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Accuracy of Perceived Self-Efficacy in Relation to Levels of Depression

(TITLE)

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David M. Cummins

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Accuracy of Perceived Self-Efficacy in Relation to Levels of Depression

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Running head: ACCURACY OF PERCEIVED SELF-EFFICACY

Abstract

In the investigation of the relationship between accuracy of perceived self-efficacy and levels of depression, conflicting results have been found. Some studies have shown that depressed subjects are more accurate at assessing their actual self-efficacy than nondepressed subjects, while other studies have shown that nondepressed subjects are more accurate than depressed subjects at assessing their actual self-efficacy. One common problem that exists in these studies is that their external validity is weak due to the uniqueness and random nature of the experimental designs. The present study attempts to address this problem by examining the relationship between levels of depression and perceived self-efficacy in a naturally occurring situation. In this experiment, a general format of the depression/perceived self-efficacy studies was used on an Abnormal Psychology class. The experimental data were collected from the subjects' estimated performance on an exam that was given in an Abnormal Psychology course (i.e., a naturally occurring

circumstance). Contrary to the present hypothesis, no relationship was found to exist between depression and perceived self- efficacy. Possible confounding variables and recommendations for further investigation are discussed.

Accuracy of Perceived Self-efficacy in Relation to Levels of Depression

Understanding the mechanisms of actual and perceived self-efficacy is vital because these judgements are one of the first cognitive steps taken in the analysis of one's milieu (Seligman, 1975). One meaningful personal attribute in the assessment of personal self-efficacy is level of depression (Bandura, 1982). Studies explaining the relationship between depression and self-efficacy have consistently shown that depression and self-efficacy are significantly correlated. (Crocker, Kayne, & Alloy 1988; Hamilton & Abramson, 1983; Kanfer & Zeiss, 1983; Schwartz & Fish, 1989). Additionally, researchers have shown that one's level of perceived self-efficacy, "... judgements of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122), is an even better predictor of an individual's predisposition to depression than his/her actual level of self-efficacy (Alloy & Abramson, 1979, 1982; Anderson, Horowitz, & French, 1983; Ganellen, 1988).

Bandura (1982) postulated that in comparison to

self-appraised effective problems solvers, individuals who perceive themselves as being relatively ineffective at manipulating their environment in order to achieve desired outcomes (e.g., low perceived self-efficacy) are more susceptible to developing symptoms of depression. These individuals relate their ineffectiveness to the presumed superiority of others, thus making it difficult to avoid negative feelings about themselves due to self-criticism and feelings of inferiority. Further, individuals with lower perceived self-efficacy tend to believe that many activities surpass their coping abilities. Consequently, they do not expend as much effort on these activities, which in turn generates lower performance. Conversely, individuals with higher perceived self-efficacy tend to intensify their efforts or change their environment if their previous efforts did not produce desired outcomes, because they perceive most tasks as not surpassing their abilities. Apparently, self-appraised effective problem solvers have more internal control orientation, experience less distress associated with problems, and are less depressed, in comparison to

self-appraised ineffective problem solvers (Nezu, 1985). These claims suggest that depressed individuals tend to have lower perceived self-efficacy and performance expenditure, while nondepressed individuals have higher perceived self-efficacy and performance expenditures.

Alloy and Abramson (1979) reported that under their experimental conditions, depressed subjects estimated the degree of response contingencies more accurately than nondepressed subjects. Nondepressed individuals appeared to be overly optimistic about their efficacy, while depressed individuals were more realistic at estimating their actual competency. That is, the nondepressed subjects were predisposed to exaggerating their control over objectively uncontrollable outcomes associated with success. The authors suggest that these overestimates of control are caused by the nondepressed individual's motivation to maintain or promote his/her positive self-esteem, while the depressed individual's lower self-esteem contributes to his/her avoidance of overestimating control on objective events.

In support of the research results of Alloy and Abramson (1979), Gollin, Terrel, and colleagues found that when subjects rolled dice, nondepressed subjects succumbed to an illusion of control, but the depressed subjects were comparatively more accurate in their assessment of control over the task (Golin, Terrell, & Johnson, 1977; Golin, Terrell, Weitz, & Drost, 1979). The researchers stated that lower perceived self-efficacy directly results in depressed individuals having a perception of inadequacy, which leads to feelings of despair (Golin et. al 1977; Golin et. al 1979).

