DOCUMENT RESUME

ED 086 912 CG 008 265

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TITLE The Frustration-Aggression Hypothesis and Depression.
PUB DATE May 73
NOTE 19p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Aggression; Behavior Patterns; *College Students; *Hostility; Individual Characteristics; *Psychological Patterns; Reactive Behavior; *Research Projects; Self Control; Speeches

ABSTRACT

Depressed and nondepressed college students were frustrated in an incentive task utilizing a nonreward technique. Matched controls undertook a similar task in which the frustration condition was absent. Subjects were 127 undergraduate psychology students. Pre- and post-test measures of hostility and depression were obtained. The Beck Depression Inventory, The Hostility and Depression Scales of the Today Form of the Multiple Affect Adjective Check List and the Digit Symbol subtest of the Wechsler Adult Intelligence Scale were used as measures. It was found that frustration increased both depression and hostility in the nondepressed subjects but not in the depressed subjects. The findings suggest that there is a significant positive correlation between depression and hostility. (Author)

The Frustration-Aggression Hypothesis and Depression

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Depressed and nondepressed college students were frustrated in an incentive task utilizing a nonreward technique. Matched controls undertook a similar task in which the frustration condition was absent. Pre and post test measures of hostility and depression were obtained. It was found that frustration increased both depression and hostility in the nondepressed subjects but not in the depressed subjects. A replication of the experiment confirmed these results. The findings also suggest that there is a significant positive correlation between depression and hostility.

The adaptive function of the production of aggression by frustration is not hard to infer. A species (or an organism) which becomes hostile and active in response to frustration is more likely to overcome obstacles and to survive than one which is made passive in the face of frustration. When failure threatens, if one becomes devitalized the possibility of success recedes. Hence, increase in drive (Hull's D or Freud's libido) in a hungry organism will ordinarily activate it to gain access to food which is otherwise unavailable because of an actual or psychological barrier. When cornered and in fear of one's life one may be galvanized to attack the frustrating agent, thus contributing to survival. In general, when thwarted in gaining desired ends, aggression and increased motivation assist a frustrated organism to attain its goals. However, this survival mechanism is hypothesized to operate ineffectively when an individual is depressed. When he is depressed, especially in the face of frustration, a depressed individual is hypothesized to become passive rather than active and to further inhibit aggressive strivings.

Two frustration techniques are suggested by Dollard, et al (1939) which they regard as effective in producing aggression. One is to put a motivated response into a response sequence which leads to non-reward. The other is to punish goal responses. Experiments by Azrin (1966) have shown that both of these techniques are effective in producing aggression.

In the present experiment, depressed and non-depressed subjects were frustrated in an incentive task which utilized a non-reward technique. Depressed and nondepressed control subjects participated in a similar task in which the frustrating condition was absent. Pre and post test ratings of hostility and depression were obtained. According to our hypothesis it is to be expected that nondepressed subjects will show a significant increase in hostility as a consequence of the frustration procedure. But that the depressed Ss will not show an increase in hostility, but rather an increase in depression as a consequence of the frustration procedure.

METHOD

Subjects:

Three classes in undergraduate psychology were used as the experimental group (N=64). Two classes in undergraduate psychology were used as the control group (N=63).

Materials:

The Beck Depression Inventory (Beck, 1967), a 21 item test of depression in which each item contains 4 to 6 statements graded

according to the severity of a common symptom of depressive illness. Range of scores is 0 to 67.

The Hostility and Depression scales of the Today Form of the Multiple Affect Adjective Check List (Zuckerman & Lubin, 1965). The MAACL is a 132 item test, each item being a word which describes an affect. S is asked to check each word which describes how he feels now. Range of scores for the Hostility scale and the Depression scale are 0 to 28 and 0 to 40, respectively.

The Digit Symbol subtest of the Wechsler Adult Intelligence Scale (Wechsler, 1955).

Procedure:

Frustration Condition:

1. The Beck Depression Inventory and the MAACL were administered.

2. Each S was given a packet containing 10 copies of the Digit Symbol test, and was given ten opportunities to complete the task.

Sixty seconds were allowed for the first trial, a pretested time period known to be insufficient to complete the task, and thereafter the time allowed was reduced by 2 seconds per trial to compensate for practise effect and to intensify

the frustrating nature of the task.

3. The MAACL was readministered.

Control Condition:

The control condition was identical to the frustration condition except that Ss were given a packet containing 4 copies of the Digit Symbol test, and were given four opportunities to complete the task.

Three and one half minutes were allowed. This is sufficient time to permit all Ss to complete the task. Time allowed after the first trial was reduced to three minutes which was still sufficient for all Ss to complete the task.

At the conclusion of the experiment, 30 unselected Ss were interviewed informally as to "what they thought the experiment was all about." None of the Ss indicated that they were aware of the experimenter's objectives.

Selection of Subjects:

The subjects were divided into depressed and nondepressed groups on the basis of their scores on the Beck Depression Inventory, as follows:

Nondepressed Group:

26 experimental Ss and 16 control Ss who scored at or between 0 and 4 on the Beck Depression Inventory. From this subject pool, 15 Ss from the experimental group and 15 Ss from the control group were found to be matched with respect to Beck Depression Inventory score, and were retained as subjects. Mean Beck score for the experimental and control groups were each 2.1 (s.d.=1.4).

