: 1) The Personal Problem Solving Evaluation (Clum, 1991); 2) The Problem Specific Problem-Solving Inventory (Priester, 1993); and 3) The Problem Solving Inventory (Heppner & Petersen, 1982).

The number of visits to the Student Health Center was obtained from the Student Health Center, with the subjects' consent. Subjects were also asked to list the number of times that they visited off-campus physicians in the past month. However, only three subjects in the sample reported visiting off campus physicians during the time that this study was conducted, therefore this data was not included in any analyses. Life stress was measured in two ways, via the number of stressful life events which have occurred in the past year, and also through the subjects' self-appraised ratings of stress levels in six pre-specified levels. The number of stressful life events were measured with the Life Experiences Survey (Sarason, Johnson & Siegal, 1978) and the self-appraised stress level ratings were measured with the Student Stress Scale (Priester & Clum, 1993a).

Psychological distress was measured via the Brief Symptom Inventory (Derogatis, 1986). Specifically,

depressive symptoms were measured via the Zung (1965) and the subjects' level of suicidal ideation was assessed with the Modified Scale for Suicidal Ideation (Miller, Norman, Bishop & Dow, 1986). General well-being, a measure of positive psychological adjustment, was assessed with the General Well-Being Schedule (Fazio, 1977).

### **Dependent (Criteria) Variables**

Self-Rating Depression Scale (SDS; Zung, 1965). This inventory is a 20 item scale which assesses the affective, somatic, psychological and physical symptoms associated with depression. The items are presented in a four choice format, with half scored in the reverse direction. The subjects total score is divided by the total score (80) and expressed as a decimal. SDS scores can range from .25 to 1.0. This inventory possesses good discriminant validity, and is sensitive to changes in level of depression (Zung, 1965).

Modified Scale for Suicidal Ideation (MSSI; Miller, Norman, Bishop & Dow, 1986). This is an 18 item scale modified as a self-report instrument from the Scale for Suicidal Ideation (Beck, Kovacs & Weissman, 1979) to assess the level of suicidal ideation. Its scores have been shown to correlate with interview versions of the SSI, which has been shown to

have high internal consistency ( $KR-20 = .89$ ) as well as satisfactory levels of concurrent, discriminant and construct validity (Beck, Kovacs & Weissman, 1979).

Brief Symptom Inventory (BSI; Derogatis 1986) This is a 53 item questionnaire which is a shortened, validated version of the SCL-90 (Derogatis, 1986). Each item is scored on a 0 - 4 point range, in which the person indicates how much they have been distressed by a variety of psychological symptoms. There are 9 factors on the BSI: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Scores for each of these factors are obtained by getting the mean of the raw scores on each factor's items. There are three ways that global distress measures can be obtained from the BSI. In this study the General Severity Index (GSI) was chosen, due to the fact that Derogatis (1986) stated that it is the most sensitive of the global totals. The GSI is calculated by dividing the grand total of the subject's score on all of the items by 53. The GSI global score has a test-retest reliability of  $r = .90$  over a two week period. Internal consistency scores for the subscales of the BSI are high, ranging from .85 to .71 (Derogatis, 1986). The BSI was also found to exhibit

high convergent validity with the MMPI subscales. In addition, scores on the BSI correlate highly with scores on the SCL-90, suggesting that the decreased length does not compromise the inventory.

General Well-Being Schedule (GWB): This is a 39 item scale by Fazio (1977) designed to measure the subject's subjective rating of their well-being and distress. Its purpose in this study was to serve as a measure of positive adjustment. Fazio (1977) reported that the GWB scale has good test-retest reliability ( $r = .85$ , with three month interval) and good internal consistency ( $r = .912$  for males and  $r = .945$  for females). Fazio (1977) also found it to have good levels of discriminant validity, differentiating subjects who scored high vs. low on the MMPI depression subscale (Hathaway & McKinley, 1951), and the Zung Self-Rating Depression Scale (Zung, 1965).

Number of visits to Health Center With the subject's informed consent, the number of visits to the Student Health Center for illness or injury (not including activities such as vaccinations or allergy shots) were obtained from the Student Health Center staff.

#### **Independent (Predictor) Variables**

Coping Strategies Inventory (CSI; Tobin, Holroyd, & Reynolds, 1984). The CSI is a 72 item self-report questionnaire designed to assess thoughts and behaviors in response to stress. It is a self-report scale adapted from the Ways of Coping Questionnaire (Lazarus & Folkman, 1984), in which the subject is asked to endorse which coping strategies that they used to solve the "worst stressor or problem" that occurred during the past month. The CSI has been shown to have moderate to high levels of reliability, with alpha coefficients ranging from .71 to .94) & test retest reliabilities ranging from .49 to .65.

Problem Solving Inventory (PSI): This is a 35 item scale by Heppner (1986) designed to measure how the subject perceives his/her problem solving ability. Each item is set up using a six point scale, asking the subjects to indicate the extent to which they agree that the statement validly describes their problem solving ability. The PSI consists of three factors: Problem solving confidence, Approach/ Avoidance, and Personal control. A total score for the inventory can also be obtained. Higher scores indicate poorer self-appraised problem solving ability. Internal consistency of the PSI is high (alpha coefficient = .90), and test retest reliability (2 weeks apart) is also high ( $r =$

.89). The PSI was shown to have high concurrent validity with other problem solving measures and high divergent validity with measures of intelligence (Heppner & Petersen, 1982).

Personal Problem Solving Evaluation (PPSE; Clum, 1991) This inventory is a modified version of the MEPS (Platt & Spivack, 1975) which was designed to assess the subject's interpersonal problem solving ability for problems that college students might actually face during a semester. The hypothetical problems presented require either a problem focused solution or an emotion focused solution. Scores can be obtained from: the number of relevant alternatives (means), the number of irrelevant alternatives, the average number of pros and cons that the subject generates for each alternative, the number of emotion-focused alternatives, the number of outcome-focused alternatives, and the number of alternatives which are considered "antisocial". This category includes but is not limited to : hurting others, damaging property, cheating, lying, etc.

The PPSE is similar to a version of the MEPS used by Schotte & Clum (1987). Schotte & Clum reported that scores on their version of the MEPS correlated highly with scores on the original MEPS, which has been shown to have good construct, discriminant and concurrent

validity (Platt & Spivack, 1975). Data collected using the PPSE as a measure of problem solving ability has also supported the validity of this measure (Priester, Clum, Yang, Weaver, Curtin, & Canfield, 1993). The original MEPS has also been shown to have acceptable levels of test-retest reliability over 2 1/2 weeks ( $r = .59$ ), and high levels of internal consistency (KR 20 = .80 to .82). In this study, moderate levels of test-retest reliability were found over 2 months (total number of means,  $r = .62$ ; total number of relevant means,  $r = .61$ ; total number of irrelevant means,  $r = .39$ ; total average number of pros,  $r = .67$ ; total average number of cons,  $r = .60$ ; total outcome oriented means,  $r = .58$ ; total emotional means,  $r = .38$ ; total negative means,  $r = .48$ ; total asocial means,  $r = .43$ ). A subjective judgement is required to rate the alternatives on several dimensions, therefore, interrater reliabilities were computed for the subjective judgement measures on the PPSE. The interrater reliabilities were computed by taking a random sample of 20 inventories and having three trained research assistants each blindly rate a sample of 20 inventories which had already been rated by this author. The interrater reliabilities, for variables requiring subjective judgement, are listed in Table 1.

-----  
Insert Table 1 About Here  
-----

Problem Specific Problem Solving Inventory

(PSPSI; Priester, 1993) This inventory is another version of the MEPS (Platt & Spivack, 1975). It differs from the original MEPS and the Clum version of the modified MEPS in that it allows the subject to specify the problem that is to be solved in the inventory. The inventory asks the subject to solve the "worst stressor or problem" that has occurred during the past month. The desired solution was specified as "how the situation is resolved so that you (the subject) feel O.K. about the outcome". Scores on this inventory can be obtained from: the number of relevant alternatives (means), the number of irrelevant alternatives, and the average number of pros and cons that the subject generates for each alternative. Scores will also be obtained for the subjects' tendency to generate emotional vs. problem focused alternatives. This inventory is similar to a version of the MEPS used in a study by Priester & Clum (1993), which yielded moderate interrater reliabilities (for relevant means  $r = .76$ ; for irrelevant means  $r = .57$ ).

**Stress Measures**



Life Experiences Survey (LES; Sarason, Johnson, & Siegal, 1978) The LES is a 57 item questionnaire designed to measure stressful events that have occurred in the subjects' lives up to 12 months ago. It allows for an individualized rating of severity to be placed on the event (-3 to +3). Scores on the LES can be reported in several ways: the negative change score, the positive change score and the total change score. The negative change score was used in the analyses in this paper due to its success in the past (Priester & Clum, 1993a, 1993b) in predicting adjustment, as well as its indication by its authors that it is the most sensitive measure of life stress (Sarason, Johnson, & Siegal, 1978). This inventory has moderate test retest reliability ( $r=.64$ , after 5-6 weeks) and good construct validity (Sarason, et al., 1978).

Student Stress Scale (SSS; Priester & Clum, 1993c) This is a six item questionnaire designed to assess the subject's self-appraisal of the level of stress in six areas which are common to college students: 1) school problems; 2) boyfriend/girlfriend problems; 3) money problems; 4) family problems; 5) friendship problems; and 6) health problems. The inventory also allows the subject to list up to two problems in "other areas" which are stressful and to rate those areas as well.

The subjects are asked to endorse, and rate on a -3 to +3 scale, (the lower the number, the higher the perceived stress). A negative change score, which was calculated in the same way that the negative change score on LES is calculated, was obtained. The subjects were also asked to identify the "worst stressor or problem that has happened during the last month" and to rate this stressor on a -3 to +3 scale with a lower number indicating higher stress.

## Results

### Evaluation of data with regard to demographic variables

Using the demographic information obtained in the first testing session, the data were examined for systematic differences which could have occurred by virtue of group membership.

The sample was first split into two groups on the basis of gender, and it was found that males and females differed in problem solving skills as measured by the PPSE. Females generally exhibited better interpersonal problem solving on this inventory than did males. For example, at time 1, females generated more total alternatives ( $t = -2.13$ ,  $DP = 232$ ,  $p = .034$ ) and relevant alternatives ( $t = -4.21$ ,  $DP = 230$ ,  $p < .001$ ) than males while males furnished more irrelevant

alternatives ( $t = 3.67$ ,  $DP = 166$ ,  $p < .001$ ) and antisocial alternatives ( $t = 2.46$ ,  $DP = 157$ ,  $p = .02$ ) than females.

With regard to subject ethnicity, no significant differences were found between the five self-described ethnic groups on any of the measures.

-----  
Insert Table 2 About Here  
-----

#### Correlations among predictor variables

Correlations among the predictor variables are shown in Table 3. A key to the abbreviations used for each of the measures can be found in Table 2. The two methods of assessing problem solving skill with the PPSE and the PPSPI yielded many significant correlations in the expected directions.

-----  
Insert Table 3 About Here  
-----

The correlations between measures of problem solving on the PPSE and similar measures of problem solving on the PPSPI were of low to moderate degree intensity: 1) total number of alternatives one month later = .45, two months later = .49; 2) number of relevant alternatives one month later = .37, two months

later = .44; 3) number of irrelevant alternatives, one month later = .28, two months later = .15; 4) number of pros one month later = .48, two months later = .48, 5) number of cons one month later = .49, two months later = .43.

There were no significant correlations between problem solving skill measured via the PPSE and self-appraised problem solving ability as measured by the PSI. The few significant correlations between problem solving skill measured via the PSPSI and self-appraised problem solving ability were all below .14.

Correlations between measures of problem solving skill and coping style were nonsignificant with few exceptions. There were three significant correlations between coping style and problem solving skill measured via the PPSE, all lower than .13. Between coping style and problem solving skill measured via the PSPSI at time 2, there were also three significant correlations, all lower than .14. There were five significant correlations between coping style and problem solving skill on the PSPSI at time 3, again all lower than .14.

Problem solving self-appraisal and coping style appeared to be more strongly correlated to one another. There were several correlations between coping style at time 2 and PSI scores that were significant at  $p <$

.001: 1) PSI confidence - CSI emotional disengagement  $r = .21$ ; 2) PSI confidence - CSI total disengagement  $r = .23$ ; 3) PSI approach/avoidance - CSI problem engagement  $r = -.26$ ; 4) PSI approach/avoidance - CSI total engagement  $r = -.26$ ; 5) PSI personal control - CSI problem disengagement  $r = .21$ ; 6) PSI personal control - CSI emotional disengagement  $r = .27$ ; 7) PSI personal control - CSI total disengagement  $r = .29$ ; 8) PSI total score - CSI problem engagement  $r = -.24$ ; 9) PSI total score - CSI total engagement  $r = -.24$ ; 10) PSI total score - CSI problem disengagement  $r = .21$ ; 11) PSI total score - CSI emotional engagement  $r = .22$ ; 12) PSI total score - CSI total disengagement  $r = .25$ ;

Correlations between coping style at time 3 and PSI scores were significant as well, although not as high. Correlations significant at  $p < .001$  are as follows: 1) PSI personal control - CSI emotional disengagement  $r = .26$ ; 2) PSI personal control - CSI total disengagement  $r = .23$ ; 3) PSI total score - CSI emotional disengagement  $r = .21$ ; 2) PSI total score - CSI total disengagement  $r = .22$ .

#### Correlations between predictor and criterion measures

Next, correlations were calculated between predictor and criterion measures. The results of the correlation analysis of predictor and criterion

measures are shown in Table 4. Because of the large number of correlations performed, only correlations that proved significant at  $p < .01$  will be mentioned below.

-----  
Insert Table 4 About Here  
-----

Suicidal Ideation - MSSSI Score at Time 3. Two variables from the PPSE, are significantly correlated with the level of suicidal ideation at the end of the semester: 1) the number of irrelevant alternatives at time 1 with MSSSI score at time 3 ( $r = .17, p < .01$ ); and 2) the number of antisocial alternatives at time 1 with MSSSI score at time 3 ( $r = .24, p < .001$ ). No state problem solving variables from the PSPSI were found to be significantly correlated with level of suicidal ideation at the end of the semester.

With regard to coping style, as measured by the CSI, at time 3, the levels of problem focused disengagement, emotion focused disengagement, and total disengagement coping are significantly correlated with suicidal ideation level at the end of the semester (IPD3 with MSSSI3:  $r = .21, p < .001$ ; IPE3 with MSSSI3:  $r = .22, p < .001$ ; DIS3 with MSSSI3:  $r = .25, p < .001$ ).

Of the problem solving appraisal variables, as measured by the PSI, only the personal control factor was significantly correlated with the level of suicidal ideation at the end of the semester (PSIP1 with MSSSI3:  $r = .14, p < .05$ )

Both measures of stress correlated in the expected direction with MSSSI scores: LESNCS at time 1 with MSSSI:  $r = -.17, p < .05$ ; and SSS at time 3 with MSSSI:  $r = -.22, p < .05$ .

Depression - Zung score at Time 3. None of the problem solving variables on the PPSE were found to significantly correlate with Zung scores at time 3 at  $p < .001$ . Similarly, no state problem solving variables, as measured by the PSPSI, were significantly correlated with depression at the end of the term.

The coping strategy variables that were significantly correlated with Zung scores at time 3 again included the total disengagement coping scores as well as the two subfactors of disengagement coping, problem focused and emotion focused disengagement coping.

All of the self-appraised problem solving variables were found to significantly correlated with Zung scores at time 3 at  $p < .001$ . The highest

correlation was between PSI confidence and Zung at time 3 ( $r = .39, p < .001$ ).

Both measures of stress correlated well with Zung scores at time 3 in the expected direction. LES - Zung ( $r = -.35, p < .001$ ); SSS3 - Zung ( $r = -.40, p < .001$ ).

General Well Being - Time 2 and Time 3. None of the problem solving measures either on the PPSE or PSPSI were significantly correlated with general well-being at time 2 or time 3 at  $p < .001$ .

Problem disengagement, emotional disengagement and total disengagement coping at time 2 were all found to be significantly correlated with general well-being at time 2, and problem disengagement, emotional disengagement and total disengagement coping at time 3 were all significantly related to general well-being at time 3.

All of the self-appraised problem solving ability factor scores as well as the total score were significantly correlated with general well-being at time 2 and time 3. As may be expected, the correlations between self-appraised problem solving ability at time 1 and general well-being were lower at time 3 than at time 2.

Both stress measures were highly significant with general well being at time 2 and at time 3. Both



measures of stress were correlated in the expected direction.

Psychological distress - Time 2 and Time 3. The problem solving variables on the PPSE and PSPSI were not significantly correlated to psychological distress at time 2 or time 3 at  $p < .001$ .

Problem disengagement, emotional disengagement and total disengagement coping at time 2 were all significantly correlated with psychological distress at time 2, and problem disengagement, emotional disengagement and total disengagement coping at time 3 were all significantly related to psychological distress at time 3.

All of the measures of self-appraised problem solving ability, except PSI approach/avoidance were significantly correlated with psychological distress being at time 2 and time 3.

Stress measures were significantly correlated with psychological distress at time 2 and time 3 as well in the expected direction.

Health center visits - Time 2 and Time 3. None of the trait problem solving, state problem solving, self-appraised problem solving or coping variables were significantly correlated with student health center visits at time 2 or at time 3 at  $p < .001$ . Several

variables were correlated with these measures at higher p values.

### Multiple regression analyses

Data were next analyzed using multiple regression equations to test the independent contributions of predictors to each of the criteria variables. Using a hierarchical selection procedure with the p value entry level at .05, the main effects of the predictor variables were evaluated for each criterion variable. The procedure of the multiple regression procedure was as follows: 1) measures of the criterion variables at time 1 were forced into the equation to account for the subjects' initial levels of psychological distress; 2) gender, dummy coded as 1 or 0, was forced in to control for possible gender differences in the criterion variables; and 3) all other predictor variables were entered stepwise into the regression model if they met the  $p < .05$  threshold for entry into the model.

To evaluate the hypothesis that the predictor variables would interact with stress to predict each criterion, a different procedure was followed. First, the time 1 measures of the criterion variables were forced into the equation, then the measure of stress was forced into the model. Then the main effects of the predictor variables were entered into the model,

followed by all of the predictor x stress interactions which entered the model in a stepwise fashion if they met the  $p < .05$  criterion for entry. This procedure allows for a stringent and conservative test of the predictor x stress interaction terms.

The measure of stress that was used differed on the basis of whether or not the predictor variable being evaluated was postulated to be a state or trait variable. If the predictor variable being evaluated was postulated to be a trait variable, the LES negative change score was used as the measure of stress, due to the ability of the LES NCS to account for long-term stress. If the predictor variable being evaluated was postulated to be a state variable, the Student Stress Scale score was used as the measure of stress, due to the fact that the SSS asked the subjects to rate their level of stress in several areas in the past month only.

The tables which outline the regression analyses are organized according to the criterion variable predicted. Separate regression equations were computed for trait problem solving (PPSE), state problem solving (PSPSI), self-appraised problem solving ability (PSI) and coping strategies (CSI). Partial  $R^2$ , F values & p values are only shown for variables in significant

analyses. For each criterion variable, if a set of predictor variables could not account for a significant portion of variance, the predictor variable set is shown with a statement stating that this set of predictor variables or interactions were not significant for this criterion variable.

-----  
Insert Tables 5 and 6 About Here  
-----

Suicidal Ideation - MSSSI Score at Time 3. As shown in Tables 5 and 6, some of the variables measured were able to account for the level of suicidal ideation at the end of the semester, above and beyond the level of suicidal ideation at the start of the semester, fewer variables were able to account for suicidal ideation in interaction with stress level. With regard to trait problem solving variables, the number of irrelevant alternatives, as measured by the PPSE, was significantly related to suicidal ideation at time 3. The total score of the PSI, a self-appraised problem solving variable, was also a significant predictor of suicidal ideation. Finally, the level of problem-focused disengagement coping was a coping strategy variable which significantly related to suicidal ideation.