Researchers have also found that in comparison to depressed individuals, nondepressed individuals tend to believe that they exercise greater control over environmental outcomes (Langer, 1975; Lewinsohn, Mischel, Chaplan, & Barton, 1980; and Vazquez, 1979) . This distinction is believed to be influenced by the nondepressed subjects distorting their actual self-efficacy (Langer, 1975; Vazquez, 1979). One study that investigated this claim found that not only do nondepressed subjects exaggerate their actual skill

level, but that depressed subjects more accurately evaluate their actual skill level. The authors suggested that this inaccuracy in self-evaluation by the nondepressed subjects is related to their tendency to have a heightened self-esteem (Lewinsohn, Mischel, Chaplan, & Barton, 1980).

Even though these studies have presented consistent evidence, other studies have produced contradictory results. Alloy, Abramson, and Viscusi (1981) presented evidence in direct contrast to Alloy and Abramsons' (1979) earlier study; that is, their data showed that nondepressed subjects gave more accurate judgments of control while the depressed subjects appeared to have an illusion of control and overestimated the influence that they exhibited over an objectively uncontrollable outcome. Similarly, Benassi and Mahler (1985) found that under response-independent outcomes, depressed subjects displayed a greater sense of control in relation to nondepressed individuals and that the depressed subjects were more precise at assessing their actual efficacy. Further, Bryson, Doan, and Pasqualis (1984) obtained results that were

consistent with Alloy and Abramsons' 1982 study, in that the depressed subjects tended to exhibit an illusion of control in comparison to the nondepressed subjects. However, there were also some conflicting results. The authors stated that their findings did not provide any evidence that mood influences judgments of efficacy in noncontingent tasks. They went on to state that, in relation to nondepressed individuals, depressed individuals are not necessarily more accurate, but that they are more apt to attribute failure to personal deficiencies.

In a more recent study, Martin, Alloy, and Abramson (1984) addressed the apparent contradictions of their past studies by testing the accuracy of nondepressed and depressed individuals at estimating conditional control of self and others. They found that the depressed subjects fairly consistently judged that they exerted little control over the experimental outcome, while the nondepressed group tended to overestimate the amount of control that they exerted over the outcome. Rokke and Kozak (1989) have also shown that depressed individuals assess their

performances more accurately than nondepressed individuals and that depressed individuals also reinforce themselves less than nondepressed individuals. Ford and Neal (1985) also found that depression-induced subjects made more accurate judgments of efficacy than control subjects and that the control group was overly optimistic in relation to the depressed group.

In order to better understand the relationship between perceived self-efficacy and depression, it is important to not only determine which of the groups is more accurate at assessing their actual efficacy, but to also determine the direction of the error of estimation for each group. By both determining the direction and the level of accuracy of perceived self-efficacy in relation to levels of depression, a more complete analysis of the relationship will be possible.

It is also important to point out that a consistent problem with the previous studies is that they have investigated the relationship between accuracy and direction of perceived self-efficacy and depression exclusively in unique and contrived

experimental conditions, which tended to be random in nature. Some of these include: rolling dice, pushing buttons on boxes with blinking lights, and attempting to influence the appearance of words on a computer. As a result, the external validity is weakened. This is supported by Rokke and Kozak (1989), who stated "..the results obtained from a contrived laboratory task may not be representative of more naturally occurring self-management processes" (p. 619).

These limitations make it difficult to confidently make inferences regarding naturally occurring events. Thus, it seems important to test the relationship between depression and perceived self-efficacy in a situation that is typical, practical, and useful in order to determine its genuine applicability. The most effective way of addressing this problem is to conduct the experiment in an ordinary setting under normal conditions. Thus, the purpose of the current study is to determine the accuracy and direction of perceived self-efficacy of individuals in relation to their degree of depression in a naturalistic setting.

I expect to find that a significant relationship

does exist between levels of depression and the accuracy at predicting actual self-efficacy (i.e., perceived self-efficacy) and between depression and the direction of the error of estimate in a naturalistic setting. I further expect to find that depressed subjects are relatively more accurate at assessing their actual self-efficacy than nondepressed subjects and that nondepressed subjects tend to overestimate their actual self-efficacy in comparison to depressed subjects.

