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ABSTRACT

This experiment investigated: (1) relationships among locus of control, attributional style, and depression; (2) if a depressogenic attributional style could be empirically isolated; and (3) if reliable relationships existed between attribution and depression when depression was operationalized using different instruments. Subjects completed the Beck Depression Inventory, Rotter's I-E Scale, the Attributional Style Questionnaire, and MMPI-2. Gender-combined analyses showed that an internal, stable and global attributional style for positive events was negatively correlated with depression, and that depression was positively correlated with locus of control, with these relationships reliable across measures of depression for females only. Factor analyses of gender-combined, female and male data yielded factors of depression, behavioral helplessness, and hopelessness. A female pessimism, and male optimism, factor also emerged. Results were discussed in relationship to learned helplessness, hopelessness, and sex differences in the prevalence of depression. (Author)

Sex Differences in Locus of Control, Helplessness, Hopelessness, and Depression

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Abstract

This experiment investigated: 1) relationships among locus of control, attributional style, and depression; 2) if a depressogenic attributional style could be empirically isolated; and 3) if reliable relationships existed between attribution and depression when depression was operationalized using different instruments. Subjects completed the Beck Depression Inventory, Rotter's I-E Scale, the Attributional Style Questionnaire, and MMPI-2. Gender-combined analyses showed that an internal, stable and global attributional style for positive events was negatively correlated with depression, and that depression was positively correlated with locus of control, with these relationships reliable across measures of depression for females only. Factor analyses of gender-combined, female and male data yielded factors of depression, behavioral helplessness, and hopelessness. A female pessimism, and male optimism, factor also emerged. Results were discussed in

relationship to learned helplessness, hopelessness, and sex differences in the prevalence of depression.

Locus of Control, Helplessness and Hopelessness, and Their Relationship to Depression for Both Males and Females

For over two decades, researchers attempting to understand depression have emphasized the importance of cognitive processes in their study of this form of psychopathology. Perhaps starting with Beck's "schema theory" of depression (Beck, 1967; Beck, Rush, Shaw, & Emery, 1979), and including Rotter's notion of locus of control (Benassi, Sweeney, & Dufour, 1988) and Seligman and Abramson's formulations of helplessness/hopelessness theory (Abramson, Seligman, & Teasdale, 1978; Abramson, Metalsky, & Alloy, 1989), cognitive process theories have served as an important heuristic in the study of depressive onset, maintenance, and treatment.

While the research in this area has been extensive, it has not been conclusive. For example, studies which have explored the relationship between locus of control and depression, and attributional style and depression, have typically yielded paradoxical findings concerning the ways in which

depressed people tend to explain the occurrence of various events in their lives.

On one hand, studies which have examined the relationship between locus of control and depression have typically shown that depressed individuals tend to attribute the cause of life events to fate or chance (i.e., an external locus of control) rather than to themselves (i.e., an internal locus of control). In fact, in a meta-analysis of 97 studies conducted from 1966 - 1986, Benassi et al. (1988) concluded that depression was associated with a tendency to attribute the cause of events and outcomes to external rather than to internal factors.

On the other hand, research guided by learned helplessness theory (and its revisions) has typically shown that depression is associated with an internal, stable and global attributional style for negative events (Bruder-Mattson & Hovanitz, 1990), and that a negative relationship exists between depression and attributions of internality and stability for good outcomes (Seligman, Abramson, Semmel, & von Baeyer, 1979). The later findings, though not typically as

strong or as conclusive as those for positive events (Needles & Abramson, 1990), suggest that people who are depressed attribute bad events (or the absence of good events) to stable characteristics of themselves (i.e., an internal attributional style) rather than to chance or fate.

Empirical and theoretical attempts to accommodate these paradoxical findings have typically appealed to the concepts of self-blame or self-esteem as constructs which could be used to refine theory, guide research, and more precisely specify the relationship between depression and attribution. Cummins (1989), for example, found that depressed individuals tended to perceive favorable events as being caused by other people or chance (i.e., external) while blaming themselves for the occurrence of unfavorable outcomes (i.e., internalized self-blame).