-----

Insert Tables 7 and 8 About Here

-----

Depression - Zung score at Time 3. The regression equations for this criterion variable are illustrated in Tables 7 and 8. Both trait problem solving and coping strategy variables were found to be significant predictors to depression level at time 3, they were: average number of cons on the PPSE at time 1, and level of disengagement coping on the CSI at time 3. There were also two self-appraised problem solving ability variables and one coping strategy variable found to be significant predictors of depression in interaction with stress level: 1) PSI approach/avoidance at time 1 x LES at time 1; 2) PSI total score at time 1 x LES at time 1; and 3) level of problem disengagement at time 3 x SSI score at time 3

-----

Insert Tables 9 and 10 About Here

-----

Psychological Distress - GSI score Time 2. Tables 9 and 10 illustrate the results of the regression equations using GSI score at Time 2 as the criterion. Two coping strategy variables were significantly

related to psychological distress at time 2: 1) total level of disengagement coping at time 2; and 2) total level of emotion-focused engagement coping at time 2. The total level of disengagement coping at time 2 x SSI score at time 2 was also significantly related to psychological distress at time 2.

-----  
Insert Tables 11 and 12 About Here  
-----

Psychological Distress - GSI at Time 3. As is shown in Tables 11 and 12, more predictors were significantly related to the GSI score at time 3 than to GSI score at time 2. Significant main effects included: 1) a trait problem solving variable, the average number of cons at time 1; 2) a state problem solving variable, total irrelevant alternatives at time 3; and 3) a coping strategy variable, total level of disengagement coping at time 3. There was one trait problem solving variable, one state problem solving variable, and one coping strategy variable which significantly interacted with stress to predict GSI scores at time 3. They are, respectively: 1) total number of alternatives on the PPSE at time 1 x LES at time 1; 2) the average number of cons on the PSPSI at

time 3 x SSI score at time 3; and 3) total level of disengagement coping x SSI.

-----  
Insert Tables 13 and 14 About Here  
-----

General Well Being - GWB score at Time 2. Tables 13 and 14 show that coping strategy variables were the only variables to significantly predict well being at time 2. There was a significant main effect of the total level of disengagement coping, and a significant interaction of the level of problem disengagement coping x SSI score.

-----  
Insert Tables 15 and 16 About Here  
-----

General Well Being - GWB score at Time 3. Regression equations using the GWB score at Time 3 as the criterion variable are summarized in Tables 15 and 16. A self-appraised problem solving ability variable the PSI personal control score at time 1, was significantly related to general well being at time 3, as were three coping strategy variables: 1) the level of emotion-focused disengagement at time 3, 2) the level of emotion-focused engagement at time 3, and 3) the total level of engagement coping at time 3. There

was one significant state problem solving variable interaction: the number of irrelevant alternatives at time 3 x SSI.

-----  
Insert Tables 17 and 18 About Here  
-----

Number of Visits to the Health Center - HCVIS Time

2. In Tables 17 and 18, results from the regression equations using the number of visits to the health center as the criterion are shown. The level of health care usage at time 2, proved to be one of the most difficult of the criterion variables to predict. The only significant predictor was a coping strategy interaction of the total level of disengagement coping at time 2 x SSI at time 2.

-----  
Insert Tables 19 and 20 About Here  
-----

Number of Visits to the Health Center - HCVIS Time

3. As shown in Tables 19 and 20, there was one significant state problem solving predictor of the level of health care usage at time 3, the number of relevant alternatives. There was also one significant coping strategy variable related to HCVIS at time 3: the level of emotion engagement coping at time 3. The



only interaction significantly related to HCVIS at time 3 was a trait problem solving variable: the average number of cons X LES.

-----  
Insert Table 21 About Here  
-----

Comparing the Trait Problem Solving, State Problem Solving, Self-Appraised Problem solving and Coping Strategy Variables. Regression analyses utilizing all of the predictor variables simultaneously to predict the various criteria variables are summarized in Table 21. For this analysis, the only variable to be forced into the regression equation was the time 1 measure of the criterion variable examined. Measures of stress were permitted to enter these analyses if they were significant at  $p < .05$ . Other variables significant at  $p < .05$  would then enter the regression equation in a stepwise fashion.

For suicidal ideation at time 3, significant predictors included: 1) level of problem disengagement coping at time 3, 2) PSI total score at time 1, and 3) number of irrelevant alternatives on the PPSE at time 1.

For depression level at time 3 the significant predictors included: 1) level of emotion-focused

disengagement coping at time 3, and 2) average number of cons on the PPSE at time 1.

With regard to predicting psychological distress at time 2, significant predictors included only coping strategy variables: total level of disengagement coping at time 2, and level of emotion focused engagement at time 2. For psychological distress at time 3 the significant predictors included: total level of disengagement coping at time 3, and average number of cons on the PPSE at time 1.

The only variable able to predict level of general well being at time 2 was total level of disengagement coping at time 2. Several significant variables were predictive of level of general well being at time 3: 1) level of emotion-focused disengagement coping at time 3; 2) level of emotion-focused engagement coping at time 3; 3) total level of engagement coping at time 3; and 4) PSI personal control factor.

Finally, the number of visits to the health center at time 2 was significantly predicted only by level of emotion-focused engagement coping at time 2. And the number of visits to the health center at time 3 also had only one significant predictor, the number of relevant alternatives on the PSPSI at time 3.

### **Discussion**

There has been little prior research attempting to integrate the areas of problem solving and coping. The purpose of this study was not only to empirically investigate the relationship of problem solving to coping as proposed by past researchers (Cox, 1987, D'Zurilla, 1990, Priester, 1993), but also to further test the problem solving stress-diathesis hypothesis (Schotte & Clum, 1982, 1987). Based on prior longitudinal research (Priester & Clum, 1993b) this study attempted to extend the problem solving stress-diathesis hypothesis by: 1) attempting to predict levels of psychological adjustment, two months in advance, by using scores on the PPSE and the PSI, 2) attempting to predict aspects of psychological adjustment such as self-reported psychological symptoms, general well-being, and health center usage, and 3) examining problem solving skill as well as self-appraised problem solving ability. Also, there were two methods of attempting to integrate the areas of problem solving and coping in this study: 1) problem solving was measured using a problem-specific format, which was first suggested by Folkman and Lazarus (1980) to measure coping; 2) problem solving and coping were analyzed together in a set of regression equations to determine the relative contribution of each of these

constructs in predicting a variety of criteria variables. Results from this study have partially supported the hypotheses forwarded.

Problem Solving Skill Variables. Results from the regression analyses partially support the first hypothesis of the current study. Problem solving skill was measured two ways in the present study: 1) at the start of the semester, using an inventory with hypothetical situations, relevant to a college population (PPSE), and 2) at each assessment point during the semester, using an inventory which asked the subject to solve their self-identified "worst problem" of the past month (PSPSI). Both methods of measuring problem solving yielded significant results, although they differed in their ability to account for variance in different criterion variables

It was found that problem solving skill level, as measured by the PPSE, had direct effects on levels of suicidal ideation and depression, two months later. Direct effects of problem solving skill on depression and suicidal ideation have also been found in a prior longitudinal study (Priester & Clum, 1993b). However, the current study also extends the Priester & Clum (1993b) findings in that problem solving skill level could predict levels of distress as long as two months

later, as opposed to a two week prediction in the Priester & Clum (1993b) study.

Additionally, the finding that the number of irrelevant alternatives on the PPSE was predictive of later suicidal ideation, and that the number of cons on the PPSE was significantly associated with depression in the current study was supportive of similar findings in past studies (Priester & Clum, 1993b, Schotte & Clum, 1987). In the present study it was also found that the number of cons on the PPSE was predictive of general psychological distress levels two months later. This is a new finding, in that no prior studies have attempted to relate interpersonal problem solving skills to this measure.

Although prior studies have found the number of relevant alternatives to be related to suicidal ideation and depression (Priester & Clum, 1993b; Schotte & Clum, 1987), the number of relevant alternatives was not found to be significantly related to any of the criterion variables in the present study. It may be that variables which measure the tendency for the person to distort the problem solving process i.e., number of irrelevant alternatives and the number of cons, are more important determinants of distress in

the long term, or for this relatively low level of suicidal ideation, depression and maladjustment.

There was also limited support for the stress-diathesis hypothesis, which states that problem solving variables measured by the PPSE should predict criterion variables in interaction with stress. The total number of alternatives on the PPSE in interaction with stress level was predictive of the level of psychological distress and visits to the health center. Since neither psychological distress nor health center usage have been used as criterion variables in past studies with problem solving, the ability of the PPSE to predict these aspects of adjustment is a new finding.

The present study found total number of alternatives, as a measure of problem solving skill, to be a significant predictor of psychological distress, as found in past studies (Priester & Clum, 1993b; Schotte & Clum, 1982, 1987). However, in contrast to past studies (Nezu & Ronan, 1988; Priester & Clum, 1993b; Schotte & Clum, 1982), the current study found no significant interactions between problem solving skill and stress level to level of suicidal ideation or depression. It is unclear why the problem solving stress-diathesis hypothesis was not supported by more problem solving x stress interactions in the current

study, however, there are some possible reasons. First, the stress measure that was used in the trait problem solving x stress interactions was the Life Experiences Survey (LES) (Sarason, et al., 1978) which assesses the occurrence of stressors in the 12 months prior to taking this survey. Because problem solving ability was measured at the same time as life stress, the LES measured stress which occurred prior to the assessment of problem solving ability. However, in a recent longitudinal study of problem solving ability and adjustment (Priester & Clum, 1993b) the measure of stress used occurred after the assessment of problem solving ability.

Nezu and Ronan (1988) found an interaction of the number of relevant alternatives x life stress over the past three months (as measured by the LES) to be significantly related to depression as measured three months later. However, Nezu and Ronan also interviewed a random sample of their subjects to ascertain the type and impact of stressful events that occurred between the initial testing session and the assessment of depression three months later and found a correlation between responses on this interview and scores on the LES to be  $r = .97$  ( $p < .001$ ). Correlations in the present study between LES scores and SSI scores which

essentially measured stress in several areas in the month prior to assessment to be  $r = .28$  ( $p < .001$ ). Therefore, it appears that even though Nezu and Ronan found an interaction between trait problem solving ability and distal life stress levels to be significant, for their sample the LES appeared to be an extraordinary indicator of more proximal life stress levels.

In the present study a new instrument was used to measure problem solving skill. The PPSE was used in the present study to measure trait problem solving ability, while prior studies had used modifications of the MEPS. Although the PPSE is based on the MEPS, it may not necessarily yield precisely identical results as the instruments used in prior studies. There is no data which indicate the magnitude of correlation between the PPSE and MEPS, although there is data attesting to the predictive validity of the PPSE (Priester, et al., 1993).

Also, the length of time in the current study, in which prediction was attempted, was significantly longer than the period of time elapsed in a prior longitudinal study (Priester & Clum, 1993b). It is possible, therefore, that the interactive effects of problem solving and stress on levels of depression or



suicidal ideation are only prominent when the time elapsed is brief. The main effects that were found in this study, may indicate that some deficits in solving problems will result in poor adjustment, even as long as two months following the initial assessment, regardless of the stress level being experienced. That is, if an individual has a poor ability to solve interpersonal problems, particularly a tendency to generate a high number of irrelevant alternatives and a high number of cons to possible alternatives, the level of stress one faces is irrelevant with regard to the genesis of depression and suicidal ideation.

It appears that measures of problem solving which seem to indicate that the problem solving process has gone awry or is biased in some fashion, i.e., a tendency to generate irrelevant or anti-social alternatives, were found to be related to psychological distress.

The results of the regression analyses for main effects of the interpersonal problem solving ability variables on the PSPSI also partially support hypothesis 1. An interesting finding was that the PSPSI was found to be predictive to different criteria variables than the PPSE. The only similarity was that

the PPSE and the PSPSI were both predictive of the level of psychological distress at time 3.

The fact that these two measures of problem solving account for different aspects of distress may lie in the differing methods of measuring problem solving skill in the two measures. The PPSE presents the subject with a series of hypothetical problems which are often experienced by college students (e.g., a breakup with a boyfriend/girlfriend, failure of an exam), and the subject is asked to provide methods of getting these problems resolved; this method of assessment may obtain a more generalized level of the subject's ability to solve problems. The PSPSI, on the other hand, asks the subject to indicate how he or she could solve the worst problem encountered over the past month; this is intended to result in a more problem-specific assessment of the subject's problem solving ability. Correlations between the PPSE and the PSPSI for similar variables ranged between .49 and .28, indicating that there only a moderate correlation between deficits in solving specific problems and generalized problem solving deficits.

Therefore, it may be that subjects with deficits in solving a wide range of problems on the PPSE may have difficulty solving a variety of dilemmas in their

lives. A generalized difficulty in solving problems may result in an individual feeling as though outcomes are not contingent upon his or her responses. When outcomes are not contingent upon a subject's responses, this has been shown to produce depressive symptoms (Hiroto & Seligman, 1975). Problem-specific problem solving deficits, on the other hand, may or may not be indicative of wide ranging deficits in problem solving, so problem specific problem solving deficits may therefore be less predictive of depression and depressive symptoms, i.e., suicidal ideation.

With regard to a secondary hypothesis of the current study, it appears that the PSPSI measures related, but slightly different aspects of problem solving skills than does the PPSE; this conclusion is supported by the moderate correlations between similar measures on the PSPSI and PPSE. Again, these moderate correlations between the PSPSI and the PPSE indicate that deficits in solving individual problems are not always indicative of generalized problem solving deficits. Generalized problem solving deficits appear predictive of more serious psychopathology, i.e., depression and suicidal ideation.

It is also important to note that the number of irrelevant alternatives on the PSPSI had a significant

interactive effect with level of stress to predict general well-being at time 3. The relationship of irrelevant alternatives x life stress to general well-being seems to indicate that a tendency to generate a high number of irrelevant means on the PSPSI can lead to a diminished feeling of well-being in times of high stress. The relationship between problem solving skills and well-being provides further evidence that poor problem solving skills are not necessarily linked only to depressive symptoms, but rather may predispose one to experience a variety of problems that result from an insidious deterioration of general well-being.

Self-Appraised Problem Solving Ability Variables.

Results from the regression analyses utilizing the self-appraised problem solving ability variables were, in part, supportive of the hypotheses forwarded. However, there were several noteworthy findings that bear further discussion. First, although self-appraised problem solving ability was found to be predictive of depression and suicidal ideation, as had been found in prior studies (Nezu & Ronan, 1988, Priester & Clum, 1993a), it was directly predictive of suicidal ideation, but predictive of depression only in interaction with level of life stress. Second, results from the current study provided initial evidence

suggesting that high self-appraised problem solving ability, specifically, a high level of perceived control over their problems, may augment one's sense of general well-being. And third, in contrast to prior studies which showed the PSI confidence factor to be the most predictive of adjustment, the current study found the PSI total score to be the most predictive, while the PSI confidence factor was not predictive of any measure of adjustment. These issues will be discussed more thoroughly below.

The results of the current and past studies indicate a complex relationship of self-appraised problem solving ability to suicidal ideation and depression. In one prior cross-sectional study, self-appraised problem solving ability was found to be predictive of level of suicidal ideation; however, self-appraised problem solving ability in interaction with stress was not found to be significantly predictive of suicidal ideation (Dixon, Heppner & Anderson, 1991). In two longitudinal studies, (Nezu & Ronan, 1988; Priester & Clum, 1993a) an interaction of self-appraised problem solving ability x stress has been found to predict suicidal ideation. Nezu and Ronan (1988) found an interaction of self-appraised problem solving ability x stress level to predict

suicidal ideation 3 months later. In the Priester & Clum (1993a) study, self-appraised problem solving ability in interaction with a discreet stressor, i.e., grade on a failed exam, was found to be predictive of later suicidal ideation, but an interaction between self-appraised problem solving ability and level of life stress in the past year was not predictive of later suicidal ideation (Priester & Clum, 1993a).

In an attempt to clarify the relationship of self-appraised problem solving ability to stress and suicidal ideation, Priester and Clum (1993a) hypothesized that only stressors which are relatively recent are moderated by problem solving appraisal in terms of their effect on adjustment. The Priester and Clum (1993a) hypothesis is only partially supported by results from the current study, because an interaction between distal life stress and self-appraised problem solving ability was found to predict later levels of depression in the current study.

Because the current study and two others (Nezu & Ronan, 1988; Priester & Clum, 1993a) have found self-appraised problem solving ability x stress interactions to be predictive of later depression, it seems reasonable to conclude that self-appraised problem solving fits Schotte & Clum's problem solving

diathesis-stress hypothesis with respect to depression. The relation of self-appraised problem solving ability to suicidal ideation is less clear. Given that all of the studies being considered have used college students who are generally low in their level of suicidal ideation, scores on measures of suicide may indicate more of a low intensity contemplation of suicide, rather than a suicidal crisis per se. It may be that those individuals with low self-appraised problem solving ability will almost always entertain the notion of suicide as an option to "solve" or escape their problems, but especially during times of acute stress. However, when these persons are under a high level of stress, low self-appraised problem solving ability can also further aggravate more chronic stressors and precipitate depressed mood.

With regard to the relationship of self-appraised problem solving and general well-being, the current study was the first to attempt to link self-appraised problem solving to a measure of positive adjustment. The current study found the PSI personal control factor to have a direct effect on level of general well-being at times 2 and 3, such that high levels of self-appraised problem solving ability, specifically a high sense of control over one's problems predicts a high

level of general well-being one and two months later. Although there has been no prior research dealing specifically with the personal control aspects of self-appraised problem solving, one study that may provide an explanation of the relationship between personal control aspects of problem solving and well-being found in the current study was conducted by Scheier, Weintraub and Carver (1986). Scheier, et al. found optimistic individuals to possess a realistic sense of control over interactions with their environment and to judiciously select coping strategies on the basis of how much control they felt they had. If the PSI personal control factor assesses the amount of control that one believes to have over one's self in a problematic situation, then it makes sense that those who believe they have a high level of control over themselves will likely cope better with stress and subsequently feel more of a sense of well-being.

The third noteworthy finding in terms of self-appraised problem solving ability pertains to the factors of the PSI that were most predictive of adjustment. In the current study, the PSI total score appeared to be the best predictor of suicidal ideation and depression and the PSI approach/ avoidance factor was also found to have an interactive effect with level



of stress on depression. The PSI confidence factor, which had been found to be the best predictor of adjustment in past cross-sectional and longitudinal studies (Dixon, Heppner & Anderson, 1991; Heppner, Cook, Strozier & Heppner, 1991; Priester & Clum, 1993a) was not found to be a significant predictor of any measure of psychological distress in the current study.

Although the PSI total score has been found to be predictive of depression in a past longitudinal study (Nezu & Ronan, 1988), these researchers used only the PSI total score and did not utilize the PSI factor scores in their analyses. Two studies which utilized PSI factor scores with the PSI total score in their analyses found the PSI problem solving confidence factor to be the only PSI variable significantly related to adjustment (Dixon, Heppner & Anderson, 1991; Priester & Clum, 1993a).

Why did the results of the current study differ from the results of Dixon et al. (1991) and Priester & Clum (1993a)? First, a close examination of the analysis procedures used in the Dixon et al. (1991) study reveals important differences from the current study. Dixon et al (1991), analyzed their sample with two regression equations. In the first analysis, the total score on the PSI was entered into the regression

equation first, followed by level of life stress, as measured by the LES, and finally the PSI total score x stress interaction. The PSI total score x stress interaction was found to be insignificant. In their second analysis, the PSI factor scores were simultaneously entered into the regression equation; the PSI total score was not entered into the equation. From this analysis, it was found that the PSI confidence factor was the only factor of the three to have a significant main effect to suicidal ideation and hopelessness.

