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Problem-Solving Self-Appraisal, Depression, and Attributional Style: Are They Related?[1]

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Whereas previous research linking problem solving and depression has focused on problem-solving skills related to laboratory tasks, the relationship between higher-order cognitive variables such as an appraisal of one's general problem-solving skills and depression has not been addressed. Likewise, while attributions of one's behavior have been linked to depression, it is unclear if attributions are related to problem-solving appraisal. The present study examined both of these research problems. Self-appraised effective or ineffective problem-solvers completed the following: Beck Depression Inventory, Feelings and Concerns Survey, Attributional Style Questionnaire, and Mooney Problem Checklist. Results indicated that (a) assessment of one's problem-solving skills are related to the number of personal problems reported, and to ratings of short- and long-term depression; (b) assessment of one's problem-solving skills do not seem to be linearly related to attributional style; and (c) attributional style is not linearly related to depression. Results are discussed in terms of real-life problem-solving processes and a more complex model of depression.

The present study investigated the relationship between problem solving and depression. Previous research on this question has focused on problem-solving skills related to laboratory tasks, and has produced mixed findings. Some investigators have found that depressed subjects scored significantly worse than nondepressed subjects in the number of trials utilized, comple-

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tion time, and number of anagrams solved correctly (e.g., Klein, Fencil-Morse, & Seligman, 1976; Miller & Seligman, 1975). Yet other investigations have not confirmed these findings (e.g., Gotlib & Asarnow, 1979; Sacco & Hokanson, 1978). However, these predefined laboratory problems may be different from, and perhaps an inaccurate representation of, real-life personal problems (e.g., Horan, 1979; Janis & Mann, 1977).

More recently, investigators have provided evidence suggesting that how one appraises one's problem-solving skills (a higher-order cognitive variable) affects one's problem-solving performances (e.g., Butler & Meichenbaum, 1981; Heppner, Hibel, Neal, Weinstein, & Rabinowitz, 1982). The relationship between problem-solving self-appraisal and depression, however, has not been addressed. Likewise, it is unknown if one's problem-solving self-appraisal and depression are related to quantity of reported personal problems. Perhaps those who perceive themselves as effective problem-solvers are more successful in coping with personal problems, thereby reporting fewer problems, and less depression. An investigation of the relationships among problem-solving self-appraisal, number of reported personal problems, and depression was therefore one goal of the present study.

Another goal of the present study was to examine the relationship between problem-solving appraisal and attributional style. The relationship between attributions and problem-solving appraisal is interesting given recent attention to attributional analyses of specific problems, such as rape (Janoff-Bulman, 1979), text anxiety (e.g., Arkin, Detchon, & Maruyama, 1982), coping with job stressors (Hammen, Krantz, & Cochran, 1981), and failure (e.g., Dweck, 1975). In fact, several authors have hypothesized a self-defeating, general attributional style for depressed subjects (e.g., Abramson, Seligman, & Teasdale, 1978; Miller & Norman, 1979). Perhaps a depressive attributional style is related to a more general problem-solving style, or is absent in subjects reporting relatively few difficulties in solving personal problems. Therefore, the second goal of this study was to examine the relationships involving problem-solving appraisal, number of reported personal problems, and attributional style.

METHOD

Subjects

Approximately 500 undergraduate students at a large midwestern university initially completed the Problem Solving Inventory (PSI; Heppner & Petersen, 1982) at the beginning of the fall semester, 1981. From this

group, 10 males and 10 females were randomly selected for further participation from both the top (M = 114.0, SD = 10.3) and bottom (M = 60.8, SD = 7.4) 18% of PSI scores. These subjects (N = 40) had a mean age of 18.4 and were primarily freshmen, white, and unmarried.

Instruments

The Problem Solving Inventory (PSI; Heppner & Petersen, 1982) assesses people's *perceptions* of their personal problem-solving behaviors and attitudes. The PSI consists of 32 6-point Likert items, where low scores indicate behaviors and attitudes typically associated with perceptions of "effective" problem solving (i.e., feeling confident in problem solving, approaching problems, and expressing personal control). The PSI assesses one's appraisal of one's problem-solving skills, and scores should not be considered synonymous with actual problem-solving skills (Heppner, 1982). Factor analyses revealed three distinct constructs: problem-solving confidence (11 items), approach-avoidance style (16 items), and personal control (5 items). Reliability estimates revealed that the constructs were internally consistent (.72 to .90, N = 150) and stable over a 2-week period (.83 to .89, N = 31). Validity estimates are provided in several investigations (Heppner et al., 1982; Heppner & Krieshok, 1983; Heppner & Petersen, 1982; Heppner, Reeder, & Larson, 1983).

The Beck Depression Inventory (BDI; Beck, 1972; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) has 21 items relating to particular symptoms of depression. Higher scores indicate more severe levels of depression. The BDI has been used widely; a variety of reliability and validity estimates exist for the BDI (e.g., Beck, 1967; Bumberry, Oliver, & McClure, 1978; Sacco, 1981; May, Urquhart, & Tarran, 1969).