Theoretically, Abramson et al. (1989) have recently presented a reformulation of learned helplessness theory, which they refer to as "hopelessness theory," which assumes the existence of a subtype of depression (i.e., hopelessness

depression), the onset of which is related to "the expectation that highly desired outcomes will not occur or that highly aversive outcomes will occur and that one cannot change this situation" (Dykman & Abramson, 1990, p. 45). Proponents of hopelessness theory also hypothesize that, when negative events are attributed to internal, stable and global causes, helplessness will be accompanied by lowered self-esteem. This formulation thus assumes the existence of a "depressogenic attributional style" which includes a general tendency to attribute negative events to stable, global causes and a tendency to view these negative events as being very important (Dykman & Abramson, 1990, p. 46). It also assumes that, for those with this depressogenic style, the occurrence of a negative event implies that they are in some way unworthy or deficient (i.e., an attribution about one's self as distinct from one's behavior).

This study was designed to examine the paradoxical role of locus of control and attributional style as they relate to depression in a single sample

of subjects, and specifically explored the various hypotheses concerning the existence of the attributional clusters proposed by hopelessness theory. To this end, factor analyses of attributional variables were conducted to determine if a cluster of "depressogenic attributions" (consisting of variables used to operationalize attributed stability and globality of negative events, reduced self-esteem, self-blame and hopelessness) could be found. In addition, unlike most prior research which has analyzed gender-combined data and ignored the fact that depression occurs more frequently in females than males (Abramson & Andrews, 1982), and the findings which suggest that females and males differ in coping styles (Hovanitz & Kozora, 1989; Lazarus & Folkman, 1984), this study included both gender-combined and gender-separate analyses designed to explore the possible differences in attributions and attributional clusters which may occur as a function of sex (see also Bruder-Mattson & Hovanitz, 1990). A further purpose of this study was to measure depression using two separate instruments to determine if the results

of previous experiments, which have typically relied on the Beck Depression Inventory (Beck, 1967) as a measure of depression, may be colored by the unique definition of depression provided by this instrument.

Method

Participants

Participants in this study were 168 undergraduate students enrolled in introductory psychology courses at Moorhead State University. Of the 168 subjects, 43 had incomplete data, and were not included in the analysis. Of the remaining participants, 88 were females and 37 were males. Participants received extra course credit for their participation.

Procedure

All subjects were asked to complete the Beck Depression Inventory (BDI; Beck, 1967), the Internal-External Locus of Control Scale (Rotter, 1966), the Attributional Style Questionnaire (ASQ; Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982), the Self-Esteem Inventory (SEI; Coopersmith, 1981), and the Minnesota Multiphasic Personality

Inventory-2 (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Krammer, 1989).

Instruments

Beck Depression Inventory (BDI):

The BDI is a 21 item inventory of depressive symptoms (Beck, 1967; Beck, Ward, Mendelson, Mock, & Erbaught, 1961). The reliability and validity of this inventory as a measure of depression have been supported in a number of studies (Rehm, 1976). Beck, Steer, and Garbin's (1988) review indicates that the BDI is also a valid and reliable measure of depression in college student populations. Participants in this study were considered depressed if they received a score of 8 or above on the BDI.

Internal-External Locus of Control Scale (I-E Scale):

This scale consists of 29 items designed to measure an individual's locus of control (Rotter, 1966). People with an internal locus of control view reinforcement as the result of their own actions. An external locus of control refers to the belief that reinforcement is the result of factors beyond one's control. Rotter (1966) reports a test-retest

reliability coefficient of .72 for 60 college students after one month, and a coefficient of .55 for a separate group of 117 college students after two months.