If the Dixon, et al procedure would have been followed in the current study, PSI confidence would have likely been the most predictive of the three factors. That is, in the current study, PSI confidence was found to have a higher correlation than other PSI factors to most of the criterion variables. However, because of the longitudinal design and method of data analysis, the current study provides a much stricter test of the relationship of self-appraised problem solving ability to adjustment than does Dixon et al. (1991). In the current study, initial levels of adjustment were entered into the regression equation prior to the entrance of potential predictor variables; the amount of variance accounted for by the predictor

variance is variance above and beyond that accounted for by levels of initial adjustment.

In the second study, Priester and Clum (1993a) utilized a similar data analysis strategy, but utilized a different measure of stress and a shorter prediction interval than the current study. Priester and Clum (1993a) found the PSI confidence factor to be predictive of depression and suicidal ideation only in interaction with stress, as measured by a score on a psychology examination. They found no significant main effects, nor self-appraised problem solving ability x life stress interactions, when life stress was measured by the LES.

Given the extended length of time in which prediction was attempted, and the measure of stress used in the current study, it may be that the results from the current study add important information to the existing database. It may be that when subjects experience an acute stressor (i.e., failure of an exam), and anticipate that they may experience this stressor again soon (i.e., another examination in this course that can potentially be failed), problem solving confidence becomes the best determinant of adjustment. That is, if subjects' feel they do not possess adequate

resources to cope with this future anticipated stressor, depression and suicidal ideation may result. However, in the long term, when subjects have experienced a variety of stressful circumstances and there is not necessarily an acute stressor in the near future, it is possible that a measure of self-appraised problem solving ability, in toto, is better able to account for variance in adjustment, than merely problem solving confidence alone. It is clear, however, that additional studies need to be completed to adequately test the hypotheses forwarded here, and to better discern the complex relationships between self-appraised problem solving ability and adjustment.

Coping style variables. The results from the current study provide strong support for the hypothesis that the use of coping strategies which result in the subject disengaging or removing himself or herself from the problematic situation will be predictive of distress. This finding supports results from several prior cross-sectional studies (Coyne, Aldwin & Lazarus, 1981; Folkman & Lazarus, 1986, Folkman, et al., 1986; Folkman, Lazarus, Gruen, & DeLongis, 1986; Holahan & Moos, 1985; Kolenc, Hartley & Murdock, 1990, Leon, Ben-Porath & Hjembo, 1990) which have all documented an

association between various forms of disengagement and poor adjustment.

In this study, the total disengagement coping score on the CSI or a subfactor of disengagement coping on this instrument (e.g., emotion disengagement or problem disengagement) was found to directly predict all of the criterion variables in the current study, except the number of visits to the health center at time 2; this strong association between disengagement coping and measures of adjustment provides clear support for the structure of coping proposed by Tobin, Holroyd, Reynolds & Wigal (1989) in their factor analysis of the CSI. Tobin et al. (1989) proposed a hierarchical arrangement of coping strategies, with engagement and disengagement as the primary differentiator of coping strategies. In prior studies, the problem focused vs. emotion focused differentiation of coping strategies proposed by Lazarus and Folkman (1985), has been demonstrated to be a poor determinant of adjustment (Coyne, Aldwin & Lazarus, 1981; Folkman, et al., 1986; Folkman & Lazarus, 1984, 1986; Kolenc, Hartley & Murdock, 1990).

As also proposed in the current study, several interactive effects were found between disengagement coping and stress. For measures of adjustment such as

depression, general psychological distress, and health care usage, it appears that the level of disengagement coping moderates the effect of life stress, so that high levels of life stress are made even worse with high levels of disengagement coping.

However, the strong direct effects of disengagement coping indicates that if one uses a predominance of disengagement coping strategies, there will be negative effects on later adjustment regardless of how severe the stress level is. Additional support of the negative effects of disengagement coping is provided by results indicating that a high level of disengagement coping is associated with a lower sense of well-being at times 2 and 3. Interestingly, problem disengagement was a significant predictor of suicidal ideation, while emotional disengagement was a significant predictor of depression. Given that with problem disengagement coping an individual actively employs a behavior to disengage from his or her problematic situation, it makes sense that suicidal behavior would be associated with this form of coping.

With regard to a secondary hypothesis of the current study, the use of emotional engagement coping strategies was found to be a significant predictor of psychological distress, general well-being, and the

number of visits to the health center. The total level of engagement coping was also a significant predictor of general well being. However, contrary to hypotheses, higher levels of emotional engagement coping at time 2 were found to be related to levels of emotional distress at time 2. It was also found that higher levels of emotional engagement coping at time 3 were related to lower levels of general well-being and higher levels of health care usage at time 3.

From the results of the current study, it appears that using more emotional engagement strategies can at times lead to higher levels of psychological distress and physical symptomatology. If this is valid, why might this be the case? Although there is little research directly investigating the relationship of emotional engagement coping strategies and adjustment, there is some research indicating when the use of emotion focused coping strategies may be most and least helpful. This research indicates that the predominant use of emotion focused coping strategies to cope with stress is beneficial only when the stressor is actually uncontrollable (Cobiella, Mabe & Forehand, 1990; Forsythe & Compas, 1987; Kolenc, Hartley & Murdock, 1990).

If some subjects in our sample appraised stressors as uncontrollable that were actually controllable, then it is possible that the emotional engagement coping strategies used did not adequately solve the problem and may have ultimately resulted in an ineffective amelioration of psychological distress and subsequently poor adjustment. It is clear, however, that further research should be focused on exploring the beneficial aspects of engagement coping, and perhaps further refining the CSI.

Comparison of trait problem solving, state problem solving, problem solving appraisal and coping style.

For suicidal ideation at time 3, interpersonal problem solving ability, self-appraised problem solving ability and coping style simultaneously occur as predictors of this variable. In addition there are several criterion variables in which interpersonal problem solving ability and coping style or self-appraised problem solving ability and coping style both occur in a regression equation. Because of this the results of the present study are in support of hypothesis 4. The fact that for several variables, both problem solving variables and coping style variables accounted for separate portions of the variance, supports the



hypothesis made by Priester (1993) that problem solving and coping were separate parts of the same process.

Self-appraised problem solving ability and problem specific problem solving ability both appeared to be relatively weaker predictors of later distress than coping style or trait problem solving ability. In the current study, only well-being at time 3 was predicted by the personal control factor of self-appraised problem-solving ability, when coping style was already entered into the equation. With regard to state problem solving ability, the only variable that was predictive of adjustment was a low number of relevant means at time 3 to the number of visits to the health center at time 3.

Part of the reason why coping style may be most significant because of the way in which coping style was measured in this study. As discussed in the method section, trait problem solving and self-appraised problem solving ability are assessed prospectively, prior to the distress measures, while state problem solving ability and coping style are assessed concurrently with distress measures and are retrospective. This concurrent measurement and retrospective focus may allow an "unfair advantage" to

the coping strategy and state problem solving variables.

The finding that problem disengagement coping, the total self-appraised problem solving score on the PSI and the number of irrelevant alternatives on the PPSE were found to be significant predictors of suicidal ideation in the present study, appears to support the contention forwarded by Clum and his colleagues, that suicide represents a solution, albeit a poorly chosen one, to a problem. The current study has shown at least three pathways through which individuals contemplate suicide: 1) via an inability to generate relevant solutions to a problem and therefore remaining "stuck" in their problematic situations; 2) via a desire to actively do something to quickly remove themselves from the problematic situation; and 3) as an alternative when they feel incapable to solve problematic situations that they may face.

Theoretical implications of an integrative model of trait problem solving, state problem solving, problem solving appraisal and coping style. Earlier reviews of the literature conducted by several researchers (Cox, 1987; D'Zurilla, 1990; Priester, 1993) have concluded that coping strategy researchers and problem solving researchers are both focused on

delineating the components of successfully resolving and/or accommodating to stressful circumstances.

Priester (1993) after reviewing and integrating the empirical literature further hypothesized that problem solving skill, self-appraised problem solving and the selection of coping strategies are separate conceptual entities which account for different portions of variance in post-stress adjustment. The present study adds strong support for the hypothesis made by Priester (1993).

The results from the present study adds empirical support to attempt to resolve several controversies in the literature. First, Heppner and his associates have stated that the assessment of problem solving skills via hypothetical situations given to the subject, i.e., the method in the MEPS and PPSE is an ineffective method of assessing problem solving ability because it may lack external validity (Heppner & Petersen, 1982). Heppner and his associates forwarded the PSI as an instrument which could assess interpersonal problem solving ability in a more parsimonious and externally valid manner. However, research conducted by Clum and his colleagues, including the present study, indicate that the MEPS and the PPSE have external validity and that assessing problem solving skill in this fashion

yields results which account for a different portion of variance in adjustment than does self-appraised problem solving ability.

Second, the results from the present study appear to also support a model of problem solving proposed by D'Zurilla and Nezu (1990). This model of problem solving ability differentiates interpersonal problem solving into two components: problem orientation and problem solving skill. It appears that the results from the present study support the contention made by D'Zurilla & Nezu that these two components of problem solving are separate and distinct. That is, D'Zurilla & Nezu's description of the problem orientation component of problem solving appears to most closely represent the construct assessed by the PSI, and the problem solving skills component appears to be adequately measured by the PPSE.

Third, there is a difference between coping style and problem solving skill. The correlations between problem solving skill and coping style were low, ranging from .002 to .13. In regression equations in which both coping style variables and problem solving skill variables were both entered, problem solving skill and coping style both accounted for separate

parts of variance in suicidal ideation, depression, and psychological distress.

Self-appraised problem solving ability and coping style appear less distinct, but still appear to be separate parts of the process of ameliorating problems. Correlations between self-appraised problem solving ability and coping style were in the low to moderate range, from  $-.01$  to  $.29$ . Also, these two variable groups accounted for different parts of variance in only one of the criterion variables: general well-being at time 3. Results from the present study may indicate that the way one feels about his/her ability to solve problems may have some effect on the strategies he/she uses to cope with stress.

Finally, results from the present study support the idea that there are "trait" diatheses, i.e., problem solving ability and problem solving appraisals which can account for variance in adjustment months later. The results from this study do not lend support the contention forwarded by Lazarus & Folkman (1984) that methods of resolving or accommodating to stressors are idiosyncratically determined and therefore must be assessed separately for each stressor.

Limitations and directions for future studies. The most obvious limitation of the current study is the

subject population. As has been noted with many studies in the area of problem solving, young, late adolescent/young adult college students do not necessarily represent the population as a whole. A great majority of the subjects were, by and large, reporting a dearth of psychological symptomatology.

Although the measures of life stress used in this study were tailored to the types of stressors which are relevant to a college population, it is possible that this population has not experienced a great deal of stress or loss and that life changes are relatively stable during the semester. As an example of how this population may have not experienced the range of stressors of the general populace, there were few subjects who reported health problems or deaths of family members. Therefore, the results of this study should be extrapolated to other groups with much higher levels of stress only with extreme caution.

This study was based primarily on self-report measures of adjustment, problem solving ability and coping ability. Although, the PSPSI and PPSE are behavioral samples of one's problem solving ability. For the self-report inventories, care must be taken to not interpret self-reported depressive symptoms as depression as a diagnostic entity per se. Self-

reported behavior does not necessarily correspond to actual behavior.

It is hoped that future studies continue to explore the hypotheses forwarded by the present study, utilizing a more heterogeneous population. It is also important to know the precise ways that individuals in a clinical population cope differently than those in a general population. It is also recommended that future studies include more observable measures of distress, in addition to self report measures, and focus on beneficial effects of adaptive problem solving ability and coping strategies.

## REFERENCES

- Beck, A.T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: the Hopelessness Scale. Journal of Consulting and Clinical Psychology, 42, 862-865.
- Billings, A. G. & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. Journal of Behavioral Medicine, 4, 139-157.
- Billings, A. G. & Moos, R. H. (1984). Coping, stress and social resources among adults with unipolar depression. Journal of Personality and Social Psychology, 46, 877-891.
- Bonner, R. L. & Rich, A. R. (1987). Toward a predictive model of suicidal ideation and behavior: some preliminary data in college students. Suicide and Life-Threatening Behavior, 17, 50-63.
- Bonner, R. L. & Rich, A. R. (1988). Negative life stress, social problem-solving self appraisal and hopelessness: implications for suicide research. Cognitive Therapy and Research, 12, 549-556.
- Clum, G. A. (1991). The Personal Problem Solving Evaluation (PPSE). Unpublished Instrument.
- Clum, G. A., Patsiokas, A. T., & Luscomb, R. L. (1979). Empirically based comprehensive treatment program for parasuicide. Journal of Consulting and Clinical Psychology, 47, 937-945.
- Cobiella, C. W., Mabe, P. A., & Forehand, R. L. (1990). A comparison of two stress-reduction treatments for mothers of neonates hospitalized in a neonatal intensive care unit. Child Health Care, 19(2), 93-100.
- Cox, T. (1987). Stress, coping and problem solving. Work and Stress, 1, 5-14.
- Cox, T., Thirlaway, M., Gotts, G., & Cox, S. (1983). The nature and assessment of general well-being. Journal of Psychosomatic Research, 27, 353-359.
- Coyne, J. C., Aldwin, C., & Lazarus, R. S. (1981). Depression and coping in stressful episodes. Journal of Abnormal Psychology, 90, 439-447.



- Derogatis, L. R. (1986). Scoring package and manual for the Brief Symptom Inventory. Philadelphia.
- Dixon, W. A., Heppner, P. P., & Anderson, W. P. (1991). Problem solving appraisal, stress, hopelessness, and suicidal ideation in a college population. Journal of Counseling Psychology, 38, 51-56.
- D'Zurilla, T. J. (1990). Problem-solving training for effective stress management and prevention. Journal of Cognitive Psychotherapy: An International Quarterly, 4, 327-354.
- D'Zurilla, T. & Goldfried, M. (1971). Problem-solving and behavior modification. Journal of Abnormal Psychology, 78, 107-126.
- D'Zurilla, T. J. & Nezu, A. M. (1990). Development and preliminary evaluation of the social problem-solving inventory. Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2, 156-163.
- D'Zurilla, T. J. & Sheedy, C. F. (in press). The relation between social problem-solving ability and subsequent level of psychological stress in college students. Journal of Personality and Social Psychology.
- Fazio, A. F. (1977). A concurrent validation study of the NCHS General Well-Being Schedule. Vital and Health Statistics - Series 2, 73, 1-53.
- Folkman, S. & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. Journal of Health and Social Behavior, 21, 219-239.
- Folkman, S. & Lazarus, R. S. (1986). Stress processes and depressive symptomatology. Journal of Abnormal Psychology, 95, 107-113.
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping and encounter outcomes. Journal of Personality and Social Psychology, 50, 992-1003.
- Folkman, S., Lazarus, R. S., Gruen, R. J., & DeLongis, A. (1986). Appraisal, coping, health status and psychological symptoms. Journal of Personality and Social Psychology, 50, 571-579.

- Forsythe, C. J. & Compas, B. E. (1987). Interaction of cognitive appraisals of stressful events and coping: Testing the goodness of fit hypothesis. Cognitive Therapy and Research, 11, 473-485.
- Goldstein, A. M. (1980). The "uncooperative" patient: Self-destructive behavior in hemodialysis patients. In N.L. Farberow (Ed.), The many faces of suicide: Indirect self-destructive behavior. New York, McGraw-Hill.
- Gotlieb, I. H. & Asarnow, R. F. (1979). Interpersonal and impersonal problem-solving skills in mildly and clinically depressed university students. Journal of Consulting and Clinical Psychology, 47, 86-95.
- Hathaway, S., & McKinley, C. (1951). Minnesota Multiphasic Personality Inventory. New York: The Psychological Corporation.
- Heppner, P. P. (1986). Manual for the Problem Solving Inventory. Columbia, MO: U. of Missouri, Columbia.
- Heppner, P. P. & Anderson, W. P. (1985). The relationship between problem-solving self appraisal and psychological adjustment. Cognitive Therapy and Research, 9, 415-427.
- Heppner, P. P., Cook, S. W., Strozier, A. L., & Heppner, M. J. (1991). An investigation of coping styles and gender differences with farmers in career transition. Journal of Counseling Psychology, 38, 167-174.
- Heppner, P. P. & Petersen, C. H. (1982). The development and implications of a personal problem-solving inventory. Journal of Counseling Psychology, 29, 66-75.
- Heppner, P. P., Reeder, B. L., & Larson, L. M. (1983). Cognitive variables associated with personal problem solving appraisal: implications for counseling. Journal of Counseling Psychology, 30, 537-545.
- Hiroto, D. S., & Seligman, M. E. P. (1975). Generality of learned helplessness in man. Journal of Personality and Social Psychology, 31(2), 311-327.

- Katz, J. J., Weiner, H., Gallagher, T. G., & Hellman, L. (1970). Stress, distress, and ego defenses. Archives of General Psychiatry, 23, 131-142.
- Kolenc, K. M., Hartley, D.L., & Murdock, N. L. (1990) The relationship of mild depression to stress and coping. Journal of Mental Health Counseling, 12, 76-92.
- Lazarus, R. S. & Folkman, S. (1984). Stress, Appraisal, and Coping. New York: Springer.
- Larson, L. M., Piersel, W. C., Imao, R. A. K, & Allen, S. J. (1990). Significant predictors of problem-solving appraisal. Journal of Counseling Psychology, 37, 482-490.
- Leon, G. R., Ben-Porath, Y. S., Hjembo, S. (1990). Coping patterns and current functioning in a group of vietnam and vietnam era nurses. Journal of Social and Clinical Psychology, 9, 334-353.
- McLeavey, B. C., Daly, R. J., Murray, C. M., O'Riordan, J., & Taylor, M. (1987). Interpersonal problem-solving deficits in self-poisoning patients. Suicide and Life Threatening Behavior, 17, 33-49.
- Miller, I. W., Norman, W.H., Bishop, S. B., & Dow, M.G. (1986). The modified scale for suicidal ideation: reliability and validity. Journal of Consulting and Clinical Psychology. 5, 724-725.
- Mitchell, R. E., Cronkite, R. C., & Moos, R. H. (1983) Stress, coping and depression among married couples. Journal of Abnormal Psychology, 92, 433-448.
- Nezu, A. M. (1985). Differences in psychological distress between effective and ineffective problem solvers. Journal of Counseling Psychology, 32, 135-138.
- Nezu, A. M. (1986). Cognitive appraisal of problem solving effectiveness: relation to depression and depressive symptoms. Journal of Clinical Psychology, 42, 42-48.
- Nezu, A. M. & Ronan, G. F. (1985). Life stress, current problems, problem solving, and depressive symptoms: an integrative model. Journal of Consulting and Clinical Psychology, 53, 693-697.

