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ABSTRACT

Both external locus of control (i.e., a generalized expectancy that reinforcement is controlled by luck or fate instead of oneself) and internal locus of attribution (i.e., beliefs that success or failure result from an individual's actions rather than external causes) have been related to depression. To examine the relationship of attributions and expectations to depression, college students (N=100) completed the Attributional Style Scale, the Beck Depression Inventory, and Rotter's (1966) Internal-External Locus of Control Scale. Statistical analyses showed no relationship between externality of locus of control and depression. Externality of attribution was found to be related to depression, contrary to previous studies which showed a relationship between internality of attribution and depression. However, a significant interaction existed between attribution and locus of control, leading to the conclusions that individuals who are either internal or external on both locus of control and attribution are least depressed, while individuals who are internal on one and external on the other are the most depressed. These findings are contrary to the revised theory of learned helplessness which predicts that internal attributions lead to learned helplessness and depression. (WAS)

The Relationship of Locus of Control and Attribution to Depression

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The Relationship of Locus of Control and Attributional Style to Depression

The concept of learned helplessness has been the focus of a tremendous amount of research and theorizing over the past 15 years. During this time, it has progressively become more complex and theoretical, moving from an explanation of a laboratory phenomenon to a theoretical construct linked to a number of human behaviors. One part of this development is the increasing importance now being placed on the role of attributions in learned helplessness. As this construct has become more complex, its relationship to similar constructs, such as locus of control, has become increasingly difficult to decipher.

Locus of Control

Locus of control can be defined as a generalized expectancy or a trait or relatively enduring disposition to perceive reinforcement as either internal, that is, under personal control, or external, under the control of luck, fate, God, or significant others.

Using Rotter's Internal-External Locus of Control Scale, a number of researchers have shown that externality is related to depression. These studies typically use extreme groups, those scoring very high or very low, or find only moderate correlations.

Locus of Attribution

At the same time, several researchers have also shown that attribution is related to depression. Specifically, Klein,

Fencil-Morse, and Seligman (1976), found that internal attributions following insoluable anagram tasks decreased the performance of college students on future anagram tasks.

Rizely (1978), has shown that depressed college students rated internal causal factors to be more important determinants of failure than did nondepressed students.

Finally, Gilbert and Mangelsdorff (1979), found that beliefs in high personal control predisposed individuals to higher stress and lower self-esteem than did beliefs in moderate or low personal control.

What this seems to indicate is that these are two separate dimensions, one in which internality is related to depression, and one in which externality is related to depression.

The question which this study addresses involves both attributions and expectations. It was designed to look at the relationship of both to depression. For the purposes of this study, locus of control is seen as a forward looking construct, i.e., what an individual perceives will be the case in the future, whereas locus of attribution refers to a post-hoc explanation of causality.

The following hypotheses were tested:

H_1: There will be a significant positive correlation between scores on the IE scale and the BDI (i.e., externality will be related to depression).

H_2: There will be a significant positive correlation between ASS scores and BDI scores (i.e., the more internal attributions that an individual makes, the more depressed he or she will be).

H_3: There will be a significant interaction between ASS

and IE scores on the BDI. That is, there will be a significant interaction between attributional style and locus of control in determining an individual's degree of depression. The addition of ASS x IE scores to a stepwise multiple regression, after the two individual variables have been entered separately, will account for a significant amount of variance. Specifically, external IE/internal ASS individuals will have higher BDI scores than all other subjects.

METHOD

Subjects

One-hundred subjects were recruited from undergraduate psychology classes. Subjects were not limited as to sex, age, or any other criteria, in order that external validity would be as great as possible.

Instruments and Procedure

The Attributional Style Scale (ASS) was devised by Seligman, Abramson, Semmel, & Baeyer (1979) to measure the three attributional dimensions of internality-externality, stability-variablility and globality-specificity. This is a new measure, so reliability and validity studies are still being carried out. However, Seligman et al. (1979) report subscale reliabilities (Cronbach's coefficient alpha) ranging from 0.39 to 0.64. Only the subscores from the internal-external dimension were used in this study.

The Beck Depression Inventory was used to measure depression. Beck (1967) has reported extensive reliability and validity studies, and Bauberry, Oliver, and McClure (1978) found a correlation of 0.77 between BDI scores and clinical ratings of

depression with college students.

Rotter's (1966) Internal-External Locus of Control Scale is a 29-item pencil and paper test that measures a generalized expectancy of control of reinforcement. Rotter (1966) reports internal consistencies ranging from 0.65 to 0.79, and test-retest reliabilities of 0.49 to 0.83.

The tests were administered in counterbalanced order, in several classes over a one-month period.