Attributional Style Questionnaire (ASQ):

The ASQ consists of 12 hypothetical situations with 6 positive and 6 negative situations. The participants are asked to rate the cause on 7-point scales which measure the degree of internality, stability, and globality. The higher the score, the more internal, stable, or global is the attribution. Peterson and Seligman (1984) reported internal consistency reliabilities of .66 for internality, .85 for stability, and .88 for globality. Furthermore, the causes written by the participants for each of the events on the ASQ were classified as behavioral, characterological, or external by individual raters. A subject's attribution was classified as behavioral if it referred to the individual's behavior, characterological if it referred to the individual's personality traits or abilities, and external if it

referred to external factors beyond the individual's control.

Self-Esteem Inventory (SEI):

This instrument consists of 25 items designed to measure an individuals level of self-esteem (Coopersmith, 1981). Each item is scored individually, with a maximum score of 100. A score in the top quartile reflects high self-esteem and a score in the bottom quartile reflects low self-esteem (Coopersmith, 1959).

Minnesota Multiphasic Personality Inventory 2 (MMPI-2):

The MMPI-2 (Butcher et al., 1989) is a broad-based inventory and diagnostic tool. While the entire MMPI-2 was administered to subjects in this study only those scales listed in Table 1 were included in the data analysis.

Results

The correlational and factor analytic results of this study are presented in Tables 2 - 6. Tables 2 and 3 present Pearson Product Moment correlations between a set of attributional and other variables and

two separate measures of depression (i.e. Scale 2 of the MMPI-2 and the BDI), while Tables 4, 5, and 6 present factor analytic data. Tables 2 and 4 present analyses of gender-combined data, while Tables 3, 5, and 6 present the results when the data were analyzed gender-separate. A "variable key" for all of the variables listed in Tables 2 - 6 is presented in Table 1.

Insert Table 1 about here

All factor analyses completed in this study employed a principal components analysis rotated to varimax criteria. For all factor analyses, initial analyses were conducted and subjected to a scree test to reduce the number of factors to those which would account for a significant percentage of total variance. This scree test indicated that four significant factors could be extracted from the correlational data. As a result, the final analyses included in Tables 4 - 6 are presented as four factor solutions.

Insert Table 2 about here

Insert Table 3 about here

Analysis of Tables 2 and 3 reveals a maximum correlation between MMPI-2 Scale 2 and the BDI of 0.609 (for females), a minimum correlation of .335 (for males), and an overall correlation of .568 (Table 2, gender-combined). These data suggest that, at best, these measures maintain only 37% of variance in common and, as a result, may show different relationships to various attributional and other variables. Further analysis of Tables 2 and 3 demonstrates this (particularly in Table 3) since not all listed significant correlations between variables and measures of depression are replicated across the BDI and MMPI-2 for either gender-combined or within-sex, gender-separate data.

Consideration of Table 2 shows the presence of reliable significant positive correlations across

measures of depression for locus of control, global negative, and a summation of negative measures on the ASQ (co neg). Reliable significant negative correlations across measures of depression include those for internal positive, stable positive, global positive, hopeful, a summation of positive ASQ measures (co pos), and self-esteem (Coopersmith). All levels of significance range from $p<.05$ to $p<.001$.

Analysis of the gender-separate data presented in Table 3 shows that, for females, a reliable significant positive correlation across depression measures emerge for Rotter's I-E Scale. Reliable significant negative correlations across depression measures emerge for internal positive, stable positive, global positive, hopeful, co pos, and self-esteem.

For males, Table 3 shows that there are no significant, reliable correlations (either positive or negative) which emerge across measures of depression or attribution for any of the variables included in the analysis. These findings underscore the variations in results noted across the two different

measures of depression, as well as the sex differences in the patterns of correlations revealed in this Table. For example, while eight variables were found to correlate significantly with the BDI for females, only three variables showed significant correlations with the BDI for males. Of these, two (behavioral self-blame and external) were not found to yield significant correlations for females, and one (self-esteem) was found to correlate significantly (though weakly) in a direction opposite than the one noted for females.

Insert Table 4 about here

Table 4, which presents the gender-combined factor analytic data, shows the existence of four factors which are best summarized as Depression (Factor 1), Behavioral Helplessness (Factor 2), Pessimism (Factor 3), and Hopelessness (Factor 4). Of note is the fact that only locus of control (positive loading) and the Coopersmith measure of self-esteem (negative loading) were found to be related to the

dimension of depression specified by Factor 1 at any level of significance.