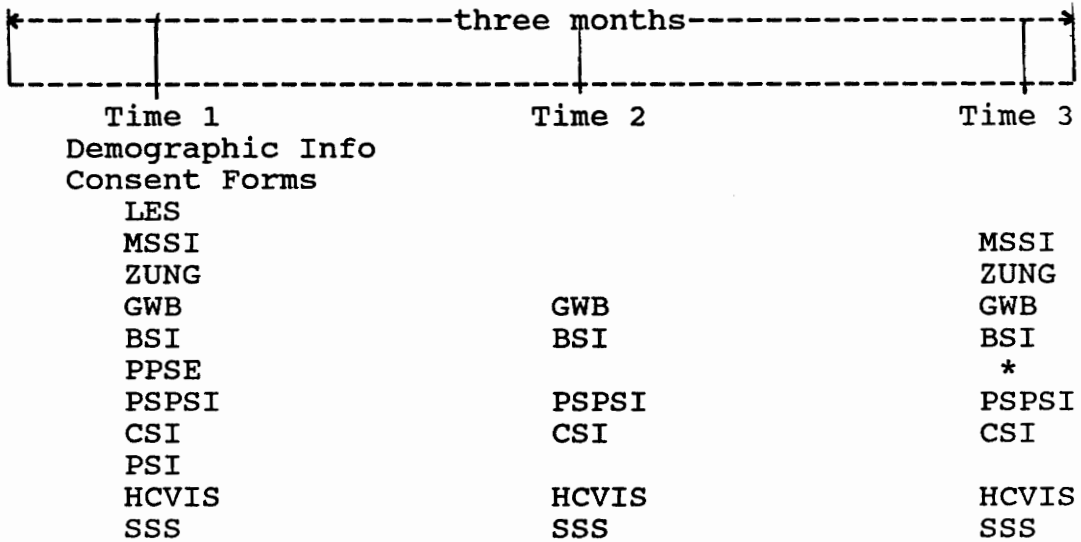
- Nezu, A. M., Nezu, C. M., Saraydarian, L., Kalmar, K., & Ronan, G. F. (1986). Social problem solving as a moderating variable between negative life stress and depressive symptoms. Cognitive Therapy and Research, 10, 489-498.
- Nezu, A. M. & Ronan, G. F. (1988). Social problem solving as a moderator of stress-related depressive symptoms: a prospective analysis. Journal of Counseling Psychology, 35, 134-138.
- Orbach, I., Bar-Joseph, H. & Dror, N. (1990). Styles of problem solving in suicidal individuals. Suicide and Life-Threatening Behavior, 20, 56-64.
- Patsiokas, A. T., Clum, G. A., & Luscomb, R. L. (1979). Cognitive characteristics of suicide attempters. Journal of Consulting and Clinical Psychology, 47, 478-484.
- Pearlin, L. I. & Schooler, C. (1978). The structure of coping. Journal of Health and Social Behavior, 19, 2-21.
- Platt, J. & Spivack, G. (1972). Problem-solving thinking of psychiatric patients. Journal of Consulting and Clinical Psychology, 28, 3-5.
- Platt, J. & Spivack, G. (1975). Manual for the Means Ends Problem Solving scale: A measure of interpersonal problem solving skill. Philadelphia: Hahnemann Medical College, Department of Mental Health Science, Hahnemann University.
- Priester, M. J. (1993). An analysis of the process of coping with stress: integrating problem solving with coping. Unpublished manuscript.
- Priester, M. J. & Clum, G. A. (1993). The Problem Specific Problem Solving Inventory (PSPSI). Unpublished Instrument.
- Priester, M. J. & Clum, G. A. (1993). The Student Stress Inventory (SSI). Unpublished Instrument.
- Priester, M. & Clum, G. A. (1993a) Perceived problem-solving ability as a predictor of depression, hopelessness and suicidal ideation in a college population. Journal of Counseling Psychology, 40, 79-85.

- Priester, M. & Clum, G. A. (1993b). The problem solving diathesis in depression, hopelessness, and suicide ideation: a longitudinal analysis. Journal of Psychopathology and Behavioral Assessment
- Priester, M. J., Clum, G. A., Yang, B., Weaver, T. L., Curtin, L., & Canfield, D. (1993). Comparing suicidal and nonsuicidal college students on level of stress, self-appraised problem solving ability and hopelessness. Paper presented at the annual convention of the Southeast Psychological Association, Atlanta, GA.
- Sarason, I. G., Johnson, J. H., & Siegal, J. M. (1978). Assessing the impact of life changes: development of the life experiences survey. Journal of Consulting and Clinical Psychology, 46, 932-946.
- Scheier, M. F., Weintraub, J. K., & Carver, C. S. (1986). Coping with stress: divergent strategies of optimists and pessimists. Journal of Personality and Social Psychology, 51, 1257-1264.
- Schotte, D. E. & Clum, G. A. (1982). Suicide ideation in a college population: a test of a model. Journal of Consulting and Clinical Psychology, 50, 690-696.
- Schotte, D. E. & Clum, G. A. (1987). Problem-solving skills in suicidal psychiatric patients. Journal of Consulting and Clinical Psychology, 55, 49-54.
- Schotte, D. E., Cools, J., & Payvar, S. (1990). Problem solving deficits in suicidal patients: trait vulnerability or state phenomenon? Journal of Consulting and Clinical Psychology, 58, 562-564.
- Spirito, A., Brown, L., Overholser, J., & Fritz, G. (1989). Attempted suicide in adolescence: a review and critique of the literature. Clinical Psychology Review, 9, 335-369.
- Spirito, A., Overholser, J., & Stark, L.J. (1989) Common problems and coping strategies II: findings with adolescent suicide attempters. Journal of Abnormal Child Psychology, 17, 213-221.
- Tobin, D. L., Holroyd, K. A., Reynolds, R. V., & Wigal, J. K. (1989). The hierarchical factor structure of the coping strategies inventory. Cognitive Therapy and Research, 13, 343-361.

Zemore, R., & Dell, L. W. (1983). Interpersonal problem solving skills and depression-proneness. Personality and Social Psychology Bulletin, 9(2), 231-235.

Zung, W. (1965). A self-rating depression scale. Archives of General Psychiatry, 12, 63-70.

**Figure 1  
Overview of Study**



\* - indicates that a random sample of subjects took this inventory for purposes of test-retest reliability

**KEY:**

- BSI = Brief Symptom Inventory
- CSI = Coping Strategies Inventory
- GWB = General Well-Being Schedule
- HCVIS = Number of visits to campus health center as reported by health center staff
- LES = Life Experiences Survey
- MSSI = Modified Scale for Suicidal Ideation
- PPSE = Personal Problem Solving Evaluation
- PSI = Problem Solving Inventory
- PSPSI = Problem Specific Problem Solving Inventory
- SSS = Student Stress Scale
- ZUNG = Self-Rating Depression Scale

**Table 1**  
**Interrater Reliabilities for Subjective Measures on the**  
**PPSE with Rater 1**

N = 20

<u>MEASURE</u>	<u>Rater 2</u>	<u>Rater 3</u>	<u>Rater 4</u>
Relevant Means	.97	.93	.98
Irrelevant Means	.88	.98	.61*
Antisocial Means	1.00	.99	.93

**Note: All correlations are significant to  $p < .001$  except when marked.**

**\*correlation significant to  $p = .02$**



**Table 2**  
**Key to Variable Nomenclature**

<b>ABBREVIATION</b>	<b>DEFINITION</b>
<b><u>Predictor Measures</u></b>	
<b><u>TRAIT PROBLEM SOLVING VARIABLES</u></b>	
TOTALT	- total number of alternatives from the PPSE
TOTREL	- number of relevant alternatives from the PPSE
TOTIRR	-number of irrelevant alternatives from the PPSE
TOTAVPR	- average number of pros from the PPSE
TOTAVCN	- average number of cons from the PPSE
TOTASC	-number of antisocial alternatives from the PPSE
<b><u>STATE PROBLEM SOLVING VARIABLES</u></b>	
PSTM	- total number of alternatives from the PSPSI
PSRM	- number of relevant alternatives from the PSPSI
PSIM	- number of irrelevant alternatives from the PSPSI
AVECON	- average number of cons from the PSPSI
AVEPRO	- average number of pros from the PSPSI
<b><u>COPING STRATEGY VARIABLES</u></b>	
IPE	- problem engagement coping score from the CSI
IEE	- emotion engagement coping score from the CSI
ENG	- total engagement coping score from the CSI
IPD	- problem disengagement coping score from the CSI
IED	- emotion disengagement coping score from the CSI
DIS	- total disengagement coping score from the CSI
<b><u>SELF APPRAISED PROBLEM SOLVING ABILITY VARIABLES</u></b>	
PSIC	- Problem Solving Confidence factor from the PSI
PSIA	- Approach/Avoidance factor from the PSI
PSIP	- Personal Control factor from the PSI
PSIT	- Total score from the PSI
<b><u>STRESS MEASURES</u></b>	
LESNCS	- Negative Change Score from the LES
SSS	- Total Score from the Student Stress Inventory
<b><u>Criteria Variables</u></b>	
MSSI	- total score from the MSSI
ZUNG	- score from the Self-Rating Depression Scale
GWB	- total score from the General Well-Being Schedule
GSI	- General Severity Index from the BSI
HCVIS	- number of visits to the campus health center as reported by health center staff

**(NUMERICAL SUFFIX: 1 = Time 1; 2 = Time 2; 3 = Time 3)**

**Table 3**  
**Intercorrelations Among Predictor Measures**

N= 224

	TOTALT1	TOTREL1	TOTIRR1	TOTAVPR1	TOTAVCN1
TOTALT1	1.00				
TOTREL1	.88**	1.00			
TOTIRR1	.25**	-.22**	1.00		
TOTAVPR1	.23**	.17*	.11	1.00	
TOTAVCN1	.13#	-.01	.30**	.61**	1.00
TOTASC1	.08	-.16*	.48**	.09	.16*
LESNCS	-.07	-.03	-.10	-.002	-.07
PSTM2	.45**	.37**	.17*	.11	.15#
PSRM2	.33**	.37**	-.06	-.001	-.02
PSIM2	.12	-.02	.28**	.13#	.21**
AVECON2	.11	-.02	.27**	.38**	.49**
AVEPRO2	.14#	.07	.15#	.48**	.30**
PSTM3	.49**	.44**	.11#	.06	.11#
PSRM3	.41**	.41**	.01	-.02	-.02
PSIM3	.07	-.01	.15*	.08	.14#
AVECON3	.14	.02	.26**	.29**	.43**
AVEPRO3	.11	.08	.07	.48**	.40**
IPE2	.05	.05	.01	-.01	-.06
IEE2	.04	.08	-.09	-.005	-.11#
ENG2	.06	.08	-.06	-.01	-.11#
IPD2	-.07	-.05	.002	-.03	-.002
IED2	-.09	-.09	.04	-.08	.01
DIS2	-.10	-.09	.02	-.07	.01
IPE3	.02	.02	-.004	.13#	.11
IEE3	.10	.10	-.03	.06	-.04
ENG3	.07	.08	-.02	.11	.03
IPD3	.03	.04	-.01	.01	-.02
IED3	.02	.01	.02	-.02	.05
DIS3	.03	.03	.01	-.01	.02
PSIC1	.04	.08	-.07	-.11	-.02
PSIA1	.03	.03	-.01	.09	.03
PSIP1	-.03	-.01	-.03	-.04	.01
PSIT1	.03	.05	-.05	-.002	.01
SSS2	.02	.03	-.02	.04	.02
SSS3	-.01	-.02	.01	.07	.06

NOTE: #:  $p < .05$  \*:  $p < .01$  \*\*:  $p < .001$

**Table 3 - Continued**  
**Intercorrelations Among Predictor Measures**

N= 224

	TOTASC1	LESNCS	PSTM2	PSRM2	PSIM2	AVECON2
TOTASC1	1.00					
LESNCS	-.11	1.00				
PSTM2	.11#	-.20*	1.00			
PSRM2	.01	-.18*	.65**	1.00		
PSIM2	.12#	-.03	.35**	-.47**	1.00	
AVECON2	.12#	-.15#	.11#	-.04	.18*	1.00
AVEPRO2	.07	-.01	.20*	.11#	.10	.52**
PSTM3	-.04	-.10	.50**	.31**	.21**	.18*
PSRM3	-.17*	-.04	.32**	.26**	.07	.02
PSIM3	.17*	-.05	.22**	.06	.17*	.20**
AVECON3	.16*	-.13#	.10	.02	.10	.50**
AVEPRO3	.004	-.05	.07	.01	.09	.44**
IPE2	-.02	.03	.13#	.09	.04	-.07
IEE2	-.10	-.09	.10	.04	.06	-.05
ENG2	-.08	-.05	.14#	.08	.07	-.08
IPD2	-.04	-.26**	.10	.05	.07	.09
IED2	-.03	-.11	.01	.07	-.07	-.03
DIS2	-.04	-.21**	.06	.07	.01	.03
IPE3	-.09	-.02	.05	.03	.01	.12#
IEE3	-.02	-.09	.08	.00	.08	-.01
ENG3	-.06	-.07	.09	.02	.06	.06
IPD3	-.05	-.15#	.05	-.04	.11	.04
IED3	-.01	-.18*	.02	.07	-.04	.01
DIS3	-.03	-.19*	.03	.02	.02	.03
PSIC1	-.06	-.15*	.10	.14#	-.06	.003
PSIA1	-.02	-.14#	.06	.03	.02	.08
PSIP1	-.03	-.14#	-.06	.01	-.09	.09
PSIT1	-.04	-.17*	.07	.08	-.03	.06
SSS2	-.02	.28**	-.09	-.03	-.05	-.03
SSS3	-.03	.28**	-.09	-.07	-.03	.01

NOTE: #:  $p < .05$  \*:  $p < .01$  \*\*:  $p < .001$

**Table 3 - Continued**  
**Intercorrelations Among Predictor Measures**

N= 224

	AVEPRO2	PSTM3	PSRM3	PSIM3	AVECON3	AVEPRO3
AVEPRO2	1.00					
PSTM3	.15*	1.00				
PSRM3	.09	.75**	1.00			
PSIM3	.08	.27**	-.39**	1.00		
AVECON3	.39**	.09	-.12#	.31**	1.00	
AVEPRO3	.58**	.13#	.12#	-.01	.54**	1.00
IPE2	.01	.06	.13#	-.12#	-.10	.03
IEE2	-.04	-.03	-.01	-.03	-.05	.02
ENG2	-.02	.01	.07	-.09	-.09	.03
IPD2	-.01	-.001	.05	-.09	.08	.04
IED2	.03	-.02	.06	-.12#	-.03	-.04
DIS2	.01	-.01	.07	-.13#	.02	.01
IPE3	.05	.01	.08	-.10	-.03	.11#
IEE3	-.02	.01	-.06	.10	-.03	.04
ENG3	.01	.01	.001	.01	-.03	.09
IPD3	-.04	.08	.07	.04	.14#	.09
IED3	.01	.08	.09	.01	.08	.04
DIS3	-.02	.09	.09	.03	.12#	.07
PSIC1	.05	.11	.13#	-.02	.03	-.05
PSIA1	.10	.08	.06	.03	.08	.11
PSIP1	.01	.10	.11	.01	-.01	-.01
PSIT1	.08	.11#	.10	.01	.06	.04
SSS2	.02	.02	.05	-.03	-.10	.004
SSS3	.04	-.04	-.05	.00	-.05	.02

NOTE: #:  $p < .05$  \*:  $p < .01$  \*\*:  $p < .001$

**Table 3 - Continued**  
**Intercorrelations Among Predictor Measures**

N= 224

	IPE2	IEE2	ENG2	IPD2	IED2	DIS2	IPE3
IPE2	1.00						
IEE2	.26**	1.00					
ENG2	.74**	.85**	1.00				
IPD2	.05	.22*	.18*	1.00			
IED2	-.003	-.24**	-.17*	.42**	1.00		
DIS2	.03	-.03	-.01	.81**	.87**	1.00	
IPE3	.50**	.24**	.45**	.14#	-.001	.07	1.00
IEE3	.21**	.61**	.54**	.12#	-.16*	-.04	.34**
ENG3	.42**	.54**	.61**	.15*	-.11#	.01	.77**
IPD3	.16*	.18*	.22**	.52**	.11#	.35**	.09
IED3	.03	-.01	.01	.31**	.37**	.41**	.04
DIS3	.10	.08	.11#	.46**	.30**	.44**	.07
PSIC1	-.17*	-.07	-.14#	.18*	.21**	.23**	-.13#
PSIA1	-.26**	-.17*	-.26**	.16*	.15#	.18*	-.20*
PSIP1	-.13#	-.13#	-.17*	.21**	.27**	.29**	-.02
PSIT1	-.24**	-.15#	-.24**	.21**	.22**	.25**	-.18*
SSS2	.23**	-.04	.10	-.25**	-.07	-.19*	.11#
SSS3	.20**	-.06	.07	-.17*	-.02	-.11	.20*

N= 224

	IEE3	ENG3	IPD3	IED3	DIS3	PSIC1	PSIA1
IEE3	1.00						
ENG3	.86**	1.00					
IPD3	.25**	.22**	1.00				
IED3	-.09	-.04	.52**	1.00			
DIS3	.06	.08	.83**	.91**	1.00		
PSIC1	-.01	-.08	.14#	.21**	.21**	1.00	
PSIA1	-.11#	-.19*	.16*	.13#	.16*	.55**	1.00
PSIP1	-.08	-.06	.14#	.26**	.23**	.55**	.57**
PSIT1	-.08	-.15#	.17*	.21**	.22**	.83**	.91**
SSS2	-.001	.06	-.07	-.15#	-.13#	-.22**	-.11#
SSS3	-.06	.06	-.21**	-.16*	-.21**	-.25**	-.07

N= 224

	PSIP1	PSIT1	SSS2	SSS3
42.PSIP1	1.00			
43.PSIT1	.73**	1.00		
44.SSS2	-.20**	-.19*	1.00	
45.SSS3	-.17*	-.17*	.61**	1.00

**NOTE: #: p < .05    \*: p < .01    \*\*: p < .001**

**Table 4**  
**Intercorrelations Between Predictor and Criteria**  
**Measures**

N= 224

PREDICTOR MEASURES	CRITERIA MEASURES				
	MSSI3	ZUNG3	GWB2	GWB3	GS12
TOTALT1	.01	-.002	-.07	-.02	.04
TOTREL1	-.05	-.02	-.07	-.01	.02
TOTIRR1	.17*	.05	-.04	-.04	.06
TOTAVPR1	-.06	-.07	.04	.06	-.01
TOTAVCN1	.02	.12#	-.01	-.04	.06
TOTASC1	.24**	.01	-.04	.01	-.00
LESNCS	-.17*	-.35**	.29**	.34**	-.36**
PSTM2	.07	.07	-.05	-.07	.07
PSRM2	.08	.04	-.09	-.08	.11
PSIM2	.003	.03	.04	-.003	-.05
AVECON2	.06	.02	.002	-.06	.13#
AVEPRO2	-.08	-.10	.04	.06	.02
PSTM3	.04	.05	-.09	-.09	.03
PSRM3	-.06	.02	-.14#	-.03	.01
PSIM3	.15#	.04	.08	-.09	.02
AVECON3	.09	.10	-.10	-.18*	.16*
AVEPRO3	-.003	.06	-.03	-.06	.11#
IPE2	-.03	-.13#	.16*	.13#	-.05
IEE2	-.04	.07	-.09	-.09	.20*
ENG2	-.04	-.03	.02	.002	.11#
IPD2	.14#	.33**	-.35**	-.26**	.47**
IED2	.06	.21**	-.36**	-.27**	.31**
DIS2	.12#	.31**	-.42**	-.31**	.46**
IPE3	-.11	-.07	-.01	.12#	.05
IEE3	-.01	.09	-.05	-.13#	.17*
ENG3	-.07	.02	-.04	-.02	.14#
IPD3	.21**	.28**	-.20*	-.26**	.30**
IED3	.22**	.42**	-.37**	-.42**	.38**
DIS3	.25**	.41**	-.34**	-.40**	.40**
PSIC1	.10	.39**	-.38**	-.35**	.34**
PSIA1	.04	.22**	-.23**	-.21**	.14#
PSIP1	.14#	.30**	-.33**	-.32**	.28**
PSIT1	.09	.34**	-.35**	-.32**	.27**
SSS2	-.17#	-.38**	.50**	.38**	-.44**
SSS3	-.22**	-.40**	.42**	.42**	-.36**