RESULTS

A multiple regression analysis was performed using the ASS scores (internal vs. external attribution dimension only) and the IE scores as predictors, and using BDI scores as the criteria. One additional predictor was used. This was ASS x IE scores. This composite score is used for interpreting interaction effects in a multiple regression. As this variable includes all of the variance accounted for by both the ASS and IE scores, plus the variance accounted for by the interaction, it was entered as the last variable in the equation. The increase in variance accounted for that was added at this point was only the variance associated with the interaction. (For a more detailed discussion, see Cohen & Cohen, 1975.)

The Beck Depression Inventory has a possible range of 0 to 63, with scores of 15 or greater considered indicative of clinical depression. In this sample the scores ranged from 0 to 46, with $\underline{M}$ = 6.25, $\underline{SD}$ = 6.79. There were 10 scores of 15 or over.

Rotter's IE scale has a possible range of 0 to 23. This sample ranged from 0 to 19, with $\underline{M}$ = 9.77, $\underline{SD}$ = 4.13. There were

13 subjects with scores of 15 or more, and 11 subjects with scores of 5 or less.

The internality subscale (INT) of the ASS has a possible range of 0 to 48. This sample ranged from 5 to 45, with $\underline{M}$ = 27.93, $\underline{SD}$ = 4.94.

The simple correlation coefficients between BDI and IE, INT, and INTER (the interaction of IE and INT) were, respectively, 0.024, -0.245 ($\underline{p}<.02$), and 0.035.

The stepwise multiple regression equation yielded significant results at each step. The first variable entered into the analysis was INT, i.e., the internality of attribution subscores from the ASS (high = internal). The multiple $\underline{R}$ of 0.2448 was significant, $\underline{F}(1,98) = 6.25$, $\underline{p} = 0.014$. Thus, it accounted for 6% of the variance in depression scores. Rotter's IE scale was entered next, which resulted in only slightly increasing the multiple $\underline{R}$ to 0.2449. Although this increase in $\underline{R}$ was not statistically significant, the overall $\underline{F}[(2,97) = 3.09$, $\underline{p} = .05]$ for the regression was still significant. Finally, the interaction between INT and IE, labeled INTER, was entered, resulting in a strongly significant increase in $\underline{R}$ to .471. The ANOVA for the regression at this step showed a statistically significant relationship for the final $\underline{R}$, $\underline{F}(3,96) = 9.12$, $\underline{p}<.001$.

Hypothesis 1 was that a significant positive correlation would be found between scores on the IE scale and the BDI. In this sample $\underline{r}(98) = 0.024$, $\underline{p}>.05$, indicating that, for this sample at least, the hypothesis was not supported.

Hypothesis 2 was that a significant positive correlation would be found between scores on the internality subscale of the

ASS and the BDI. In this sample, $r(98) = -0.2448$. This finding is contrary to the directional hypothesis, indicating a negative relationship between internality of attribution and depression; therefore, Hypothesis 2 was not supported.

Hypothesis 3 was that a significant interaction would be found between the INT scores and the IE scores in predicting the BDI scores. In this sample, the addition of the interaction (INTER) scores into the equation significantly increased the accuracy of the regression equation, $F(3,96) = 9.12$, $p < .001$. Stated another way, IE scores and INT scores separately accounted for a total of only 6% of the variance associated with BDI scores. The addition of the interaction scores adds an additional 16% variance accounted for, raising the total amount of variance of BDI scores which is accounted for to over 22%.

DISCUSSION

The first hypothesis, that a positive relationship would exist between externality of locus of control, and depression, was clearly not supported. The second hypothesis, that a positive relationship would exist between internality of attribution, and depression, was not only not supported, but externality of attribution was related to depression. These findings are surprising and somewhat difficult to decipher when taken alone. The finding on the last hypothesis however, that a significant interaction exists between attribution and locus of control, sheds a great deal of light on the results of previous studies on the first two hypotheses.

Locus of Control

The previous literature (e.g., Johnson & Sarason, 1978; Leggett & Archer, 1979) indicates that external locus of control is related to depression. This relationship, although fairly consistent, has never been a strong one. The use of large numbers of subjects, or the use of only extremely internal and external locus of control subjects, has been the rule, with the exception of studies using a median split. This study found no significant relationship. The significant interaction of locus of control and attribution indicates, however, that the relationship of IE scores to BDI scores is a function of INT scores. In other words, the relationship of locus of control to depression is a function of locus of attribution such that, given external attribution, a moderately negative relationship exists between external locus of control, and depression. If attribution is moderate, then only a small positive relationship exists between external locus of control, and depression. If attribution is internal, then a strong relationship exists, such that the more external the locus of control, the more depression. This gives one possible explanation for the difference between the findings in this study, that is, weak simple relationships but a strong interaction; and in those generally found, that is, a moderate simple relationship. Restricting the variability to either internal or external attribution will increase the simple correlation between IE scores and BDI scores. It may be, for example, that the college student populations of many of the studies on locus of control (Abramowitz, 1969; Johnson & Sarason, 1978) tend to be more internal in attribution than the general population. Whereas the present study also used college

students, it may be that the range of scores on attribution was greater than that usually found (5 to 45, out of a possible 0 to 48).