Method

Subjects

Forty-seven Midwestern undergraduate psychology students from an Abnormal Psychology class participated in the study. Of the 47 students who participated, 38 were female and 9 were male. Every student in the class had the opportunity to participate in the experiment on a voluntary basis, each subject participated with informed consent, and every student, who completed both parts of the experiment was used in the study. This approximate number of subjects was

needed in order to attain a sample size suitable to the power of the experiment. The sample size was calculated from the average effect sizes of the studies used in the meta-analysis of attributional styles in depression (Sweeny, Anderson, & Bailey, 1986), which ranged from small to medium. Specifically, the approximate mean effect size was .20 while the largest effect size was .32.

Instrument

The Beck Depression Inventory (BDI) is a 21-item self-report inventory designed to assess the severity of depressive symptoms. The range of scores is from 0 to 39 with a score of 10 or above corresponding to clinically significant depression. The BDI has been shown to have good concurrent validity (r=.79) when compared with psychiatric ratings of depression severity in clinical populations (Bumberry, Oliver, & McClure, 1978). The BDI has also been found to validly identify state depression in university populations. According to Bumberry et. al (1978), the concurrent validity was supported by the .77 correlation between

the BDI and psychiatric ratings of the students.

Procedure

The BDI was administered to the class, in a group setting, 2 days before the academic exam. This was done in order to avoid having the subjects' test performance interfere with the manner in which they answered the BDI and also to make sure that the level of depression at the time of the experiment was as accurate as possible. Another precaution that was taken in order to insure the highest degree of validity for the BDI was telling the class prior to the administration of the BDI that it would be given on a basis of anonymity and that their BDI scores would have no effect on their grades.

The class was then given a 51-question multiple choice exam by the instructor. On the final page of the exam, the students were requested to rate their performance by estimating what percentage of the questions they answered correctly. This is consistent with the retrospective format of the aforementioned studies. That is, the students made an estimation of

their success after their performance. Of the 55 possible subjects, 47 completed both the BDI and the questionnaire.

The error scores, which were the numerical differences between the subjects' percentage test scores and their estimated percentage scores, were correlated with the subjects' corresponding level of depression as measured by the BDI. The Pearson product-moment correlation coefficient was used to determine the degree of covariance between the subjects' accuracy of assessing their actual self efficacy and their level of depression and to also determine the degree of covariance between the direction of the erroneous estimation and their level of depression.

Results

The results for the accuracy level of all the subjects were computed by pairing the absolute values of the subjects' estimated error with the subjects' scores on the BDI. The absolute value of the scores was used because positive and negative differences were

not important in assessing the relationship between levels of depression and the accuracy at predicting actual self-efficacy. The results for the direction of the subjects' perceived self-efficacy were computed by dividing scores into over-prediction and under-prediction categories. The results for the Over-prediction and Under-prediction groups were computed by pairing their error scores with their corresponding BDI scores.

For the pool of subjects as a whole, no support was found for a significant correlation between levels of depression, as measured by the BDI, and levels of accuracy for perceived self-efficacy, as represented by the precision of the subjects' estimated scores ($r(45) = -0.094$, $p > .05$).

In addition, the relationship between levels of depression and direction of error of perceived self-efficacy was not of a significant level for the subjects who overestimated their score ($r(31) = -0.049$, $p > .05$) nor for those who underestimated their score ($r(12) = 0.062$, $p > .05$). From the research findings, it appears that levels of depression were not related

to the subjects' ability to correctly estimate their actual efficacy. A scatter plot was devised in order to determine if the data were being misrepresented due to the existence of a curvilinear relationship. In further support of the findings that no significant relationship exists between levels of depression and perceived self-efficacy, no curvilinear relationship was found to exist.

The only significant finding observed was that the individuals who overestimated their scores ($\underline{M}$ = 12.56) did so to a more extreme degree than those who underestimated their scores ($\underline{M}$ = 7.954). However, I believe that this is inconsequential to the study because this significant effect was not related to the subjects' level of depression.

Table #1: T-test results of subjects' score estimations.