NOTE: #: p < .05    \*: p < .01    \*\*: p < .001

**Table 4 - Continued**  
**Intercorrelations Between Predictor and Criteria**  
**Measures**

N= 224

PREDICTOR MEASURES	CRITERIA MEASURES		
	GS13	HCVIS2	HCVIS3
TOTALT1	.01	-.06	-.05
TOTREL1	-.002	-.02	.01
TOTIRR1	.05	-.06	-.12#
TOTAVPR1	.02	.11	-.02
TOTAVCN1	.14#	.09	-.10
TOTASC1	-.03	-.08	-.06
LESNCS	-.33**	-.03	-.12#
PSTM2	.08	-.04	-.09
PSRM2	.11	-.04	.03
PSIM2	-.04	.01	-.16*
AVECON2	.17*	.04	-.07
AVEPRO2	-.03	-.04	-.08
PSTM3	.06	.002	-.12#
PSRM3	-.03	-.05	-.14#
PSIM3	.13#	.09	.03
AVECON3	.15*	.04	-.04
AVEPRO3	.11	.01	-.10
IPE2	-.03	-.06	.05
IEE2	.12#	.13#	.004
ENG2	.07	.06	.03
IPD2	.32**	.10	.003
IED2	.20**	-.13#	.01
DIS2	.30**	-.02	.01
IPE3	-.03	-.001	.005
IEE3	.22**	.09	.13#
ENG3	.13#	.06	.09
IPD3	.33**	.09	.05
IED3	.38**	-.03	.03
DIS3	.41**	.02	.04
PSIC1	.30**	-.04	.10
PSIA1	.10	-.02	.01
PSIP1	.26**	-.02	.09
PSIT1	.22**	-.03	.06
SSS2	-.32**	-.05	.07
SSS3	-.36**	.004	-.07

NOTE: # : p < .05    \* : p < .01    \*\* : p < .001

**Table 5 - Hierarchical Multiple Regression Analyses of  
 Predictor (Independent) Variables  
 to Suicidal Ideation at Time 3 (MSSI3)  
 (Main Effects Only)**

Note: For each set of predictor variables, MSSI score at Time 1 and Gender were forced into the equation 1st. (Model R2 with MSSI at time 1 and gender forced in = .4363)

-----  
 Predictor Variable                  Partial R<sup>2</sup>                  F                  p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

Step 1: variable removed

Gender                                  .0049                  1.930                  .1661

Step 2: variable entered

Total # of Irrelevant  
 Alternatives - Time 1                  .0106                  4.212                  .0413

**Model R2 = .4469**

-----  
**STATE PROBLEM SOLVING VARIABLES:**

None significant at p < .05

-----  
**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

Step 1: variable removed

Gender                                  .0049                  1.930                  .1661

Step 2: variable entered

PSI Total Score - Time 1                  .0110                  4.36                  .0379

**Model R2 = .4473**

-----  
**COPING STRATEGY VARIABLES:**

Step 1: variable entered

Level of Problem Disengagement  
 Coping - Time 3                          .0180                  7.28                  .0075

**Model R2 = .4592**



**Table 6 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to MSSSI Scores at Time 3 (Interaction Terms Tested)**

**Note: For each set of predictor variables, MSSSI scores at Time 1, stress measure scores at Time 1 and the Time 1 measures of the predictor variables were forced into the equation first**

-----  
 Predictor Variable                      Partial R<sup>2</sup>                      F                      p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05  
 -----

**STATE PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05  
 -----

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

No interactions significant at p < .05.  
 -----

**COPING STRATEGY VARIABLES:**

No interactions significant at p < .05.  
 -----

**Table 7 - Hierarchical Multiple Regression Analyses of  
 Predictor (Independent) Variables  
 to Depressive Symptoms at Time 3 (Zung3)  
 (Main Effects Only)**

Note: For each set of predictor variables, Zung score at Time 1 and Gender were forced into the equation 1st. (Model R2 with Zung at time 1 and gender forced in = .4069)

Predictor Variable	Partial R <sup>2</sup>	F	p value
<b><u>TRAIT PROBLEM SOLVING VARIABLES:</u></b>			
<u>Step 1: variable removed</u>			
Gender	.0012	.462	.4976
<u>Step 2: variable entered</u>			
LES negative change score - Time 1	.0212	8.144	.0047
<u>Step 3: variable entered</u>			
Total average # of cons - Time 1	.0126	4.932	.0274
<b>Total model R2 = .4395</b>			
<b><u>STATE PROBLEM SOLVING VARIABLES:</u></b>			
None significant at p < .05			
<b><u>SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:</u></b>			
None significant at p < .05			
<b><u>COPING STRATEGY VARIABLES:</u></b>			
<u>Step 1: variable removed</u>			
Gender	.0012	.462	.4976
<u>Step 2: variable entered</u>			
Student Stress Inventory Score Time 3	.0620	25.56	<.0001
<u>Step 3: variable entered</u>			
Level of Emotion Disengagement Coping - Time 3	.0361	15.92	.0001
<b>Model R2 = .5038</b>			

**Table 8 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to Zung Scores at Time 3 (Interaction Terms Tested)**

**Note: For each set of predictor variables, Zung scores at Time 1, stress measure scores at Time 1 and the Time 1 measures of the predictor variables were forced into the equation first**

-----  
 Predictor Variable                      Partial R<sup>2</sup>                      F                      p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05.

-----  
**STATE PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05

-----  
**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES**

(Model R<sup>2</sup> with main effects & stress forced in = .4370)

Step 1: variable entered

PSI Approach/Avoidance Factor X LES			
Negative Change Score	.0104	4.05	.0455

Step 2: variable entered

PSI Total Score X LES Negative			
Change Score	.0150	5.96	.0154

Model R<sup>2</sup> = .4624

-----  
**COPING STRATEGY VARIABLES**

(Model R<sup>2</sup> with main effects & stress forced in = .5089)

Step 1: variable entered

Level of Problem Disengagement X			
Score on Student Stress Inventory			
- Time 3	.0100	4.43	.0364

Model R<sup>2</sup> = .5189

-----

**Table 9 - Hierarchical Multiple Regression Analyses of  
 Predictor (Independent) Variables  
 to Level of Psychological Distress at Time 2 (GSI2)  
 (Main Effects Only)**

Note: For each set of predictor variables, GSI score at Time 1 and Gender were forced into the equation 1st. (Model R2 with GSI at time 1 and gender forced in = .6007)

-----  
 Predictor Variable                  Partial R<sup>2</sup>                  F                  p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

None significant at p < .05.  
 -----

**STATE PROBLEM SOLVING VARIABLES:**

None significant at p < .05  
 -----

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

None significant at p < .05  
 -----

**COPING STRATEGY VARIABLES:**

<u>Step 1: variable removed</u>			
Gender	.0001	.03	.8698
<u>Step 2: variable entered</u>			
Total Level of Disengagement			
Coping - Time 2	.0472	29.50	<.0001
<u>Step 3: variable entered</u>			
Score on Student Stress			
Inventory - Time 2	.0337	23.20	<.0001
<u>Step 4: variable entered</u>			
Level of Emotion Engagement			
Coping - Time 2	.0107	7.58	.0064

**Model R2 = .6923**  
 -----

**Table 10 - Hierarchical Multiple Regression Analyses  
of Predictor (Independent) Variables to GSI Scores at  
Time 2 (Interaction Terms Tested)**

**Note: For each set of predictor variables, GSI scores  
at Time 1, stress measure scores at Time 1 and the Time  
1 measures of the predictor variables were forced into  
the equation first**

-----  
 Predictor Variable            Partial R<sup>2</sup>            F            p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05.  
 -----

**STATE PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05  
 -----

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

No interactions significant at p < .05  
 -----

**COPING STRATEGY VARIABLES:**

(Model R<sup>2</sup> with main effects & stress forced in = .6934)

Step 1: variable entered

Level of Total Disengagement Coping			
X Score on Student Stress Inventory			
Time 2	.0138	10.11	.0017

Model R2 = .7072  
 -----

**Table 11 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to Level of Psychological Distress at Time 3 (GSI3) (Main Effects Only)**

Note: For each set of predictor variables, GSI score at Time 1 and Gender were forced into the equation (Model R2 with GSI at time 1 and gender forced in = .4382)

-----  
 Predictor Variable                      Partial R<sup>2</sup>                      F                      p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

Step 1: variable removed  
 Gender                                      .0026                                      .99                                      .3186  
Step 2: variable entered  
 LES negative change  
 score - Time 1                              .0140                                      5.59                                      .0190  
Step 3: variable entered  
 Total average number  
 of cons - Time 1                              .0167                                      4.33                                      .0386  
**Model R2 = .4603**

-----  
**STATE PROBLEM SOLVING VARIABLES:**

Step 1: variable removed  
 Gender                                      .0026                                      .99                                      .3186  
Step 2: variable entered  
 Student Stress Score  
 Time 3                                      .0340                                      14.09                                      .0002  
Step 3: variable entered  
 Total Irrelevant Alternatives  
 on Problem Specific Problem  
 Solving Inventory Time 3                      .0156                                      6.63                                      .0107  
**Model R2 = .4852**

-----  
**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

None significant at p < .05.

-----  
**COPING STRATEGY VARIABLES:**

Step 1: variable removed  
 Gender                                      .0026                                      1.00                                      .3186  
Step 2: variable entered  
 Total Level of Disengagement  
 Coping - Time 3                              .0345                                      14.33                                      .0002  
Step 3: variable entered  
 Score on Student Stress  
 Inventory - Time 3                              .0262                                      11.39                                      .0009  
**Model R2 = .4964**

-----

**Table 12 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to GSI Scores at Time 3 (Interaction Terms Tested)**

Note: For each set of predictor variables, GSI scores at Time 1, stress measure scores at Time 1 and the Time 1 measures of the predictor variables were forced into the equation first

---

Predictor Variable	Partial R <sup>2</sup>	F	p value
--------------------	------------------------	---	---------

---

**TRAIT PROBLEM SOLVING VARIABLES:**

(Model R<sup>2</sup> with main effects & stress forced in = .4729)

Step 1: variable entered

Total number of alternatives

Time 1 X LES negative

change score	.0160	6.65	.0106
--------------	-------	------	-------

Model R2 = .4889

---

**STATE PROBLEM SOLVING VARIABLES:**

(Model R<sup>2</sup> with main effects & stress forced in = .4926)

Step 5: Variable entered

Average # of Cons on Problem Specific

Problem-Solving Inventory - Time 3

X Student Stress Inventory

Score - Time 3	.0206	8.99	.0030
----------------	-------	------	-------

Model R2 = .5132

---

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES**

No interactions significant at p < .05

---

**COPING STRATEGY VARIABLES**

(Model R<sup>2</sup> with main effects & stress forced in = .5106)

Step 1: variable entered

Level of Problem Disengagement X

Score on Student Stress

Inventory - Time 3	.0234	10.78	.0012
--------------------	-------	-------	-------

Model R2 = .5340

---

**Table 13 - Hierarchical Multiple Regression Analyses of  
 Predictor (Independent) Variables  
 to Level of General Well-Being at Time 2 (GWB2)  
 (Main Effects Only)**

Note: For each set of predictor variables, GWB score at Time 1 and Gender were forced into the equation 1st. (Model R2 with GWB at time 1 and gender forced in = .3800)

-----  
 Predictor Variable                      Partial R<sup>2</sup>                      F                      p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

None significant at p < .05.

-----  
**STATE PROBLEM SOLVING VARIABLES:**

None significant at p < .05

-----  
**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

Step 1: variable removed  
 Gender    .00002    .008    .9283  
Step 2: variable entered  
 PSI Personal Control  
 Scale Score - Time 1    .0170    6.20    .0135

**Model R2 = .3970**

-----  
**COPING STRATEGY VARIABLES:**

Step 1: variable removed  
 Gender    .00002    .008    .9283  
Step 2: variable entered  
 Score on Student Stress  
 Inventory - Time 2    .0982    41.41    <.0001  
Step 3: variable entered  
 Total Level of Disengagement  
 Coping - Time 2    .0516    24.06    <.0001

**Model R2 = .5298**  
 -----



**Table 14 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to GWB Scores at Time 2 (Interaction Terms Tested)**

**Note: For each set of predictor variables, GWB scores at Time 1, stress measure scores at Time 1 and the Time 1 measures of the predictor variables were forced into the equation first**

-----  
 Predictor Variable                  Partial R<sup>2</sup>                  F                  p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05  
 -----

**STATE PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05  
 -----

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

No interactions significant at p < .05  
 -----

**COPING STRATEGY VARIABLES:**

(Model R<sup>2</sup> with main effects & stress forced in = .5491)

Step 1: variable entered

Level of Problem Disengagement Coping X

Score on Student Stress

Inventory- Time 2	.0086	4.18	.0421
-------------------	-------	------	-------

Model R2 = .5577  
 -----

**Table 15 - Hierarchical Multiple Regression Analyses of  
 Predictor (Independent) Variables  
 to Level of General Well-Being at Time 3 (GWB3)  
 (Main Effects Only)**

Note: For each set of predictor variables, GWB score at Time 1 and Gender were forced into the equation 1st. (Model R2 with GWB at time 1 and gender forced in = .3193)

---

Predictor Variable	Partial R <sup>2</sup>	F	p value
--------------------	------------------------	---	---------

---

**TRAIT PROBLEM SOLVING VARIABLES:**

None significant at p < .05

---

**STATE PROBLEM SOLVING VARIABLES:**

None significant at p < .05

---

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

<u>Step 1: variable removed</u>			
Gender	.0034	1.10	.2952
<u>Step 2: variable entered</u>			
LES Negative Change Score - Time 1	.0225	7.48	.0067
<u>Step 3: variable entered</u>			
PSI Personal Control Scale Score - Time 1	.0188	6.40	.0121

**Model R2 = .3572**

---

**COPING STRATEGY VARIABLES:**

<u>Step 1: variable removed</u>			
Gender	.0034	1.10	.2952
<u>Step 2: variable entered</u>			
Level of Emotion Disengagement Coping - Time 3	.0683	24.40	<.0001
<u>Step 3: variable entered</u>			
Score on Student Stress Inventory - Time 3	.0562	22.01	<.0001
<u>Step 4: variable entered</u>			
Level of Emotion Engagement Coping - Time 3	.0186	7.49	.0068
<u>Step 5: variable entered</u>			
Total Level of Engagement Coping - Time 3	.0129	5.31	.0221

**Model R2 = .4719**

---

**Table 16 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to GWB Scores at Time 3 (Interaction Terms Tested)**

**Note: For each set of predictor variables, GWB scores at Time 1, stress measure scores at Time 1 and the Time 1 measures of the predictor variables were forced into the equation first**

-----  
 Predictor Variable            Partial R<sup>2</sup>            F            p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05  
 -----

**STATE PROBLEM SOLVING VARIABLES:**

(Model R<sup>2</sup> with main effects & stress forced in = .3967)

**Step 1: Variable entered**

# of irrelevant alternatives on  
 Problem Specific Problem-Solving  
 Inventory X SSI Time 3            .0146            5.30            .0223

Model R2 = .4113  
 -----

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

No interactions significant at p < .05  
 -----

**COPING STRATEGY VARIABLES:**

No interactions significant at p < .05  
 -----

**Table 17 - Hierarchical Multiple Regression Analyses of  
 Predictor (Independent) Variables to the Number of  
 Visits to the Health Center-Time 2 (HCVIS2)  
 (Main Effects Only)**

Note: For each set of predictor variables, the number of visits to the Health Center at Time 1 and Gender were forced into the equation 1st.  
 (Model R2 with HCVIS at time 1 and gender forced in = .0675)

-----  
 Predictor Variable            Partial R<sup>2</sup>            F            p value  
 -----

**TRAIT PROBLEM SOLVING VARIABLES:**

None significant at p < .05  
 -----

**STATE PROBLEM SOLVING VARIABLES:**

None significant at p < .05  
 -----

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

None significant at p < .05  
 -----

**COPING STRATEGY VARIABLES:**

None significant at p < .05  
 -----

**Table 18 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to The Number of Visits to the Health Center as reported by Health Center Staff - Time 2 (HCVIS2) (Interaction Terms Tested)**

Note: For each set of predictor variables, the number of visits to the Health Center at Time 1, stress measure scores at Time 1 and the Time 1 measures of the predictor variables were forced into the equation first

---

Predictor Variable	Partial R <sup>2</sup>	F	p value
--------------------	------------------------	---	---------

---

**TRAIT PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05

---

**STATE PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05

---

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

No interactions significant at p < .05

---

**COPING STRATEGY VARIABLES:**

(Model R<sup>2</sup> with main effects & stress forced in = .099)

Step 1: variable entered

Total level of Disengagement Coping			
X Score on Student Stress Inventory			
Time 2	.0283	6.98	.0088

Model R2 = .1273

---

**Table 19 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to the Number of Visits to the Health Center-Time 3 (HCVIS3) (Main Effects Only)**

Note: For each set of predictor variables, the number of visits to the Health Center at Time 1 and Gender were forced into the equation 1st.  
 (Model R2 with HCVIS at time 1 and gender forced in = .0079)

---

Predictor Variable	Partial R <sup>2</sup>	F	p value
--------------------	------------------------	---	---------

---

**TRAIT PROBLEM SOLVING VARIABLES:**

None significant at  $p < .05$ .

**STATE PROBLEM SOLVING VARIABLES:**

Step 1: variable removed

Number of visits to HC as rept. by HC staff - Time 1	.0001	.01	.9736
--	-------	-----	-------

Step 2: variable removed

Gender	.0078	1.76	.1859
--------	-------	------	-------

Step 3: variable entered

# of Relevant Alternatives on Problem Specific Problem-Solving Inventory - Time 3	.0194	4.40	.0371
---	-------	------	-------

**Model R2 = .0194**

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

None significant at  $p < .05$ .