Factor 2, labeled Behavioral Helplessness, is defined by a number of significant variables with both positive (personal helplessness, behavioral self-blame, internal negative, and co neg) and negative (universal helplessness and external) loadings. Factor 3, summarized as Pessimism, includes many variables with significant negative loadings (behavioral helplessness, internal positive, stable positive, global positive, hopeful, co pos), and one variable with a positive loading (external). For the final factor, Hopelessness, significant positive loadings emerged on internal negative, stable negative, global negative, hopelessness, and co neg.

Insert Table 5 about here

Insert Table 6 about here

Tables 5 and 6 present factor analytic data analyzed gender-separate, in essence presenting the results of two separate factor analyses. These analyses can be compared to the gender-combined data presented in Table 4 to determine if the factor solutions noted there are replicated, and across Tables 5 and 6 to determine if males and females produce similar "cognitive clusters."

As seen in Tables 5 and 6, Factor 1 again emerges as a Depression factor and appears for both males and females showing a significant negative loading for both sexes on the Coopersmith measure of self-esteem. For females and not males, however, the results show a positive loading for Rotter's locus of control, and a negative loading for the attributional variable stable positive. These results suggest that, while both sexes tend to associate low self-esteem with depression, women who experience depression tend to maintain an external locus of control and a sense that the absence of positive events which they associate with depression is likely to be chronic.

Further analysis of Tables 5 and 6 suggests that, despite apparently different results between sexes, cross gender results are, in fact, similar to the results generated when data are analyzed gender-combined. For example, the pattern of factor loadings for females (Table 5) on Factor 2 is clearly very similar to those shown for Factor 2 in Table 4, the only difference being that in Table 5 for females there is an additional positive loading for characterological self-blame which does not appear in Table 4. For males, the pattern of factor loadings which appears in Factor 2 of Table 4 is essentially replicated in Factor 4 of Table 6, with the additional positive loading of Rotter's measure of locus of control. Thus, though emerging in different order in the factor analyses, both males and females produce a cognitive cluster which can be defined as a dimension of Behavioral Helplessness.

For Factor 3, Table 5 shows that females essentially replicate the gender-combined loadings on Factor 3 (pessimism) of Table 4 (i.e., positive loadings for external, and negative loadings for

behavioral helplessness, internal positive, stable positive, global positive, co pos, and hopeful). Males, however, do not show a similar factor structure on any factor extracted. Analysis of Factor 2 loadings (Table 6) produced by males shows, in fact, that (with the exception of a negative loading on behavioral helplessness found on female factor 3 and not on male factor 2, and the negative loading on locus of control on male factor 2 which does not load on female factor 3) male Factor 2 and female Factor 3 load on identical variables, though the loadings are in oppositive directions. Thus the results show that the cognitive clusters extracted in this analysis are different for males and females. What emerges for females as a Pessimism factor emerges for males as a factor which is best summarized as the opposite (i.e. an Optimism factor).

Consideration of the remaining male and female factors defined in Tables 5 and 6 shows that female Factor 4 is defined by positive loadings on stable negative, global negative, co pos, and hopelessness (similar to Factor 4, Table 4 for gender-combined

data). For males, Factor 3, Table 6 is defined by positive loadings on all of these same variables, as well as additional positive loadings on internal positive and locus of control. Thus male Factor 3 (Table 6) emerges as virtually identical to female Factor 4 (Table 5) and as very similar to Factor 4 defined by the gender-combined data presented in Table 4. Thus, these data suggest that both males and females tend to maintain a cognitive cluster which may be best described as Hopelessness.

Discussion

The results of this study raise concerns regarding the singular manner in which depression has been operationalized in the attributional literature, confirm predictions concerning the relationship between external locus of control and depression, provide evidence for the existence of "attributional clusters" consistent with theories which assume that such clusters may predispose to depression, and provide evidence suggesting the presence of different attributional clusters in males and females.