The Feelings and Concerns Survey (FACS; Nelson, 1981) consists of 18 5-point Likert items assessing frequency of feelings and concerns related to depression over the previous 4 years. Higher scores indicate higher levels of depression. An estimate of internal reliability was .87 for 378 college students. Test-retest reliability for 80 students over 2 to 4 weeks was .79. Initial estimates of validity revealed a moderate correlation (r = .43) with the BDI (Nelson, 1981).

The Attributional Style Questionnaire (ASQ) is a 60-item questionnaire that measures tendencies to explain positive and negative events in terms of internal (versus external), stable (versus unstable), and global (versus specific) causes. Peterson et al. (1982) report internal reliability estimates for each of the dimensions (range = .44 to .69), as well as composite scores for positive (.75) and negative (.72) events. Test-retest reliabilities for 100 subjects over a 5-week period ranged from .57 to .69 for

the dimensions, .70 for positive events, and .64 for negative events (Peterson et al., 1982). Validity estimates are provided by Raps, Peterson, Reinhard, Abramson, and Seligman (1982).

The Mooney Problem Checklist (MPC; Mooney & Gordon, 1950) consists of 330 items that constitute 11 scales or major problem areas (e.g., Health and Physical Development and Social-Psychological Relations). Low scores indicate fewer reported problems. The Mooney has been used extensively in studies of student problems (e.g., DeSena, 1966; Hartman, 1968), and test-retest reliabilities range from .90 to .98.

RESULTS

A summary of the 2(PSI: High vs. Low) × 2(Sex: Male vs. Female) analyses of variance (ANOVAs) on the BDI, FACS, and MPC is presented in Table I. No statistically significant differences were found by sex; consequently, these results will not be discussed further. A statistically significant difference was found on the BDI by PSI; subjects who scored low on the PSI had lower BDI scores than subjects who scored high on the PSI ($F(1, 36) = 7.44$, $p < .01$). A strength of association ($\omega^2 = .13$) revealed that approximately 13% of the total variance on the BDI was accounted for by problem-solving appraisal. The 2 × 2 ANOVA on the FACS revealed one statistically significant finding: Subjects who scored low on the PSI (perceived effective problem-solvers) had lower FACS scores than subjects who scored high on the PSI ($F(1, 36) = 18.3$, $p < .0001$). A strength of association ($\omega^2 = .30$) revealed that approximately 30% of the total variance on the FACS was accounted for by problem-solving appraisal.

A 2(PSI) × 2(Sex) ANOVA on the MPC revealed a statistically significant PSI main effect ($F(1, 36) = 7.58$, $p < .01$); subjects who scored low on the PSI acknowledged fewer problems on the MPC. A strength of association ($\omega^2 = .12$) revealed that approximately 12% of the total variance on the MPC was accounted for by problem-solving appraisal. In addition, Pearson product-moment correlations involving the total number of problems reported on the MPC with the BDI and FACs revealed statistically significant correlations, $r = .47$ ($p < .002$) and $r = .42$ ($p < .007$), respectively.

A series of 2(PSI: High vs. Low) × 2(Sex: Male vs. Female) ANOVAs were conducted on each of the positive and negative ratings for the three subscales of the ASQ (internal vs. external, stable vs. unstable, global vs. specific) and the composite scores.[3] The results revealed one statistically

[3]Composite analyses were conducted as recommended by Raps et al., 1982.

Table I. A Summary of the PSI × Sex ANOVAs on the Three Dependent Measures, BDI, FACS, MPC, and ASQ[a]

	PSI					Sex				
	Low scorers		High scorers			Male		Female		
	M	*SD*	*M*	*SD*	*F*	*M*	*SD*	*M*	*SD*	*F*
BDI	5.1	3.5	8.7	5.0	7.44[c]	5.9	4.6	7.8	4.7	1.80
FACS	33.1	5.2	42.4	8.4	18.34[d]	37.0	7.1	38.5	9.6	.43
ASQ: Positive										
Internal/external	5.5	1.0	5.5	.7	.02	5.5	.9	5.5	.8	.01
Stable/unstable	5.8	.5	5.4	.7	4.70[b]	5.6	.7	5.6	.6	.01
Global/specific	5.4	.8	5.1	.8	1.14	5.1	.7	5.4	.9	1.28
Composite	16.6	1.9	15.9	1.7	1.57	16.1	1.9	16.4	1.7	.24
ASQ: Negative										
Internal/external	4.3	1.0	4.7	1.1	1.22	4.4	1.3	4.6	.8	.45
Stable/unstable	4.1	.7	4.3	1.0	.32	4.3	.9	4.1	.9	.31
Global/specific	4.3	1.0	4.4	1.1	.19	4.2	1.2	4.5	.9	1.06
Composite	12.7	1.8	13.4	2.7	.90	12.9	2.7	13.3	1.9	.31
MPC	38.4	19.5	55.3	23.2	7.58[c]	40.8	19.8	52.9	24.5	3.89

[a]BDI = Beck Depression Inventory; FACS = Feelings and Concern Survey; ASQ = Attributional Style Questionnaire; PSI = Problem Solving Inventory; MPC = Mooney Problem Checklist; Low Scorers indicates lack of problem-solving confidence,approaching tasks, and personal control; High Scorers indicates lack of problem-solving confidence, avoiding tasks, and lack of personal control.