**COPING STRATEGY VARIABLES:**

Step 1: variable removed

Number of Visits to HC as rept. by HC staff - Time 1	.0001	.001	.9736
--	-------	------	-------

Step 2: variable removed

Gender	.0078	1.76	.1859
--------	-------	------	-------

Step 3: variable entered

Level of Emotion Engagement Coping - Time 3	.0181	4.10	.0442
---	-------	------	-------

**Model R2 = .0181**

---

**Table 20 - Hierarchical Multiple Regression Analyses of Predictor (Independent) Variables to The Number of Visits to the Health Center as reported by Health Center Staff - Time 3 (HCVIS3) (Interaction Terms Tested)**

Note: For each set of predictor variables, the number of visits to the Health Center at Time 1, stress measure scores at Time 1 and the Time 1 measures of the predictor variables were forced into the equation first

---

Predictor Variable	Partial R <sup>2</sup>	F	p value
--------------------	------------------------	---	---------

---

**TRAIT PROBLEM SOLVING VARIABLES:**

(Model R<sup>2</sup> with main effects & stress forced in = .0449)

Step 1: variable entered

Total # of alternatives Time 1

X LES negative change score	.0302	6.95	.0090
-----------------------------	-------	------	-------

Step 2: variable entered

Total average # of cons Time 1

X LES negative change score	.0233	5.49	.0201
-----------------------------	-------	------	-------

Model R<sup>2</sup> = .0984

---

**STATE PROBLEM SOLVING VARIABLES:**

No interactions significant at p < .05

---

**SELF-APPRAISED PROBLEM SOLVING ABILITY VARIABLES:**

No interactions significant at p < .05

---

**COPING STRATEGY VARIABLES:**

No interactions significant at p < .05

---

**Table 21 - Hierarchical Multiple Regression Analyses  
Comparing of Trait PS, State PS, Self-Appraised PS  
Ability and Coping Style Variables**

Predictor Variable	Partial R <sup>2</sup>	F	p value
<b>Criterion: Suicidal Ideation - Time 3 (MSSI3)</b>			
<u>Step 1: variable entered</u>			
MSSI score - Time 1	.4363	171.08	<.0001
<u>Step 2: variable entered</u>			
Level of Problem Disengagement Coping - Time 3	.0159	6.39	.0122
<u>Step 3: variable entered</u>			
PSI Total Score - Time 1	.0154	6.34	.0125
<u>Step 4: variable entered</u>			
Total # of Irrelevant Alternatives Time 1	.0098	4.11	.0439
Model R2 = .4775			

Predictor Variable	Partial R <sup>2</sup>	F	p value
<b>Criterion: Level of Depressive Symptoms - Time 3 (Zung3)</b>			
<u>Step 1: variable entered</u>			
Zung - Time 1	.4057	150.86	<.0001
<u>Step 2: variable entered</u>			
Score on Student Stress Inventory - Time 3	.0612	25.23	<.0001
<u>Step 3: variable entered</u>			
Level of Emotion Disengagement Coping - Time 3	.0369	16.30	.0001
<u>Step 4: variable entered</u>			
Average # of Cons-Time 1	.0162	7.38	.0071
Model R2 = .5200			



**Table 21 Continued - Hierarchical Multiple Regression Analyses Comparing of Trait PS, State PS, Self-Appraised PS Ability and Coping Style Variables**

Predictor Variable	Partial R <sup>2</sup>	F	p value
<b>Criterion: Level of Psychological Distress as measured by the Brief Symptom Inventory - Time 2 (GSI2)</b>			
<u>Step 1: variable entered</u>			
GSI score - Time 1	.6001	332.39	<.0001
<u>Step 2: variable entered</u>			
Total Level of Disengagement Coping - Time 2	.0472	29.50	<.0001
<u>Step 3: variable entered</u>			
Score on Student Stress Inventory - Time 2	.0337	23.20	<.0001
<u>Step 4: variable entered</u>			
Level of Emotion Engagement Time 2	.0107	7.58	.0064
Model R2 = .6923			

Predictor Variable	Partial R <sup>2</sup>	F	p value
<b>Criterion: Level of Psychological Distress as measured by the Brief Symptom Inventory - Time 3 (GSI3)</b>			
<u>Step 1: variable entered</u>			
GSI score - Time 1	.4357	170.62	<.0001
<u>Step 2: variable entered</u>			
Total Level of Disengagement Coping Time 3	.0345	14.34	.0002
<u>Step 3: variable entered</u>			
Score on Student Stress Inventory - Time 3	.0262	11.39	.0009
<u>Step 4: variable entered</u>			
Average # of Cons-Time 1	.0149	6.65	.0105
Model R2 = .5113			

**Table 21 Continued - Hierarchical Multiple Regression Analyses Comparing of Trait PS, State PS, Self-Appraised PS Ability and Coping Style Variables**

Predictor Variable	Partial R <sup>2</sup>	F	p value
<b>Criterion: General Well-Being Level as measured by the General Well-Being Schedule - Time 2 (GWB2)</b>			
<u>Step 1: variable entered</u>			
GWB score - Time 1	.3800	135.43	<.0001
<u>Step 2: variable entered</u>			
Score on Student Stress Inventory - Time 2	.0982	41.41	<.0001
<u>Step 3: variable entered</u>			
Total Level of Disengagement Coping Time 2	.0516	24.06	<.0001
Model R2 = .5298			
Predictor Variable	Partial R <sup>2</sup>	F	p value
<b>Criterion: General Well-Being Level as measured by the General Well-Being Schedule - Time 3 (GWB3)</b>			
<u>Step 1: variable entered</u>			
GWB score - Time 1	.3159	102.06	<.0001
<u>Step 2: variable entered</u>			
Level of Emotion Disengagement Coping - Time 3	.0683	24.40	<.0001
<u>Step 3: variable entered</u>			
Score on Student Stress Inventory - Time 3	.0562	22.01	<.0001
<u>Step 4: variable entered</u>			
Level of Emotion Engagement Coping - Time 3	.0186	7.49	.0068
<u>Step 5: variable entered</u>			
Total Engagement Coping Time 3	.0129	5.31	.0221
<u>Step 6: variable entered</u>			
PSI Personal Control Factor Time 1	.0093	3.89	.0499
Model R2 = .4813			

**Table 21 Continued - Hierarchical Multiple Regression Analyses Comparing of Trait PS, State PS, Self-Appraised PS Ability and Coping Style Variables**

Predictor Variable	Partial R <sup>2</sup>	F	p value
<b>Criterion: Number of Visits to the Health Center as reported by Health Center Staff - Time 2 (HCVIS2)</b>			
<u>Step 1: variable entered</u>			
# of Visits to HC as rept by HC Staff	.0557	13.09	.0004
<u>Step 2: variable entered</u>			
Level of Emotion Engagement Coping - Time 2	.0167	3.98	.0473
Model R2 = .0724			

Predictor Variable	Partial R <sup>2</sup>	F	p value
<b>Criterion: Number of Visits to the Health Center as reported by Health Center Staff - Time 3 (HCVIS3)</b>			
<u>Step 1: variable entered</u>			
# of Visits to HC as rept by HC Staff	.0001	.02	.8756
<u>Step 2: variable removed</u>			
# of Visits to HC as rept by HC Staff	.0001	.02	.8756
<u>Step 3: variable entered</u>			
# of Relevant Alternatives on Problem Specific Problem Solving Inventory - Time 3	.0194	4.40	.0371
Model R2 = .0194			

## APPENDIX A

### CONSENT FORM

You are invited to participate in a study to examine the types of stressors that people face during their first year in college and how people solve problems or cope with stressors that they are faced with. To accomplish the goals of the study, you will be asked to fill out a series of questionnaires today and on two later dates during Fall 1992, and provide consent for experimenters to review your medical records from Student Health and Counseling Services.

Your medical records will be kept strictly confidential and will be reviewed by experimenters who will obtain a computer printout of each visit and the diagnoses for each visit. The printout will not include your name, only your student number.

Involvement in the study will require approximately two (2) hours today and on two more occasions during the fall semester. You will receive 2 extra credit points for each session you attend (a total of 6 if you attend all three sessions). While you are not obligated to come to any further sessions, full participation in the study includes coming to each session. You will be notified of the time of future sessions at the end of each session. You will be called before each session to remind you of the date and to confirm your appearance. **If you attend all three of the assessment sessions scheduled, then you will receive an extra two (2) extra credit points (total of 8).** You will not receive these extra points unless you attend all of the sessions. No other guarantee of benefit has been made to induce you to participate.

There are no apparent risks associated with this study. All of the information obtained in this research will be held strictly confidential. The only exception to confidentiality will be if you report having current suicidal or homicidal ideation. You will be contacted if you endorse these items.

At no time will the researchers release identifying information without your written consent. The information will have your name removed and only a subject number will identify you during analyses and writeup of the research.

The information accumulated by this research may be used for scientific purposes. It may be presented at scientific meetings and/or published and republished in professional journals or books, or used for any

**(PLEASE TURN)**

other purpose which Virginia Tech's Department of Psychology considers proper in the interest of education, knowledge or research.

You are free to withdraw your consent to participate and stop participation in the experiment at any time. No penalty will be imposed.

This research project has been approved by the Human Subjects Committee of the Department of Psychology and by the Institutional Review Board of Virginia Tech.

1. I have read and understand the above description of the experiment, had an opportunity to ask questions and had them all answered, and hereby acknowledge the above and give my voluntary consent for participation in the study.

2. I understand that I am participating freely in full understanding that I need not participate if I do not wish to and if I participate I may withdraw at any time without penalty.

3. I understand that should I have any questions about this research and its conduct, I should contact any of the following:

Principle Investigators:

Michael J. Priester, M.S. 231-8148

George A. Clum, Ph.D. 231-5701

Chair, Human Subjects Committee:

Joseph J. Franchina, Ph.D 231-5664

Chair, Institutional Review Board

Ernest Stout, Ph.D. 231-9359

-----  
Signature

-----  
Date

-----  
Printed Name

-----  
Student ID#

-----  
On-campus phone number

**APPENDIX B**

**Authorization to Release Medical and Counseling Records**

I hereby authorize the Student Health Services and the University Counseling Services to release information contained in my medical record to Michael J. Priester, M.S. and George A. Clum, Ph.D., as part of my participation in their study, in the following way:

A computer printout of each visit and the diagnoses for each visit. The printout will not include my name, only my student number. Then, Student Health Service and University Counseling Center approved personnel will review my medical or counseling records to determine the number of visits and the diagnoses. This data will be summarized and categorized by research assistants who will not know my name. Research assistants will only have access to summary records labelled with subject numbers.

I understand that information obtained from my medical or counseling records will be kept strictly confidential, and that I may revoke consent at any time through written notice to the counseling or health centers. Consent will automatically be revoked one calendar year from the date of consent.

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Student ID#: \_\_\_\_\_

Date of Consent: \_\_\_\_\_

**APPENDIX C**

**Demographic Information**

Today's Date: \_\_\_\_\_

I am aware that this study will require that I return for two additional assessments this semester. (Check One)      YES \_\_\_\_\_      NO \_\_\_\_\_

I agree to participate in these two additional assessments to earn 8 extra credit points in introductory psychology for my FULL PARTICIPATION

YES \_\_\_\_\_      NO \_\_\_\_\_

Student Number (for ID purposes): \_\_\_\_\_

Telephone Number (to notify you of future assessment times):  
\_\_\_\_\_

Date of Birth: \_\_\_\_\_

Age: Years: \_\_\_\_\_      Months: \_\_\_\_\_

Are you a freshman (i.e., first year student)? \_\_\_\_\_

If not, identify your class standing? \_\_\_\_\_

Gender:      (circle one)      MALE      FEMALE

Ethnicity: (circle one)

white      black      asian/pacific islander  
hispanic-white      hispanic-black  
other: \_\_\_\_\_

Where do you live? (circle one)

Campus Dorm      Multi-purpose Housing  
Off-campus house      Off-campus apartment  
Fraternity/Sorority house

Marital Status: (circle one)

Single, never married  
married  
cohabitation (living together as a couple)  
separated  
divorced  
widowed

**APPENDIX D**  
**The Life Experiences Survey**

The next questions list a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. *Please endorse the events which you have experienced in the PAST YEAR*

For each item checked below, *indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and the extent of impact the event had.*

**USE A 1 THROUGH 7 SCALE TO INDICATE THE IMPACT THE EVENT HAD WITH HIGHER NUMBERS INDICATING BETTER IMPACT**

- 1 = extremely negative impact
- 2 = moderately negative impact
- 3 = slightly negative impact
- 4 = no impact, positive or negative
- 5 = slightly positive impact
- 6 = moderately positive impact
- 7 = extremely positive impact

- 36. Marriage
- 37. Detention in Jail
- 38. Death of spouse
- 39. Major change in sleeping habits
- 40. Beginning college
- 41. Changing to a new school
- 42. Academic probation
- 43. Being dismissed from dormitory or other living residence
- 44. Failing an important exam
- 45. Changing a major
- 46. Failing a course
- 47. Dropping a course
- 48. Joining a fraternity/sorority
- 49. Financial problems concerning school (not having enough money to continue)
- 50. Major change in arguments with significant other
- 51. Major change in usual type and/or amount of recreation
- 52. Borrowing more than \$10,000
- 53. Borrowing less than \$10,000
- 54. Being fired from job
- 55a. **Females:** having an abortion
- 55b. **Males:** girlfriend/wife having an abortion
- 56. Major personal illness or injury
- 57. Major change in social activities (increased or decreased participation)

(Continued on back)



- 1 = extremely negative impact
- 2 = moderately negative impact
- 3 = slightly negative impact
- 4 = no impact, positive or negative
- 5 = slightly positive impact
- 6 = moderately positive impact
- 7 = extremely positive impact

- 58. Major change in living conditions
- 59. Divorce
- 60. Serious injury or illness of a close friend
- 61. Retirement from work
- 62. Son or daughter leaving home
- 63. Ending of formal schooling
- 64. Separation of spouse (due to work, school, etc.)
- 65. Engagement
- 66. Breaking up with girlfriend/boyfriend
- 67. Leaving home for 1st time
- 68. Reconciliation with boyfriend/girlfriend
- Death of close family member:
  - 69. mother
  - 70. father
  - 71. sister
  - 72. brother
  - 73. grandmother
  - 74. grandfather
  - 75. any other close family member
- 76. Major change in eating habits
- 77. Forclosure on loan or other credit problems
- 78. Death of close friend
- 79. Outstanding personal achievement
- 80. Minor law violations
- 81a. **Female:** pregnancy
- 81b. **Male:** wife/girlfriend pregnant
- 82. Changed work situation (new responsibility, work conditions, hours, etc.)
- 83. New job
- 84. Serious illness or injury of close family member
- 85. Sexual difficulties or diagnosis of sexually transmitted disease
- 86. Trouble with employer
- 87. Trouble with in-laws
- 88. Major change in financial status (a lot better or a lot worse)
- 89. Major change in closeness of family members
- 90. Gaining a new family member
- 91. Change of residence
- 92. Marital separation from mate (due to conflicts)
- 93. Major change in church activities

Note: You should now be on # 93 - check your opscan, then continue on to the next inventory

**APPENDIX E**  
**Personal Problem-Solving Evaluation (PPSE)**

**Instructions: Please read carefully:**

**Step 1.** Please read each of the following situations. You are to imagine that you are in each situation. You are then presented with a desired outcome. List as many different things as you can that you could do in each of the problem situations which you believe will help you reach the desired outcome. It is important that you identify as many different ways of getting to the desired outcome as you can.

**A. Problem Situation:**

Imagine you have just failed an important test after the drop date of a course you are taking.

Desired Outcome:

You end up passing the course.

List as many as six different alternative actions you could take to achieve the desired outcome.

1. \_\_\_\_\_

PROS	CONS
------	------

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

PROS	CONS
------	------

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

PROS	CONS
------	------

\_\_\_\_\_

\_\_\_\_\_



---

---

2. \_\_\_\_\_  
**PROS** **CONS**

---

---

---

---

3. \_\_\_\_\_  
**PROS** **CONS**

---

---

---

---

4. \_\_\_\_\_  
**PROS** **CONS**

---

---

---

---

5. \_\_\_\_\_  
**PROS** **CONS**

---

---

---

---

6. \_\_\_\_\_  
**PROS** **CONS**

---

---

---

---

**C. Problem Situation:**

Imagine you see someone in one of your classes to whom you are very attracted.

**Desired Outcome:**

You end up dating this person.

List as many as six different alternative actions you could take to achieve the desired outcome.

1. \_\_\_\_\_

<b>PROS</b>	<b>CONS</b>
_____	_____
_____	_____
_____	_____
_____	_____

2. \_\_\_\_\_

<b>PROS</b>	<b>CONS</b>
_____	_____
_____	_____
_____	_____
_____	_____

3. \_\_\_\_\_

<b>PROS</b>	<b>CONS</b>
_____	_____
_____	_____
_____	_____
_____	_____

4. \_\_\_\_\_

<b>PROS</b>	<b>CONS</b>
_____	_____
_____	_____
_____	_____
_____	_____

5. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

6. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

D. Problem Situation:  
 Imagine your boyfriend/girlfriend has unexpectedly ended a relationship with you.

Desired Outcome:  
 You end up feeling OK about not being in this relationship.

List as many as six different alternative actions you could take to achieve the desired outcome.

1. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

2. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

3. \_\_\_\_\_

<b>PROS</b>	<b>CONS</b>
_____	_____
_____	_____
_____	_____

4. \_\_\_\_\_

<b>PROS</b>	<b>CONS</b>
_____	_____
_____	_____
_____	_____

5. \_\_\_\_\_

<b>PROS</b>	<b>CONS</b>
_____	_____
_____	_____
_____	_____

6. \_\_\_\_\_

<b>PROS</b>	<b>CONS</b>
_____	_____
_____	_____
_____	_____

**E. Problem Situation:**

Imagine you see an advertisement for a job that pays well and involves work that you would love to do.

**Desired Outcome:**

You end up getting the job.

List as many as six different alternative actions you could take to achieve the desired outcome.





F. Problem Situation:

Imagine that you get a grade in a course that you feel is unfair. You know other students whose grades were poorer than yours but who ended up with a better grade.

Desired Outcome:  
You end up feeling satisfied.

List as many as six different alternative actions you could take to achieve the desired outcome.

1. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

2. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

3. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

4. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

5. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

6. \_\_\_\_\_

PROS	CONS
_____	_____
_____	_____
_____	_____
_____	_____

Step 2. Now that you have identified different courses of action to the problems that you were presented, please go back to each of the different actions you identified and tell us what the Pros (good things, benefits, etc.) of each action taken are, and what the CONS (bad things, costs, etc) for each course of action are. For example, you might think that one of your courses of action might make someone mad; this would be a CON. Or you might think that your course of action might make someone happy; this would be a PRO. Please list as many as four PROS and four CONS for each alternative course of action.

**APPENDIX F**  
**Student Stress Inventory/Problem Specific Problem Solving Inventory**

Please identify the areas in which you have experienced stress in the last month. Rate the impact that this stress has had on you in the last month on the following scale:

- |                                  |                            |
|----------------------------------|----------------------------|
| -3 - Extremely negative          | +3 - Extremely positive    |
| -2 - Considerably negative       | +2 - Considerably positive |
| -1 - Slightly negative           | +1 - Slightly positive     |
| 0 - Neither negative or positive |                            |

1. School problems	-3	-2	-1	0	+1	+2	+3
2. Boyfriend/Girlfriend problems	-3	-2	-1	0	+1	+2	+3
3. Money problems	-3	-2	-1	0	+1	+2	+3
4. Family problems	-3	-2	-1	0	+1	+2	+3
5. Friendship problems	-3	-2	-1	0	+1	+2	+3
6. Health problems	-3	-2	-1	0	+1	+2	+3
7. Other problems (Specify)	-3	-2	-1	0	+1	+2	+3
	-3	-2	-1	0	+1	+2	+3
	-3	-2	-1	0	+1	+2	+3

Now, please describe below the worst stressor or problem that has happened in the last month:

---



---

Please rate this stressor:      -3   -2   -1   0   +1   +2   +3

The problem you have written above will be your chosen event for this assessment session. Refer to this problem when the inventories ask you for your chosen event.

**PLEASE SEE BACK OF PAGE FOR MORE DIRECTIONS**

Take a few minutes to think about **your chosen event**.  
Imagine again that you are in this stressful situation,  
AND that this time the situation is **resolved** so that  
you feel O.K. about the outcome.

**STEP 1:** List as many different things as you can that  
you could do in each of the problem situations which  
you believe will help you reach the desired outcome.  
It is important that you identify as many different  
ways as possible of getting to the point of feeling  
O.K. about the problem you identified.

1. \_\_\_\_\_

PROS

CONS

_____	_____
_____	_____
_____	_____
_____	_____

2. \_\_\_\_\_

PROS

CONS

_____	_____
_____	_____
_____	_____
_____	_____

3. \_\_\_\_\_

PROS

CONS

_____	_____
_____	_____
_____	_____
_____	_____

4. \_\_\_\_\_

**PROS**

**CONS**

_____	_____
_____	_____
_____	_____
_____	_____

5. \_\_\_\_\_

**PROS**

**CONS**

_____	_____
_____	_____
_____	_____
_____	_____

6. \_\_\_\_\_

**PROS**

**CONS**

_____	_____
_____	_____
_____	_____
_____	_____

**STEP 2:** Now that you have identified different courses of action to the problem that you identified, please go back to each of the different actions you identified and tell us what the PROS (good things, benefits, etc.) of each action are, and what the CONS (bad things, costs, etc) for each course of action are. For example, you might think that one of your courses of action might make someone mad; this would be a CON. Or you might think that your course of action might make someone happy; this would be a PRO. Please list as many as four PROS and four CONS for each alternative course of action.

**APPENDIX G**  
**The Coping Strategies Inventory**

**Directions:**

Take a few minutes to think of **your chosen event**. As you read through the following items, please answer them based on how you handled your event.

Please read each item below and determine the extent to which you used it in handling your chosen event.

0 = Not at all  
1 = A little  
2 = Somewhat  
3 = Much  
4 = Very much

1. I just concentrated on what I had to do next; the next step.
2. I tried to get a new angle on the situation.
3. I found ways to blow off steam.
4. I accepted sympathy and understanding from someone.
5. I slept more than usual.
6. I hoped the problem would take care of itself.
7. I told myself that if I wasn't so careless, things like this wouldn't happen
8. I tried to keep my feelings to myself.
9. I changed something so that things would turn out all right.
10. I looked for the silver lining, so to speak; tried to look on the bright side of things.
11. I did some things to get it out of my system.
12. I found somebody who was a good listener.
13. I went along as if nothing were happening
14. I hoped a miracle would happen.
15. I realized that I brought the problem on myself.
16. I spent more time alone.
17. I stood my ground and fought for what I wanted.
18. I told myself things that helped me feel better.
19. I let my emotions go.
20. I talked to someone about how I was feeling.
21. I tried to forget the whole thing.
22. I wished that I never let myself get involved with that situation.
23. I blamed myself
24. I avoided my family and friends.
25. I made a plan of action and followed it.
26. I looked at things in a different light and tried to make the best of what was available.