Analysis of the gender-combined and gender-separate data showing correlations between the two measures of depression used in this study (i.e., the BDI and Scale 2 of the MMPI-2) revealed that, at best, these two commonly used clinical measures of depression have only 37% of their variance in common. This suggests that these two measures may tap into different facets of depressive phenomenon, and that studies which define depression as a score on the BDI may not generalize to depression operationalized or diagnosed in a different fashion. The fact that the correlational results obtained in this study were not consistently reliable across these two measures of depression further suggests that researchers may note failures to replicate results across studies when such studies define depression in different ways.

The correlational results presented in this study failed to show the consistent relationship between internal, stable and global attributions for negative events and depression which would be predicted by helplessness theory. In fact, in none of the correlational analyses did these attributional style

variables (with the exception of global negative in the gender-combined data of Table 2) consistently correlate with both measures of depression. The results did show, however, that external locus of control was consistently related to depression regardless of how depression was defined for all analyses except for a single correlation obtained on males when depression was defined using the BDI. These results suggest that external locus of control (and the attributional and cognitive phenomenology that such control implies) may be an important heuristic in future studies of depression.

Examination of the correlations which appear in Table 2 also suggests the presence of a consistent pattern of negative correlations between both measures of depression and internal, stable, and global attributions for positive events. These results are replicated in Table 3 for females (but not for males) for both the MMPI-2 and BDI, and are consistent with those reported by Seligman, Abramson, Semmel, & von Baeyer (1979). In addition, analysis of Table 2 reveals a reliable positive correlation between the

variable global negative and both measures of depression. This correlation is only replicated, however, for females when depression is measured using the BDI (Table 3). These findings suggest that an internalized, global and chronic sense of loss of positive outcomes (and a global perception of aversive life circumstances) may be importantly related to depressive affect for females (but not for males), and that different cognitive clusters may exist across sexes.

Factor analytic results, while not suggesting that any cognitive cluster was included in the dimension of depression as defined by the results of this experiment, did reveal sex differences in the clusters of attributional variables and the presence of cognitive clusters which would be predicted by both helplessness and hopelessness theory.

For example, factor analysis of gender-combined data (Table 4) produced a factor which would be best described as Behavioral Helplessness (Factor 2). In other words, consideration of the variables loading on this factor clearly implies that this factor is

composed of a set of cognitions in which people believe that behaviors exist which could produce a desired outcome, but that these responses do not exist within their repertoire and that the events are (as a result) out of their control (i.e., a sense of behavioral helplessness). The cognitive cluster which emerges as this factor is very consistent with a sense of lack of control and helplessness often discussed in the formation of depressive symptoms (Dykman & Abramson, 1990).

Factor 4 of the gender-combined data (Table 4) yields a cognitive cluster consistent with those which would be expected based upon hopelessness theory. That is, this factor includes high loadings on variables which imply the existence of internal, global, and stable attributions for negative events and a very significant loading on a variable measuring hopelessness. This relationship between hopelessness and this set of attributions tends to support the presence of a set of attributions which would be defined as a "depressogenic attributional style,"

which is consistent with the views expressed by Abramson et al. (1989).

In addition, the presence of these two factors (i.e., behavioral helplessness and hopelessness) for both males and females, albeit in similar and not identical form, in the factor analytic, gender-separate data (Tables 5 and 6) underscores the existence of such cognitive clusters across sex. The fact that the factors representing these clusters were not extracted in the same order for males and females may imply that they exert different cognitive importance between sexes, or it may reflect differences in sample size. This, of course, would be a topic for future research. And, while the fact that these factors were not defined identically for both sexes (i.e., the results showed a consistent core of variables loading within each factor, but one or two individual variables were found to load on either a male or female factor and not on both) is also in need of further exploration, these variables may suggest subtle differences between sexes in the cognitive clusters so defined.