	Size	Mean	Standard Deviation
Overestimation Group	34	4.382	3.447
Underestimation Group	13	6.154	3.236

$\underline{p} > .05$

Discussion

The results of the study do not support that a significant relationship between levels of depression and the accuracy at predicting actual self-efficacy in a naturalistic setting exists. That is, the initial hypothesis of the current study, that depressed individuals are more accurate at assessing their actual efficacy in relation to that of nondepressed individuals in naturally occurring situations was not supported. It is also important to note that no relationship was found to exist between levels of depression and the direction of the error of estimation in naturally occurring conditions.

Some possible confounding variables may have influenced the results of the present study. First of all, the range of the acquired BDI scores was restricted and not representative of a typical population distribution. Only 17% (8/47) fell into the mild-moderate range of depression, while the overall mean was 4.9, which is conspicuously below the typical mean for the BDI. According to Susan Shirley (1990),

31.4% of the subjects in her study on depression of students in three Illinois Community Colleges fell into one of the categories of depression as measured by the BDI. Of these, 18.0% fell within the mild range, 9.5% fell within the moderate range, and 3.9% fell within the severe range. The overall mean of her study was 7.9, three points above the mean for this study. This inaccurate representation may have confounded the results because reduction in the range of the independent variable tends to reduce the size of a correlation.

A possible solution to this problem is to use a stratified sampling technique in order to obtain a more representative sample of depressed subjects. Through the use of proportional allocation, each category will contribute to the sample a number of members that is proportional to its size relative to the total population (in comparison to the BDI normative distribution of scores).

Secondly, only 47 out of the 55 students who took the test completed both requirements of the study (i.e. completed the BDI and the perceived self-efficacy

questionnaire). Full participation of the students may have shifted the correlation value in a direction more consistent with the original hypothesis.

One possible solution to this problem is to offer an incentive to the subjects. With the use of an inducement, the subjects would be more motivated to participate in the experiment, thus providing a more accurate representation of the population.

Additionally, the experimental design is flawed because it does not take into consideration the influence that the subjects' attributional style has on their ability at assessing their performance as related to their level of depression. That is, a possible variable that may have had an effect on the results of the study includes identifying what factors the subjects attributed to the success or failure of their performances (i.e. Internal vs. External causes and Global vs. Specific causes).

A possible solution to this problem is to investigate the relationship that depression and perceived self-efficacy have to one another while manipulating situational factors. It would be

consistent with the learned helplessness model of depression to claim that not only are depressed and nondepressed individuals generally no more accurate than one another, but that they maybe more accurate than one another under particular circumstances.

The possibility exists that each group is relatively more accurate at assessing actual self-efficacy in situations that are more consistent with their particular attributional style. Depressed individuals may more accurately estimate their actual competency in tasks that have negative outcomes and are attributed to internal characteristics of the individual and in situations with positive outcomes that are due to external causes. On the other hand, nondepressed individuals may be more accurate at estimating their actual capability in circumstances with positive outcomes that are attributed to internal characteristics and in situations with negative results that are ascribed to external qualities.

The apparent discrepancy between the accuracy of perceived self-efficacy of depressed and nondepressed individuals may actually be in accordance when the

differences in task value and attributional style in relation to perceived self-efficacy are taken into consideration. When evaluating the role that perceived self-efficacy plays in depression, it is important to determine the emphasis depressed individuals put on response-outcome contingency. Bandura (1982) states that "A comprehensive theory of depression must be concerned not only with the perceived causality of failure but also with internal standards by which attainments will be self-judged" (p. 123).

According to Stanley and Maddux (1986), Bandura's (1982) self-efficacy theory and Abramson, Seligman, and Teasdales' (1978) revised learned helplessness model are interrelated (Stanely and Maddux, 1986). They claim that rather than contending with Bandura's self-efficacy theory, the learned helplessness model is compatible with and even complementary to it. Vazquez (1987) supported this point in a study that found that depressed individuals were relatively more accurate at predicting their effect on contingency tasks that were affectively neutral than were nondepressed individuals, but in contingency tasks that were affectively negative

the depressed subjects overestimated evaluations of control in comparison to the nondepressed group. Other studies that have presented evidence in support of this claim include Anderson et al. (1983), Anderson and Arnoult (1985), and Kanfer and Zeiss (1983).

In conclusion, the results of the present study did not support a relationship between levels of depression and perceived self-efficacy in naturally occurring situations. However, the points raised in the discussion highlight some of the weaknesses of the present study and suggest some need for more extensive and advanced research pertaining to the relationship between levels of depression and perceived self-efficacy.

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