(CONTINUED ON BACK)

0 = Not at all  
1 = A little  
2 = Somewhat  
3 = Much  
4 = Very much

27. I let out my feelings to reduce the stress.
28. I just spent more time with people I liked.
29. I didn't let it get to me; I refused to think about it too much.
30. I wished that the situation would go away or somehow be over with.
31. I criticized myself for what happened.
32. I avoided being with people
33. I tackled the problem head-on.
34. I asked myself what was really important, and discovered that things weren't so bad after all.
35. I let my feelings out somehow.
36. I talked to someone that I was very close to.
37. I decided that it was really someone else's problem and not mine.
38. I wished that the situation had never started.
39. Since what happened was my fault, I really chewed myself out.
40. I didn't talk to other people about the problem
41. I knew what had to be done, so I doubled my efforts and tried harder to make things work.
42. I convinced myself that things aren't quite as bad as they seem.
43. I let my emotions out.
44. I let my friends help out.
45. I avoided the person who was causing the trouble.
46. I had fantasies or wishes about how things might turn out.
47. I realized that I was personally responsible for my difficulties and really lectured myself.
48. I spent some time by myself.
49. It was a tricky problem, so I had to work around the edges to make things come out OK.
50. I stepped back from the situation and put things into perspective.
51. My feelings were overwhelming and they just exploded.
52. I asked a friend or relative I respect for advice.
53. I made light of the situation and refused to get too serious about it.
54. I hoped that if I waited long enough, things would turn out OK.
55. I kicked myself for letting this happen.
56. I kept my thoughts and feelings to myself.

(CONTINUED NEXT PAGE)

- 0 = Not at all
- 1 = A little
- 2 = Somewhat
- 3 = Much
- 4 = Very much

- 57. I worked on solving the problems in the situation.
- 58. I reorganized the way I looked at the situation, so things didn't look so bad.
- 59. I got in touch with my feelings and just let them go.
- 60. I spent some time with my friends.
- 61. Every time I thought about it I got upset; so I just stopped thinking about it
- 62. I wished I could have changed what happened.
- 63. It was my mistake and I needed to suffer the consequences.
- 64. I didn't let my family and friends know what was going on.
- 65. I struggled to resolve the problem.
- 66. I went over the problem again and again in my mind and finally saw things in a different light.
- 67. I was angry and really blew up.
- 68. I talked to someone who was in a similar situation.
- 69. I avoided thinking or doing anything about the situation.
- 70. I thought about fantastic or unreal things to make me feel better.
- 71. I told myself how stupid I was.
- 72. I did not let others know how I was feeling.

Note: You should now be on number 72. Check your opscan and proceed to the next inventory.



**APPENDIX H**  
**The Brief Symptom Inventory (Derogatis, 1986)**

Below is a list of problems that people sometimes have. Please read each one carefully, and bubble in the number from 0 - 4 that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Choose only one number for each problem and do not skip any items. If you have any questions, please ask about them.

0 = not at all  
1 = a little bit  
2 = moderately  
3 = quite a bit  
4 = extremely

HOW MUCH HAVE YOU BEEN DISTRESSED BY?

- 73. Nervousness or shakiness inside
- 74. Faintness or dizziness
- 75. The idea that someone else can control your thoughts
- 76. Feeling others are to blame for most of your troubles
- 77. Trouble remembering things
- 78. Feeling easily annoyed or irritated
- 79. Pains in heart or chest
- 80. Feeling afraid in open spaces
- 81. Thoughts of ending your life
- 82. Feeling that most people cannot be trusted
- 83. Poor appetite
- 84. Suddenly scared for no reason
- 85. Temper outbursts that you could not control
- 86. Feeling lonely even when you are with people
- 87. Feeling blocked when you are getting things done

(CONTINUED ON BACK)

0 = not at all  
1 = a little bit  
2 = moderately  
3 = quite a bit  
4 = extremely

HOW MUCH HAVE YOU BEEN DISTRESSED BY?

88. Feeling lonely
89. Feeling blue
90. Feeling no interest in things
91. Feeling fearful
92. Your feelings being easily hurt
93. Feeling that people are unfriendly or dislike you
94. Feeling inferior to others
95. Nausea or upset stomach
96. Feeling that your are watched or talked about by others
97. Trouble falling asleep
98. Having to check and double check what you do
99. difficulty making decisions
100. Feeling afraid to travel on buses, subways or trains
101. Trouble getting your breath
102. Hot or cold spells
103. Having to avoid certain things, places, or activities because they frighten you
104. Your mind going blank
105. Numbness or tingling in parts of your body
106. The idea that you should be punished for your sins

(CONTINUED ON BACK)

0 = not at all  
1 = a little bit  
2 = moderately  
3 = quite a bit  
4 = extremely

HOW MUCH HAVE YOU BEEN DISTRESSED BY?

107. Feeling hopeless about the future
108. Trouble concentrating
109. Feeling weak in parts of your body
110. Feeling tense or keyed up
111. Thoughts of death or dying
112. Having urges to beat, injure, or harm someone
113. Having urges to break or smash things
114. Feeling very self-conscious with others
115. Feeling uneasy in crowds
116. Never feeling close to another person
117. Spells of terror or panic
118. Getting into frequent arguments
119. Feeling nervous when you are left alone
120. Others not giving you proper credit for your achievements
121. Feeling so restless you couldn't sit still
122. Feelings of worthlessness
123. Feeling that people will take advantage of you if you let them
124. Feelings of guilt
125. The idea that something is wrong with your mind

Note: You should now be on number 125. Check your opscan and proceed to the next inventory.

**APPENDIX I**  
**The Modified Scale For Suicidal Ideation**

Instructions: The next questions assess the presence or absence of suicidal thought and the degree of severity of this thought. The time frame of this is how you have been feeling over the past month in general. Select the statement which best matches how you feel and put the number on your opscan. Use only numbers 0-4 to answer these next questions.

126. Over the past month, how strong has your desire to die been?

- 0 None - I have no current wish to die.
- 1 Weak - I am unsure about whether I want to die.
- 2 Moderate - I am preoccupied with ideas about death
- 3 Strong - I have a strong desire to die.

127. Over the past month how strong has your desire to live been?

- 0 Strong - I have a strong desire to live.
- 1 Moderate - I think about wanting to live quite often, and if I think about wanting to die, I can easily turn my thoughts away from it.
- 2 Weak - I am unsure about wanting to live.
- 3 None - I have no wish to live.

128. Over the past month how strong have the desires been to actually act on your suicidal thoughts?

- 0 None - I am either not thinking of suicide or I definitely do not want to act on thoughts of suicide I have had.
- 1 Weak - When I think of suicide, I am unsure of whether or not I wish to make an attempt.
- 2 Moderate - When I think of suicide, I have had the desire to act on my thoughts at least once.
- 3 Strong - I have wanted to act on my thoughts of suicide several times - I am almost certain I wish to kill myself.

129. Over the past month, have you had a desire to die by not taking care of your health, eating or drinking too much (or too little), or leaving life and death to chance? (i.e. carelessly crossing a busy street)

(CONTINUED ON BACK)

- 0 None - I have taken precautions to maintain my life.
- 1 Weak - I am not sure whether I would leave my life or death to chance.
- 2 Moderate - I would definitely leave my life or death to chance, if given the opportunity to do so.
- 3 Strong - I have avoided steps necessary to maintain or save my life.

130. Over the past month how long did thoughts of suicide last?

- 0 Brief periods or nonexistent.
- 1 Short duration, several minutes.
- 2 Longer, an hour or more.
- 3 Almost continuous, I can't get them off my mind.

131. Over the past month, how often have thoughts of suicide come?

- 0 Rarely - only once in the past day (or nonexistent)
- 1 Twice or more in the last day.
- 2 About once every hour.
- 3 Several times an hour.

132. Over the past day how intense or vivid have thoughts of suicide been?

- 0 Not at all vivid or intense (or nonexistent)
- 1 Slightly vivid or intense
- 2 Moderately vivid or intense
- 3 Very vivid or intense

133. Right now can you think of anything that would keep you from killing yourself?

- 0 I can think of at least one definite deterrent.
- 1 I can think of at least one deterrent, but it would not keep me from killing myself under all circumstances.
- 2 I am unsure if there are any deterrents that would prevent my suicide.
- 3 I cannot think of anything at all that would keep me from killing myself.

(CONTINUED NEXT PAGE)

134. Right now, when you think of reasons for living vs. reasons for dying, which of the two are stronger?

- 0 I cannot think of any reasons for dying.
- 1 My reasons for living are stronger than my reasons for dying.
- 2 I am unsure which are stronger, or they are about equal in strength.
- 3 My reasons for dying are much stronger than my reasons for living (or I have no reasons to live).

135. Over the past month, have you been thinking of a way in which you might kill yourself? That is, have you thought about the method you might choose to kill yourself?

- 0 I have not considered a method of suicide.
- 1 I have given it some consideration, but I am unsure of the method.
- 2 I know the method I wish to use, but the details of exactly how I wish to kill myself are unclear.
- 3. I know the method I wish to kill myself precisely.

136. Over the past month, have you thought about how much effort or time is involved in the method chosen to kill yourself? Do you foresee this opportunity being present in the next month or so?

- 0 I have not thought of a method, or it is not currently available to me in the near future.
- 1 I have thought of a method, but it is not readily available; it would take time and opportunity.
- 2 I have thought of a method, and it would not take a great deal of effort to be available.
- 3 I have thought of a method that is readily available at almost anytime.

137. Right now, do you feel like you have the fortitude to commit suicide?

- 0 I do not have the fortitude to kill myself.
- 1 I'm unsure I have the fortitude to kill myself.
- 2 I'm quite sure I have the fortitude to kill myself.
- 3 I am very sure or certain I have the fortitude to kill myself.

(CONTINUED ON BACK)

138. Right now, do you have the ability to carry out a suicide plan? Would it be effective in ending your life?

- 0 I do not feel competent to kill myself
- 1 I am unsure if I would be competent to kill myself.
- 2 I am somewhat sure I would be competent to kill myself.
- 3 I am convinced that I would be competent in killing myself.

139. Right now, how sure are you that suicide is something you might actually do sometime, if left to your own devices?

- 0 I am certain I will not make an attempt.
- 1 I am unsure I will make an attempt one day, or the chances are about equal.
- 2 I am almost certain I will make an attempt one day.
- 3 I am certain I will make an attempt one day.

140. Over the past month, have you noticed yourself talking about death more than usual, even jokingly?

- 0 I have not referred to death in the past month.
- 1 I have talked about death, but no specific mention was made about wanting to die.
- 2 I have specifically said I want to die.
- 3. I have confided with someone that I want to commit suicide.

141. Over the past month, have you written about suicide or death (i.e. in poetry or in a diary)?

- 0 I have not written about suicide or death in the past month.
- 1 I have made general comments regarding death in the past month.
- 2 I have made specific comments about wanting to die.
- 3 I have made a specific reference about planning my suicide.

(CONTINUED NEXT PAGE)

142. Over the past month, have you thought about leaving a suicide note or writing a letter about your suicide?

- 0 I have not written a note or letter about suicide
- 1 I have thought about writing a suicide note but have not written one
- 2 I have at least partially written a suicide note or letter about my suicide or I have well thought out plans about what would go into such a letter or note
- 3 I have written a note or I have definite plans about what I will write in my suicide note.

143. Over the past month, have you actually done anything to prepare for committing suicide?

- 0 I have made no preparations toward committing suicide
- 1 I have not made any prepararations toward suicide, but I have thought seriously about what steps to take.
- 2 I have definitely started to organize my method of suicide
- 3 I have completed my preparation for my suicide and have them at my disposal.



**APPENDIX J**  
**The General Well-Being Schedule**

This section of the inventory contains questions about how you feel and how things have been going with you. For each question, select the statement which best matches how you feel, in general. Bubble the number next to the statement on the opscan form.

144. How have you been feeling in general during the past month?
- 0 - In excellent spirits
  - 1 - In very good spirits
  - 2 - In good spirits, mostly
  - 3 - I have been up and down in spirits a lot
  - 4 - In low spirits, mostly
  - 5 - In very low spirits
145. Have you been bothered by nervousness or "your nerves" during the past month?
- 0 - Extremely so -- to the point where I could not work or take care of things
  - 1 - Very much so
  - 2 - Quite a bit
  - 3 - Some -- enough to bother me
  - 4 - A little
  - 5 - Not at all
146. Have you been in firm control of your behavior, thoughts, emotions or feelings during the past month?
- 0 - Yes, definitely so
  - 1 - Yes, for the most part
  - 2 - Generally so
  - 3 - Not too well
  - 4 - No, and I am somewhat disturbed about it
  - 5 - No, I am very disturbed about it
147. Have you felt so sad, discouraged, hopeless or had so many problems that you wondered if anything was worthwhile? (during the past month)
- 0 - Extremely so, to the point that I have about given up
  - 1 - Very much so
  - 2 - Quite a bit
  - 3 - Some -- enough to bother me
  - 4 - A little bit
  - 5 - Not at all

(CONTINUED)

148. Have you been under or felt you were under any strain, stress or pressure during the past month?

- 0 - Yes, almost more than I could bear or stand
- 1 - Yes -- quite a bit of pressure
- 2 - Yes -- some, more than usual
- 3 - Yes -- some, about usual
- 4 - Yes -- a little
- 5 - Not at all

149. How happy, satisfied, or pleased have you been with your personal life during the past month?

- 0 - Extremely happy - couldn't be more satisfied or pleased
- 1 - Very happy
- 2 - Fairly happy
- 3 - Satisfied, pleased
- 4 - Somewhat dissatisfied
- 5 - Very dissatisfied

150. Have you had any reason to wonder if you were losing your mind, losing control over the way you act, talk, think or feel, or losing your memory? (during the past month)

- 0 - No, not at all
- 1 - Only a little
- 2 - Some, but not enough to be concerned
- 3 - Some, I have been a little concerned
- 4 - Some, I have been quite concerned
- 5 - Yes, very much so. I am very concerned

151. Have you been anxious, worried, or upset during the past month?

- 0 - Extremely so, to the point of being sick or almost sick
- 1 - Very much so
- 2 - Quite a bit
- 3 - Some, enough to bother me
- 4 - A little bit
- 5 - Not at all

(CONTINUED)

152. Have you been waking up fresh and relaxed during the past month?

- 0 - Yes, every day
- 1 - Yes, most every day
- 2 - Yes, fairly often
- 3 - No, less than half the time
- 4 - No, rarely
- 5 - No, none of the time

153. Have you been bothered by any illness, bodily disorder, pains or fears about your health during the past month?

- 0 - All of the time
- 1 - Most of the time
- 2 - A good bit of the time
- 3 - Some of the time
- 4 - A little of the time
- 5 - None of the time

154. Has your daily life been full of things that were interesting to you? (during the past month)

- 0 - All of the time
- 1 - Most of the time
- 2 - A good bit of the time
- 3 - Some of the time
- 4 - A little of the time
- 5 - None of the time

155. Have you felt downhearted and blue during the past month?

- 0 - All of the time
- 1 - Most of the time
- 2 - A good bit of the time
- 3 - Some of the time
- 4 - A little of the time
- 5 - None of the time

156. Have you been feeling emotionally stable and sure of yourself during the past month?

- 0 - All of the time
- 1 - Most of the time
- 2 - A good bit of the time
- 3 - Some of the time
- 4 - A little of the time
- 5 - None of the time

(CONTINUED)

157. Have you felt tired, worn out, used-up or exhausted during the past month?

- 0 - All of the time
- 1 - Most of the time
- 2 - A good bit of the time
- 3 - Some of the time
- 4 - A little of the time
- 5 - None of the time

*For the next four questions, select the best number on the scale from 0 - 10 that you would use to describe yourself for each question*

158. How concerned or worried about your **health** have you been during the past month?

0-- 1 -- 2 -- 3 -- 4 -- 5 -- 6 -- 7 -- 8 -- 9 --10  
Not concerned Very concerned

159. How **relaxed** or **tense** have you been during the past month?

0-- 1 -- 2 -- 3 -- 4 -- 5 -- 6 -- 7 -- 8 -- 9 --10  
Very relaxed Very tense

160. How much **energy, pep, or vitality** have you felt during the past month?

0-- 1 -- 2 -- 3 -- 4 -- 5 -- 6 -- 7 -- 8 -- 9 --10  
No energy Very energetic  
at all, tired & dynamic

161. How **depressed** or **cheerful** have you been during the past month?

0-- 1 -- 2 -- 3 -- 4 -- 5 -- 6 -- 7 -- 8 -- 9 --10  
Very depressed Very cheerful

162. Have you had severe enough personal, emotional, behavioral or mental problems that you felt you needed help, during the past month?

- 0 - Yes, and I did seek professional help
- 1 - Yes, but I did not seek professional help
- 2 - I have had severe personal problems, but have not felt I needed professional help
- 3 - I have had very few personal problems of any serious concern
- 4 - I have not been bothered at all by personal problems during the past month

(CONTINUED)

163. Have you ever felt that you were going to have, or were close to having a "nervous breakdown"?

- 0 - Yes, during the past month
- 1 - Yes, more than a month ago
- 2 - No

164. Have you ever had a "nervous breakdown"?

- 0 - Yes, during the past year
- 1 - Yes, more than a year ago
- 2 - No

165. Have you ever been a patient or outpatient of a psychiatric hospital or mental health clinic for any personal problem?

- 0 - Yes, during the past month
- 1 - Yes, more than a month ago
- 2 - No

166. Have you ever seen a psychotherapist about any personal, emotional, behavioral, or mental problem concerning yourself?

- 0 - Yes, during the past month
- 1 - Yes, more than a month ago
- 2 - No

Have you talked with or had any connection with any of the following **concerning yourself** during the past month?

167. Your medical doctor, family practice doctor , etc.

- 0 - No
- 1 - Yes

168. A neurologist or other brain specialist?

- 0 - No
- 1 - Yes

169. A nurse?

- 0 - No
- 1 - Yes

170. A lawyer?

- 0 - No
- 1 - Yes

171. A police officer?

- 0 - No
- 1 - Yes

(CONTINUED)

172. A clergyman, minister, or rabbi?  
0 - No  
1 - Yes
173. A marriage counselor or family therapist?  
0 - No  
1 - Yes
174. A social worker?  
0 - No  
1 - Yes
175. Any other formal assistance? (financial counseling, vocational counseling, etc?)  
0 - No  
1 - Yes
176. Do you discuss your problems with any members of your family or any friends?  
0 - Yes, and it helps a lot  
1 - Yes, and it helps some  
2 - Yes, but it does not help at all  
3 - No, I do not have anyone I can talk with  
4 - No, I don't care to talk about my problems  
5 - No, I do not have any problems

**APPENDIX K**  
**The Self-Rating Depression Scale**

Read each statement carefully, using the following scale, select the item that best describes how you have been feeling during the past month.

- 0 = None or a little of the time
- 1 = Some of the time
- 2 = A good part of the time
- 3 = Most or all of the time

- 177. I feel down-hearted, blue and sad.
- 178. Morning is when I feel best
- 179. I have crying spells or feel like it.
- 180. I have trouble sleeping through the night.
- 181. I eat as much as I used to.
- 182. I enjoy looking at, talking to, and being with attractive men/women.
- 183. I notice that I am losing weight.
- 184. I have trouble with constipation.
- 185. My heart beats faster than usual.
- 186. I get tired for no reason.
- 187. My mind is as clear as it used to be.
- 188. I find it easy to do the things I used to do.
- 189. I am restless and can't keep still.
- 190. I feel hopeful about the future.
- 191. I am more irritable than usual.
- 192. I find it easy to make decisions.
- 193. I feel that I am useful and needed.
- 194. My life is pretty full.
- 195. I feel that others would be better off if I were dead.
- 196. I still enjoy the things I used to.