Lastly, the factor analytic results obtained on gender-separate data (Tables 5 and 6) suggest the presence of opposite dimensions of cognitions between sexes (here defined as pessimism for females and optimism for males). These findings may define differences in cognitive processes or schema (e.g., Beck, 1967) which could predispose females to depression, and may thus relate to the higher incidence of depression noted for women in our society. Studies which demonstrate an optimistic bias in normal cognition (Taylor & Brown, 1980; Weinstein, 1980) support this view, and underscore the need to examine gender-separate data in studies in this area. This would, again, be a very interesting area for future research.

In addition, it should be noted that none of the factor analytic data presented in Tables 4, 5 or 6 showed the relationship between lowered self-esteem and internality which would be predicted by helplessness theory (Dykman & Abramson, 1990). Rather, lowered self-esteem was found to be consistently related to depression (and other

affective aspects of depressive phenomena) for both gender-combined and gender-separate data rather than to any cognitive variable. Further research would be necessary to better understand the implications of this finding.

In sum, the results of this study suggest that the attempt to determine the presence and composition of a single set of attributions or cognitions which may increase risk for depression may be somewhat simplistic. The results of this study underscore the cognitive complexity of people, and the potential cognitive differences which may exist across sex.

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Table 1

Variable Key

Measure	Variable	Definition
Beck	BDI	Depression Inventory (Beck, 1961)
MMPI2	Scale 2	Depression Scale (D)
	Dep	Depression
	D1	Subjective Depression
	Si1	Shyness/Self-Consciousness
	Scale 0	Social Introversion-Extraversion (Si)
	Sc1	Social Alienation
	Scale 8	Schizophrenia (Sc)
	Scale 7	Psychasthenia (Pt)
ASQ	Pers	Personal Helplessness (Abramson et al., 1978)
	Univ	Universal Helplessness (Abramson et al., 1978)
	Beh	Behavioral Self-Blame (Carver et al., 1985; Flett et al., 1990)

(Table Continues)

Table 1

Variable Key

Measure	Variable	Definition
ASQ	Char	Characterological Self-Blame (Carver et al., 1985; Flett et al., 1990)
	Ext	External (Gotleib & Beatty, 1985)
	Int Pos	Internal Positive (Brewin, 1985)
	Stab Pos	Stable Positive (Brewin, 1985)
	Glob Pos	Global Positive (Brewin, 1985)
	Hopeful	Hopefulness (Needles & Abramson, 1990)
	Copos	Summation of Int Pos, Stab Pos, and Glob Pos scores
	Stab Neg	Stable Negative (Brewin, 1985)

(Table Continues)

Table 1

Variable Key

Measure	Variable	Definition
ASQ	Glob Neg	Global Negative (Brewin, 1985)
	Int Neg	Internal Negative (Brewin, 1985)
	Hopeless	Hopelessness (Endlich, 1989; Needles & Abramson, 1990)
	Coneg	Summation of Int Neg, Stab Neg and Glob Neg scores
	CPCN	Summation of Co Pos and Co Neg scores
Coopersmith	Self Est	Self-Esteem (Coopersmith, 1981)
Rotter	Locus	Locus of Control (Rotter, 1966)

Table 2

Correlations of Variables with Measures of Depression for All Subjects: Gender-Combined

Variable	Depression (MMPI2 Scale2)	Depression (BDI Scale)
Beck	0.568***	1.000
D	1.000	0.568***
Dep	0.697***	0.756***
D1	0.893***	0.629***
Si1	0.370***	0.185*
Scale 0	0.595***	0.368***
Sc1	0.359***	0.550***
SC	0.456***	0.573***
PT	0.674***	0.557***
Pers	0.179*	0.105
Univ	-0.015	-0.087
Beh	0.051	-0.008
Char	-0.044	0.018
Ext	0.022	-0.020
Int Pos	-0.298***	-0.298***
Stab Pos	-0.398***	-0.319***

(Table Continues)

Table 2

Correlations of Variables with Measures of Depression for All Subjects: Gender-Combined