[b]$p < .05$.

[c]$p < .01$.

[d]$p < .001$.

significant finding: subjects who scored low on the PSI had higher stability scores on positive events than those who scored high on the PSI ($F(1,36) = 4.70$, $p < .05$. See Table I for specific F ratios). In addition, Pearson product-moment correlations calculated between the six subscales and composite scores of the ASQ and the total number of problems on the MPC were statistically nonsignificant (all p's $> .05$). Correlations for positive and negative events, respectively, for each subscale were as follows: internal/external, r's = .08, .20; stable/unstable, r's = −.02, .18; global/specific, r's = −.14, .19; composite, r's = −.30, .25.

DISCUSSION

The results of the study suggest that problem-solving appraisal is related to the number of personal problems reported; subjects who scored high on the PSI (i.e., rated themselves as lacking confidence, avoiding problems, and lacking control) reported having more personal problems. The study also suggests that while problem-solving appraisal is related to both short- and long-term depression, it is more strongly associated with the latter. Perhaps long-term depression reflects a more pervasive phenomenon, and thus is more strongly related to a more general problem-solving appraisal. In short, these results support the Butler and Meichenbaum hypothesis (1981) that self-appraisal variables (e.g., problem-solving confidence) are related to problem-solving outcomes, such as the number of reported problems and depression.

The results of the study also suggest that problem-solving appraisal is not strongly related to general attributional style, assessed in relation to hypothetical situations (only one of eight analyses between these two variables was statistically significant). In addition, attributional style was not significantly correlated with the number of personal problems reported. This supports an earlier observation that attributions of causality and cognitions about coping may be separate processes (Hammen & deMayo, 1982). This does not imply that attributional style is an unimportant variable in the problem-solving process. Instead, the results might best be interpreted as indicating the absence of a strong linear relationship between problem-solving appraisal and attributional style. Perhaps these variables are related in a more complex manner and vary across problem situations.

Recent investigators have maintained that a more complex cognitive model of depression is needed (e.g., Huesmann, 1978; Wortman & Dintzer, 1978), and several studies have supported this (e.g., Coyne, Aldwin, & Lazarus, 1981; Gong-Guy & Hammen, 1980). Specifically, Gong-Guy and Hammen (1980) have suggested that higher-order cognitions about consequences and coping may be important variables within a model of depres-

sion. The present study provides data consistent with this view; higher-order cognitions about problem solving were related to short- and long-term depression. In addition, Hammen & deMayo (1982) suggested that evaluation of one's ability to deal with problems may be more strongly related to depression than general causal attributions. This hypothesis was tested, in part, through post hoc analyses on the correlations involving the ASQ, BDI, and FACS. The correlations, ranging from $-.10$ to .18 for the BDI, and from $-.21$ to .27 for the FACS, were statistically nonsignificant (p's $>$ .05).[4] These findings are in contrast to those reported earlier in the study where the strength of association between problem-solving self-appraisal and the BDI and FACS was 13% and 30%, respectively. In short, problem-solving appraisal was more strongly related to depression than were general causal attributions.

Several limitations of the study should be considered in interpreting the findings. The study presents correlational data, and causal relationships among the variables are unclear. The investigation utilized a general attributional style measure, regarding hypothetical situations, so generalizability of these results to real-life problem situations is limited. The study also utilized relatively normal college students, so the results may not generalize to severely depressed populations. Nonetheless, the results of the study confirm earlier findings and provide new information about problem-solving appraisal, depression, and attributional style. Follow-up research seems needed to describe more complex models of both depression and applied problem solving.

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[4]It is important to note that the magnitude of the correlations between the BDI and ASQ were lower than reported by Seligman, Abramson, Semmel, and von Baeyer (1979) but comparable to those found in later investigations (cf. Blaney, Behar, & Head, 1970; Golin, Sweeney, & Shaeffer, 1981). The smaller sample size utilized in this study may account for the statistically nonsignificant correlations. In addition, our select sample resulted in slightly higher means for the BDI but similar ASQ means in comparison with previous research samples (e.g., Golin, et al., 1981); thus, different sampling distributions might also account for the discrepancies. Nonetheless, it is important to note that the small correlations found in this study and others in the literature between the ASQ and BDI (r's range from .1 to .3) are relatively small and account for 1% to 9% of the variance between these measures. These correlations suggest that other variables not considered in these investigations may be more strongly related to depression.

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