**APPENDIX L**  
**The Problem Solving Inventory**

These next 35 questions are not a test; there are no right or wrong answers. Rather, this is an inventory designed to find out how people normally react to problems and events in their daily interactions. We are not talking about math or science problems, but rather about personal or social problems. Don't respond to the statements as you think you should respond. Rather, respond to the statements in such a way as to most accurately reflect how you actually behave when you solve personal problems.

Ask yourself: Do I ever do this behavior?

Directions: You are to read each of the 35 statements below and then **indicate the extent to which you agree or disagree with that statement, using the following alternatives:**

- 1 = Strongly Agree
- 2 = Moderately Agree
- 3 = Slightly Agree
- 4 = Slightly Disagree
- 5 = Moderately Disagree
- 6 = Strongly Disagree

1. When a solution to a problem is unsuccessful, I do not examine why it didn't work.
2. When I am confronted with a complex problem, I do not bother to develop a strategy to collect information so I can define exactly what the problem is.
3. When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation.
4. After I have solved a problem, I do not analyze what went right or what went wrong.
5. I am usually able to think up creative and effective alternatives to solve a problem.
6. After I have tried to solve a problem with a certain course of action, I take time and compare the actual outcome to what I thought should have happened.
7. When I have a problem, I think up as many possible ways to handle it as I can until I can't come up with any more ideas.

**(Continued)**



- 1 = Strongly Agree
- 2 = Moderately Agree
- 3 = Slightly Agree
- 4 = Slightly Disagree
- 5 = Moderately Disagree
- 6 = Strongly Disagree

8. When confronted with a problem, I consistently examine my feelings to find out what is going on in a problem situation.

9. When I am confused with a problem, I do not try to define vague ideas or feelings into concrete or specific terms.

10. I have the ability to solve most problems, even though initially no solution is immediately apparent.

11. Many problems I face are too complex for me to solve.

12. I make decisions and am happy with them later.

13. When confronted with a problem, I tend to do the first thing that I can think to solve it.

14. Sometimes I do not stop and take time to deal with my problems, but just kind of muddle ahead.

15. When deciding on an idea or possible solution to a problem, I do not take time to consider the chances of each alternative being successful.

16. When confronted with a problem, I stop and think about it before deciding on a next step.

17. I generally go with the first good idea that comes to my mind.

18. When making a decision, I weight the consequences of each alternative and compare them against each other.

19. When I make plans to solve a problem, I am almost certain that I can make them work.

20. I try to predict the overall result of carrying out a particular course of action.

21. When I try to think up possible solutions to a problem, I do not come up with very many alternatives.

(Continued)

- 1 = Strongly Agree
- 2 = Moderately Agree
- 3 = Slightly Agree
- 4 = Slightly Disagree
- 5 = Moderately Disagree
- 6 = Strongly Disagree

22. In trying to solve a problem, one strategy that I often use is to think of past problems that have been similar.
23. Given enough time and effort, I believe I can solve most problems that confront me.
24. When faced with a novel situation, I have confidence that I can handle problems that may arise.
25. Even though I work on a problem, sometimes I feel like I am groping or wandering, and not getting down to the real issue.
26. I make snap judgements and regret them later.
27. I trust my ability to solve new and difficult problems.
28. I have a systematic method for comparing alternatives and making decisions.
29. When I try to think of ways of handling a problem, I do not try to combine different ideas together.
30. When confronted with a problem, I do not usually examine what sort of external things in my environment may be contributing to my problem.
31. When I am confronted by a problem, one of the first things I do is survey the situation and consider all of the relevant pieces of information.
32. Sometimes I get so charged up emotionally, that I am unable to consider many ways of dealing with my problem.
33. After making a decision, the outcome I expected usually matches the actual outcome.
34. When confronted with a problem, I am unsure of whether I can handle the situation.
35. When I become aware of a problem, one of the first things I do is to find out exactly what the problem is.

**Curriculum Vitae: Michael J. Priester**

**PERSONAL INFORMATION**

Born: April 4, 1966  
Birthplace: Greenville, SC

Work Address: The Institute of Living  
Department of Clinical Psychology  
400 Washington Street  
Hartford, CT 06106  
(203)-241-6932 x6771

Home Address: 74 Union Place #310  
Hartford, CT 06103  
(203)-246-4542

**EDUCATION**

Ph.D. - Clinical Psychology - Expected May, 1994  
Virginia Polytechnic Institute and State University,  
Blacksburg, VA  
Dissertation Topic: A longitudinal analysis of coping  
with stress using coping strategy & problem-solving  
measures to predict psychological distress, depression,  
and suicidal ideation.  
Major Professor: George A. Clum, Ph.D., ABPP  
Preliminary Examination Status: Passed, March 18,  
1992.  
GPA: 3.75

M.S.- Clinical Psychology - Granted December, 1990  
Virginia Polytechnic Institute and State University,  
Blacksburg, VA  
Thesis Topic: A test of a problem-solving diathesis  
stress theory, after the occurrence of a naturalistic  
stressor.  
M.S. Major Professor: George A. Clum, Ph.D., ABPP  
GPA: 3.68

B.A.- Psychology - Granted December, 1988  
University of South Florida, Tampa, FL

**PROFESSIONAL AFFILIATIONS**

Student Member, Association for the Advancement of  
Behavior Therapy  
Student Affiliate, American Psychological Association

## ACADEMIC HONORS

University of South Florida:  
Honors Convocation, Fall, 1987  
Dean's List, 1987/1988

Virginia Polytechnic Institute and State University:  
Instructional Fee Scholarship, 1988/1989 &  
1992/1993

## RESEARCH PUBLICATIONS

Priester, M. J. & Clum, G. A. (in press). The problem-solving diathesis in depression, hopelessness, and suicidal ideation: A longitudinal analysis. Journal of Psychopathology and Behavioral Assessment

Priester, M. J. & Clum, G. A. (1993). Perceived problem-solving ability as a predictor of depression, hopelessness, and suicidal ideation in a college population. Journal of Counseling Psychology, 40(1), 79-85.

Priester, M. J. & Clum, G. A. (1992). Attributional style as a diathesis in predicting depression, hopelessness and suicidal ideation in college students. Journal of Psychopathology and Behavioral Assessment, 14(2), 111-122.

## RESEARCH PRESENTATIONS

Priester, M. S., Clum, G. A., Yang, B., Weaver, T. L., Curtin, L., and Canfield, D. (1993). Comparing suicidal and nonsuicidal college students on level of stress, self-appraised problem-solving ability and hopelessness. Paper presented at the annual convention of the Southeast Psychological Association, Atlanta, GA.

Clum, G. A., Curtin, L., Priester, M. J., Weaver, T.L., Weise, K., & Yang, B. (1992). Preliminary assessment data from an adolescent sample of chronic suicide ideators: A longitudinal analysis. Paper presented at the annual convention of the Association for the Advancement of Behavior Therapy, Boston, MA.

- Gould, R. A., Clum, G. A., & Priester, M. J. (1992). The use of a cognitive-behavioral self-help treatment approach for panic disorder. Paper presented at the annual convention of the Association for the Advancement of Behavior Therapy, Boston, MA.
- Priester, M. J. & Clum, G. A. (1992). Issues in the assessment of suicidality: Predicting distress in a chronic ideating group and in a non-ideating control sample. Paper presented at a symposium presentation during the annual meeting of the Virginia Psychological Association, Roanoke, VA.
- Clum, G. A., Gould, R. A., Priester, M., Weaver, T. & Shapiro, D. (1992). Bibliotherapy in the treatment of panic disorder. Paper presented at the XXVth International Congress of Psychology, Brussels, Belgium.
- Clum, G. A., Priester, M., Yang, B., Van Arsdel, M., & Canfield, D. (1992). An expanded stress/problem solving model of suicidal behavior. Paper presented at the XXVth International Congress of Psychology, Brussels, Belgium.
- Clum, G. A., Priester, M., Weaver, T., Putnam, D., Pickett, C., Gould, R., Yang, B., Weise, K., & Curtin, L. (1992). Group problem-solving and group social support treatments for chronic suicide ideation. Paper presented at the XXVth International Congress of Psychology, Brussels, Belgium.
- Weaver, T. L., Clum, G. A., Gillespie, B. & Priester, M. (1991). Early family environments and vulnerability factors associated with borderline personality disorder. Paper presented at the annual convention of the Association for the Advancement of Behavior Therapy, New York, NY.
- Lerner, M., Clum, G. A., Ragsdale, K, & Priester, M. (1989). Preventing youth suicide: A controlled treatment outcome study. Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Washington, DC.

Priester, M. J., Brad, M. & Patterson, D. (1988).  
Controlling verbal and physical aggression in a  
moderately mentally retarded adult using DRO.  
Paper presented at the annual meeting of the  
Florida Association for Behavior Analysis, Tampa,  
FL.

Priester, M. J., Brad, M., & Patterson, D. (1988).  
Decreasing verbal and physical aggression and  
increasing on-task performance with DRO plus time-  
out. Paper presented at the regional meeting of  
the Florida Association for Behavior Analysis,  
Hillsborough Division, Tampa, FL.

### **TEACHING EXPERIENCE**

August, 1992 - May, 1993

#### **Graduate Instructor**

Department of Psychology, Virginia Polytechnic  
Institute and State University, Blacksburg, VA.

**Faculty Advisor:** Joseph J. Franchina, Ph.D.

**Duties:** Instructed a class of 85 undergraduate  
students (psychology and nonpsychology majors) in a  
sophomore level course on the Psychology of Learning.  
This course included such topics as: classical &  
operant conditioning, social learning theory and  
opponent-process theory.

August, 1990 - December, 1990

#### **Graduate Teaching Assistant**

Department of Psychology, Virginia Polytechnic  
Institute and State University, Blacksburg, VA.

**Faculty Advisor:** George A. Clum, Ph.D.

**Duties:** Teaching assistant for graduate course in  
personality assessment. Lectured on topics of  
projective assessment and prediction of suicide risk.

December, 1989 - May, 1990

#### **Graduate Teaching Assistant/Laboratory Instructor**

Department of Psychology, Virginia Polytechnic  
Institute and State University, Blacksburg, VA.

**Faculty Advisor:** Ross Greene, Ph.D.

**Duties:** Instructed laboratory section in personality research. Specific duties included creating lesson plans and determining proper curriculum for course, creating assignments and tests for students.

August, 1988 - December, 1989

**Graduate Teaching Assistant**

Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, VA.

**Faculty Advisors:** Russell Jones, Ph.D. & Joseph Germana, Ph.D.

**Duties:** Lectured and assisted professor with several undergraduate classes, such as: Introductory Psychology, Psychology of Learning & Abnormal Psychology. Assisted professor with tutoring students in difficult material, constructing tests, and grading results.

**RESEARCH EXPERIENCE**

April, 1992 - September, 1993

**Dissertation Research**

**Supervisor/Major Advisor:** George A. Clum, Ph.D.

This study utilized a longitudinal design to assess the coping and problem-solving patterns of approximately 200 undergraduate college students. The purpose of the study was to explore the relationship between longstanding personality "traits" such as problem-solving ability to specific coping behaviors used to cope with a stressor. Variance in outcome measures such as dysphoric mood, anxiety, and somatic symptoms was accounted for by the personality variables.

November, 1990 - February, 1991

**Graduate Research Assistant**

**Supervisor:** George A. Clum, Ph.D.

**Duties:** Assisted with data collection and interviews with panic disordered adults undergoing self-guided treatments to increase efficacy in coping with their panic attacks.

March, 1991

**Graduate Research Assistant**

**Supervisors:** Lori Desiderado, Ph.D. & Richard Winett, Ph.D.

**Duties:** Assisted with data collection to compile data on frequency of "safe" and "unsafe" sexual behaviors in a population of homosexual males, in a naturalistic setting. This study is part of a grant funded by NIH to Dr. Winett.

December, 1990 - August, 1993

**Graduate Research Assistant**

**Supervisors:** George A. Clum, Ph.D. & Carolyn Pickett, Ph.D.

**Duties:** 15 hour assistantship assisting with therapy duties for Dr. Clum's NIMH-funded treatment study regarding therapy with suicidal young adults. Assisted with the provision of clinical services, statistical analysis of data, and presentation of findings at professional meetings.

December, 1988 - December, 1990

**Masters Thesis Research**

**Supervisor/Major Advisor:** George A. Clum, Ph.D.

In this study, approximately 350 college students were assessed with measures of problem-solving ability, attributional style and psychological adjustment before and after an important examination. Post examination levels of distress were found to be predicted by pre-examination levels of problem solving ability.

**SUPERVISED CLINICAL EXPERIENCE**

September, 1993 - September, 1994

**Clinical Psychology Intern**

The Institute of Living, Hartford, CT.

**Supervisors:** James DeGiovanni, Ph.D., Bruce Reis, Ph.D., Leslie Lothstein, Ph.D., L. Charles Carr, Ph.D., Batul Ahmed, M.D.



**Duties:** Received training in two therapy rotations and in conducting psychological and neuropsychological testing.

**Inpatient Rotation (6 months):** Served as a primary therapist on a young adult and adolescent unit. Coordinated all aspects of patient care: conducted individual, group, couple, and family therapy; developed and implemented master treatment plans with quantitative behavioral treatment goals; collaborated with other mental health professionals on multi-disciplinary treatment team; provided psychological consultation to psychiatrists and psychiatric social workers; received introductory training in somatic and psychopharmacological therapies. Patient Diagnoses included: Psychotic disorders (acute and chronic), Personality disorders, Mood disorders, Anxiety disorders, and Eating Disorders.

**Outpatient/Day Hospital Rotation (6 months):** Served as an individual and group therapist in the Adult Day Treatment Program. Carried several short-term and intermediate term patients in the Outpatient program. Served as a psychological consultant to the multi-disciplinary treatment team in the Day Treatment Program.

**Psychological/Neuropsychological Testing:** Conducted approximately 20 full batteries of personality (objective and projective instruments), cognitive, and neuropsychological tests on hospital inpatients and partial hospital patients. Received comprehensive supervision regarding qualitative and quantitative aspects of psychological evaluations.

**(2000 hours)**

December, 1990 - August, 1993

**Group Therapist**

Virginia Polytechnic Institute & State University,  
Blacksburg, VA

**Supervisors:** George A. Clum, Ph.D. & Carolyn Pickett, Ph.D.

**Duties:** Conducted short term (10 session) group therapy with small groups (5-3 people) of suicidal young adults ages 18-24. Therapy orientation: cognitive-behavioral (problem-solving) therapy. On call 24 hours for crisis responses.

**(235 hours)**

May, 1992 - August, 1993

**Emergency Services Relief Clinician**

RAFT Crisis Center, New River Valley Community Services Board, Blacksburg, VA

**Supervisors:** Sue Bentley, Ph.D., Kathy Pollock, M.S.N., & Dennis Cropper, Ph.D.

**Duties:** Provided relief coverage for local community crisis center. Specific duties included: short-term crisis counseling, crisis stabilization, and assessment for dangerousness to self and others. Provided recommendations to magistrate for initiation of emergency commitment orders to state and private psychiatric hospitals. Patient population included: chronic schizophrenic, severely depressed, suicidal, and organically impaired patients.

**(130 hours)**

August, 1991 - August, 1992

**Advanced Practicum Student**

Psychological Services Center, Department of Psychology, Virginia Polytechnic Institute and State University

**Supervisors:** Thomas H. Ollendick, Ph.D. & Ellie Sturgis, Ph.D.

**Duties:** Conducted long-term (70 sessions), dynamic - interpersonal psychotherapy with two adult clients. Client diagnoses included: anxiety disorders, mood disorders, personality disorders. Conducted assessments of psychotherapy process and outcome. Supervised 1st year graduate student on child psychotherapy case.

**(330 hours).**

May, 1990 - June, 1991

**Psychology Extern**

St. Albans Psychiatric Hospital, Radford, VA.

**Supervisors:** Tom Camp, Ph.D. & Glenda Camp, Ph.D.

**Duties:** Conducted group therapy with anxiety-disordered, short-term, adult psychiatric inpatients. Group therapy approaches were psychoeducational and process-oriented. Conducted short-term (5-10 sessions) individual cognitive-behavioral therapy with inpatients and outpatients. Patient population

included: a variety of neurotic and personality disordered patients. Several combat and abuse related PTSD patients were seen at this placement. Administered and interpreted approximately 12 full assessment batteries consisting of objective, projective and neuropsychological tests. Assessment population included: organically impaired patients (Alzheimer's, Multi-Infarct Dementia, Huntington's Chorea, closed head trauma), psychotic patients, and neurotic patients (880 hours).

May, 1990 - August, 1990

**Graduate Clinician**

Psychological Services Center, Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, VA.

**Supervisors:** Richard M. Eisler, Ph.D. & Jack Finney, Ph.D.

**Duties:** Conducted short-term psychotherapy (6 - 20 sessions) with approximately 15 clients. Therapy orientations included cognitive-behavioral, interpersonal and psychodynamic psychotherapy. Client diagnoses included: major depression, dysthymia, panic disorder, generalized anxiety disorder) as well as a variety of Axis II diagnoses. Administered and interpreted 5 full batteries of intellectual and neuropsychological tests (e.g. WISC-R, Woodcock-Johnson, VMI) on children (ages 6-9) to screen for ADHD. Administered and interpreted approximately 6 full personality/intellectual batteries consisting of: MMPI, TAT, Rorschach, WAIS-R. Of these assessments, two were on forensic, court-ordered counseling or assessment cases.

(360 hours)

August, 1989 - May, 1990

**Clinical Psychology Practicum Student**

Psychological Services Center, Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, VA

**Supervisor:** Richard Eisler, Ph.D.

**Duties:** Conducted short-term (10-30 sessions) cognitive- behavioral and interpersonal psychotherapy with five adult clients (ages 18-45), and two child clients (ages 8 & 11). Client diagnoses included: dysthymia, major depression, panic disorder,

generalized anxiety disorder, borderline and avoidant personality disorders. Conducted short-term (10 session) marital therapy. Administered and interpreted two full intellectual/personality assessment batteries on adults for purposes of treatment evaluation. Conducted short term (15 session) group therapy with anxiety and mood disordered patients. Group therapy orientation: interpersonal, process-oriented. (330 hours).

August, 1988 - May, 1989

**Clinical Psychology Practicum Student**

Psychological Services Center, Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, VA.

**Supervisors:** Caryn Carlson, Ph.D., Thomas Ollendick, Ph.D., & Richard Winett, Ph.D.

**Duties:** Conducted short-term, behaviorally-oriented therapy with two conduct-disordered child clients, and short-term, cognitive-behavior therapy with a depressed adult

(330 hours).

**Total hours of supervised clinical experience = 4575**

**PREGRADUATE SUPERVISED CLINICAL EXPERIENCE**

July, 1987 - August, 1988

**Behavior Modification Specialist**

J. Clifford MacDonald Center, Tampa, FL

**Supervisors:** Mara Brad, M.S., & J.B. Black, Ph.D.

**Duties:** Developed, implemented and supervised behavior programs for mentally retarded adults to increase on-task work behavior and decrease behavior problems, such as self-injurious behaviors. Provided individual, short-term, (5-7 sessions) problem-focused and supportive counseling with select, higher-functioning clients.

November, 1985 - June, 1988

**Paraprofessional Crisis Counselor**

Paraprofessional Counseling Service, University of South Florida, Tampa, FL

**Supervisors:** Bernard Lax, Ph.D., & Marcia Houseman,  
Ph.D.

**Duties:** Crisis counselor on suicide hotline  
("Helpline").

*Michael Priester MS*  

---

Michael Priester, M.S.