Variable	Depression (MMPI2 Scale2)	Depression (BDI Scale)
Glob Pos	-0.202*	-0.323***
Hopeful	-0.327***	-0.379***
Co Pos	-0.310***	-0.261**
Int Neg	0.257**	0.073
Stab Neg	-0.072	0.012
Glob Neg	0.213*	0.222**
Hopeless	0.063	0.141
Co Neg	0.199*	0.176*
CPCN	-0.382***	-0.266**
Self Est	-0.585***	-0.602***
Locus	0.474***	0.342***

*p < 0.05 **p < 0.01 ***p < 0.001

Table 3

Correlations of Variables with Depression for Males and Females: Gender Separate

Variable	Depression (MMPI2 Scale2)		Depression (BDI Scale)	
	Females	Males	Females	Males
BDI	0.609***	0.335*	1.000	1.000
Scale 2	1.000	1.000	0.609***	0.335*
Dep	0.736***	0.632***	0.799***	0.641***
D1	0.896***	0.866***	0.657***	0.483**
Si1	0.324**	0.392*	0.178	0.092
Scale 0	0.597***	0.541***	0.374***	0.278
Sc1	.358	0.469**	0.611***	0.447**
Scale 8	0.442	0.647***	0.604***	0.567***
Scale 7	0.680	0.707***	0.604***	0.461**
Pers	0.173	0.174	0.091	0.126
Univ	0.021	-0.004	-0.033	-0.202
Beh	0.015	0.064	-0.114	0.331*
Char	-0.021	-0.110	0.003	0.117
Ext	0.002	-0.003	0.101	-0.417**
Int Pos	-0.267**	-0.398*	-0.402***	0.023

(Table Continues)

Table 3

Correlations of Variables with Depression for Males and Females: Gender Separate

Variable	Depression (MMPI2 Scale2)		Depression (BDI Scale)	
	Females	Males	Females	Males
Stab Pos	-0.409***	-0.347*	-0.392***	-0.038
Glob Pos	-0.206*	-0.277	-0.394***	-0.008
Hopeful	-0.323**	-0.364*	-0.456***	-0.041
Copos	-0.288**	-0.416**	-0.334***	-0.007
Int Neg	0.280**	0.245	0.104	-0.024
Stab Neg	-0.127	0.167	-0.003	0.137
Glob Neg	0.134	0.285	0.209*	0.226
Hopeless	-0.041	0.275	0.116	0.217
Coneg	0.169	0.302	0.187	0.157
CPCN	-0.369	-0.492***	-0.308**	-0.123
Self Est	-0.551***	-0.578***	-0.669***	0.321*
Locus	0.415***	0.584***	0.374***	0.196

*p < 0.05 **p < 0.01 ***p < 0.001

Table 4

Summary of Factor Loadings Across All Variables for All Subjects: Gender Combined

Variable	I Depression	II Behavioral Helplessness	III Pessimism	IV Hopelessness
BDI	0.762	*	*	*
Scale 2	0.728	*	*	*
Dep	0.882	*	*	*
D1	0.861	*	*	*
Si1	0.383	*	0.320	*
Scale 0	0.613	*	*	*
Sc1	0.761	*	*	*
Scale 8	0.763	*	*	*
Scale 7	0.756	*	*	*
Pers	*	0.916	*	*
Univ	*	-0.730	*	*
Beh	*	0.602	-0.430	*
Char	*	*	*	*
Ext	*	-0.851	0.324	*
Int Pos	*	*	-0.712	*

(Table Continues)

Table 4

Summary of Factor Loadings Across All Variables for All Subjects: Gender Combined

Variable	I Depression	II Behavioral Helplessness	III Pessimism	IV Hopelessness
Stab Pos	*	*	-0.752	*
Glob Pos	*	*	-0.829	*
Hopeful	*	*	-0.894	*
Copos	*	*	-0.938	*
Int Neg	*	0.717	*	0.347
Stab Neg	*	*	*	0.770
Glob Neg	*	*	*	0.805
Hopeless	*	*	*	0.927
Coneg	*	0.435	*	0.794
CPCN	*	*	-0.604	-0.513
Self Est	-0.747	*	*	*
Locus	0.461	*	*	*
Variance explained by components	7.276	3.723	4.661	3.403

(Table Continues)

Table 4

Summary of Factor Loadings Across All Variables for All Subjects: Gender Combined

I	II	III	IV
Depression	Behavioral Helplessness	Pessimism	Hopelessness
Total variance explained			
24.253%	12.411%	15.535%	11.344%

Note. Loadings less than |.30| have been deleted to improve readability.