Locus of Attribution

An analogous relationship exists between locus of attribution and depression. That is to say, the relationship of locus of attribution to depression is a function of locus of control orientation. Given internal locus of control, a moderately strong negative relationship exists between internal locus of attribution and depression. If locus of control is moderate, then no relationship exists between locus of attribution and depression. Finally, if locus of control is external, then a positive relationship exists between internal locus of attribution and depression. It should be noted that this is the relationship that others (Gilbert & Mangelsdorff, 1979; Klein et al., 1976; Rizley, 1978) have found. One possibility, then, is that their subject populations were external on locus of control. This seems unlikely, however, as all three studies used college students, who are usually more internal on locus of control than the general population. One other possible explanation lies in the fact that all three studies used groups of depressed students, who were compared to non-depressed students. This non-random selection of subjects may account for these previous findings, i.e., the relatively small number of college students who are significantly depressed may tend to be external on locus of control. Whereas this is a plausible hypothesis, certainly more work needs to be done to reconcile this study with those that have looked at only

attribution and depression.

Interaction

Put in traditional terms, individuals are either internal, moderate, or on external locus of control, and also either internal, moderate, or external on locus of attribution (See Table 1).

Looking at this table, it is clear that moderation on either variable leads to a moderate depression score. In other words, being moderate on either variable decreases our predictive ability.

Table 1

Interaction of IE and INT on BDI

		IE		
		LOW	MODERATE	HIGH
INT	LOW	HIGH BDI	MODERATE BDI	LOW BDI
	MODERATE	MODERATE BDI	MODERATE BDI	MODERATE BDI
	HIGH	LOW BDI	MODERATE BDI	HIGH BDI

Beck Depression Inventory scores as a function of Internal-External Locus of Control scores and Internality scores on the ASS (Note: High IE = external, high INT = internal).

Looking at the four extreme groups, several conclusions are evident. First, individuals who are either internal or external on both locus of control and attribution are the least depressed. Second, individuals who are external on one and internal on the other are the most depressed. Knowledge of one variable, therefore, is not sufficient for making predictions of depression. The theoretical implications of these findings seem clear. Any theory which attempts to explain depression needs to take into consideration both dimensions, or at least be consistent with them.

The finding that internal locus of control and external attribution are associated with depression is contrary to the first two hypotheses of this study. It is possible that when individuals go into a situation expecting to have control over the outcome, and then, after a negative outcome, attribute responsibility for the outcome externally, they are more depressed than those who attribute responsibility internally. It may be that external attribution in this situation is related to the depression which follows the internal expectation-negative outcome sequence. Research that experimentally manipulates attribution may provide a partial answer to this question.

Obviously, the finding that external attribution is sometimes associated with being depressed (and that, conversely, internal attributions are sometimes associated with not being depressed) is contrary to the revised theory of learned helplessness (Abramson et al., 1978), which predicts that internal attributions lead to learned helplessness and depression.

Future research needs to concentrate on more clinically

depressed individuals, and perhaps use a larger number of subjects. Unfortunately, for reasons of availability, most studies on depression, including this one, use analogue populations, and the conclusions from these studies must be drawn cautiously. Nevertheless, as noted above, this study did have approximately 10% clinically depressed individuals.

The clinical, practical implications of this study must obviously be stated cautiously, especially as this study is correlational in nature. But, given that caveat, one possibility emerges. Because the most depressed individuals in this study were those with incongruent expectations and attributions (i.e., those with internal attributions and external expectations, or vice versa), and the least depressed individuals were those with congruent expectations and attributions, it may be that one therapeutic approach to depression would be to change either the attributional style or the expectations to match the other. Consequently, a therapist could decide, on an individual basis, whether it would be easier and more productive to change an individual's expectations of the future concerning reinforcement, or change his or her attributions of the past. Concentrating on the congruence of an individual's expectations and attributions might be a useful direction for therapy to take.

Just as a brief example, suppose a depressed client has external locus of control and internal locus of attribution. If he/she is taking responsibility for events over which he/she has little or no control, it may be therapeutic to help the client become more more external in attribution. If the outcomes in question are able to be influenced by the client, it may be more

therapeutic to help the client become more internal in expectations.

The reliability of a these findings must be established, first, by cross validation on another sample. If they hold up in subsequent investigation, it may be that the congruence-incongruence of expectations and attributions is an important factor in the explanation of depression.

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