Table 5

Summary of Factor Loadings Across All Variables for Females

Variable	I Depression	II Behavioral Helplessness	III Pessimism	IV Hopeless-ness
BDI	0.781	*	*	*
Scale 2	0.727	*	*	*
Dep	0.878	*	*	*
D1	0.850	*	*	*
Si1	*	*	0.420	*
Scale 0	0.575	*	0.379	*
Sc1	0.758	*	*	*
Scale 8	0.767	*	*	*
Scale 7	0.746	*	*	*
Pers	*	0.932	*	*
Univ	*	-0.758	*	*
Beh	*	0.532	-0.527	*
Char	*	0.359	*	*
Ext	*	-0.859	0.331	*
Int Pos	*	*	-0.646	*

(Table Continues)

Table 5

Summary of Factor Loadings Across All Variables for Females

Variable	I Depression	II Behavioral Helplessness	III Pessimism	IV Hopeless-ness
Stab Pos	-0.335	*	-0.706	*
Glob Pos	*	*	-0.851	*
Hopeful	*	*	-0.876	*
Copos	*	*	-0.913	*
Int Neg	*	0.779	*	*
Stab Neg	*	*	*	0.775
Glob Neg	*	*	*	0.758
Hopeless	*	*	*	0.916
Coneg	*	0.516	*	0.696
CPCN	*	*	-0.587	-0.386
Self Est	-0.761	*	*	*
Locus	0.485	*	*	*

(Table Continues)

Table 5

Summary of Factor Loadings Across All Variables for Females

I	II	III	IV
Depression	Behavioral Helplessness	Pessimism	Hopeless-ness
Variance Explained by Components			
7.268	3.960	4.818	3.058
Percent of Total Variance Explained			
24.225	13.202	16.059	10.193

Note. Loadings less than |0.30| have been deleted to improve readability.

Table 6

Summary of Factor Loadings Across All Variables for Males

Variable	I Depression	II Optimism	III Hopeless-ness	IV Behavioral Helplessness
BDI	0.685	*	*	*
Scale 2	0.631	-0.424	*	*
Dep	0.895	*	*	*
D1	0.816	-0.338	*	*
Si1	0.378	-0.300	*	0.445
Scale 0	0.512	*	*	0.496
Sc1	0.813	*	*	*
Scale 8	0.878	*	*	*
Scale 7	0.779	*	0.326	*
Pers	*	*	*	0.861
Univ	*	*	*	-0.616
Beh	*	*	*	0.792
Char	*	*	*	*
Ext	*	-0.314	*	-0.799
Int Pos	*	0.835	*	*

(Table Continues)

Table 6

Summary of Factor Loadings Across All Variables for Males

Variable	I Depression	II Optimism	III Hopeless-ness	IV Behavioral Helplessness
Stab Pos	*	0.826	*	*
Glob Pos	*	0.761	*	*
Hopeful	*	0.925	*	*
Copos	*	0.975	*	*
Int Neg	*	*	0.551	0.613
Stab Neg	*	*	0.716	*
Glob Neg	*	*	0.887	*
Hopeless	*	*	0.940	*
Coneg	*	*	0.933	*
CPCN	*	0.611	-0.725	*
Self Est	-0.578	*	*	*
Locus	*	-0.442	0.408	0.339

(Table Continues)

Table 6

Summary of Factor Loadings Across All Variables for Males

I Depression	II Optimism	III Hopeless-ness	IV Behavioral Helplessness
Variance Explained by Components			
6.771	5.169	5.015	3.762
Percent of Total Variance Explained			
22.570	17.230	16.717	12.540

Note. Loadings less than |0.30| have been deleted to improve readability.