Depressed Group:

18 experimental Ss and 24 control Ss who scored at or between 10 and 27 on the Beck Depression Inventory. From this subject pool, 15 Ss from the experimental group and 15 Ss from the control group were found to be matched with respect to Beck Depression Inventory score, and were retained as subjects. Mean Beck score for the experimental and control groups were each 14.7 (s.d. = 5.2).

Treatment of the Data:

A 2x2x2 analysis of variance design with replications on one factor was used (see Winer, 1962, pp. 337-349), and included diagnostic group - depressed and nondepressed, experimental condition - frustration and control, and test condition - pre and post.

Means and standard deviations for each test were computed for each of the groups; t tests were performed to test the significance of the differences between pre and post test hostility and depression means for each group, under each condition.

RESULTS

The Effect of Frustration upon Hostility:

An analysis of the variance of hostility scores (see table 1) reveals a significant main effect for diagnostic group ($F=18.1$; $p<.001$), and test condition ($F=16.4$; $p<.001$), and a significant interaction effect between experimental condition, diagnostic group, and test condition ($F=3.7$; $p<.05$).

Insert Table 1 about here

Insert Table 2 about here

Table 2 shows pre and post test means and standard deviations of hostility scores for the depressed and nondepressed groups, under frustration and control conditions. The data show that the nondepressed group undergoing frustration significantly increased in hostility scores ($t=2.6$; $p<.01$), and the depressed group did not.

Of special interest and to be discussed later is the finding that the pretest hostility scores in the depressed groups were significantly higher than in the nondepressed groups ($p<.001$).

The Effect of Frustration upon Depression:

An analysis of the variance of MAACL Depression scores (see table 3) reveals significant interaction effects between experimental condition and test condition ($F=4.1$; $p<.05$) , and between diagnostic group and test condition ($F=9.1$; $p<.005$).

Insert Table 3 about here

Insert Table 4 about here

Table 4 shows pre and post test means and standard deviations of MAACL Depression scores for the depressed and nondepressed groups under frustration and control conditions. Under the frustration condition the nondepressed group significantly increased in depression score ($p<.05$).

The Relationship Between Depression and Hostility:

It will be recalled (see tables 1 and 2) that a difference in the pretest mean hostility scores was obtained for depressed and nondepressed groups, the depressed groups scoring significantly higher on the hostility scale than the nondepressed groups ($p<.001$). In order to further clarify the relationship between depression and hostility, and to control for significant pretest differences between depressed and nondepressed groups with respect to their pretest hostility scores, the following additional analyses were performed.

Insert Table 5 about here

Table 5 shows coefficients of correlation (for all subjects, see procedure) between pretest MAACL Depression scale and the pretest MAACL Hostility scale ($r=.76$; $p<.001$); between the Beck Depression Inventory and the pretest MAACL Hostility scale ($r=.51$; $p<.001$); and between the pretest MAACL Depression scale and the Beck Depression Inventory ($r=.66$; $p<.001$).

These findings suggest that there is a significant positive relationship between hostility and depression.

From the initial pool of 127 Ss (see procedure) 10 experimental and 10 control Ss who scored at or between 0 and 7 on the Beck scale (mean =2.8 and 3.0, respectively) were matched with respect to their pretest hostility scores with 10 experimental and 10 control Ss who scored at or between 10 and 24 on the Beck scale (mean =13.9 and 16.9, respectively).

Table 6 shows pre and post test means of hostility scores for depressed and nondepressed groups, under frustration and control conditions. The data confirm that when pretest hostility scores are controlled, only in the nondepressed group undergoing frustration did the hostility scores significantly increase ($t=2.0$; $p<.05$).

Insert Table 6 about here

Insert Table 7 about here

Table 7 shows pre and post test means of MAACL depression scores for depressed and nondepressed groups under frustration and control conditions. The data confirm that the nondepressed subjects undergoing frustration significantly increased in depression scores ($t=1.8$; $p<.05$). The depressed control group significantly decreased in depression scores ($t=2.4$; $p<.05$).

These findings tend to confirm the results reported earlier.

DISCUSSION

The results of this study indicate that frustration tends to increase hostility in nondepressed subjects (see tables 2 and 6), but not in depressed subjects.

The findings tend to indicate that there is a linkage between depression and hostility. The data show that depressed subjects are significantly more hostile than nondepressed subjects (see table 2); and significant positive correlations are found between the depression scales and the hostility scale (see table 5).

In view of the relationship that has been assumed to exist between depression and the repression of hostility (Freud, 1917, 1923), significant increases in depression scores following frustration for depressed subjects would be expected. This was not the case (see tables 4 and 7). It was found that after frustration, depressed subjects did not significantly increase in depression; that nondepressed subjects significantly increased in depression; and that there were, in fact, significant positive correlations between hostility and depression. These findings tend to disconfirm the hypothesis that the repression of aggression produces depression.

The data show that depression increases following frustration for nondepressed subjects (see table 4). One possible explanation for this finding is that hostility intervenes between frustration and depression. Significant positive correlations between the hostility and depression scales tend to support this contention (see table 5). The data lead one to speculate as to why frustration did not increase the amount of depression in depressed subjects. It may be deducted that

the depressed group was already suffering from the effects of highly frustrating life experiences by comparison to which the amount of frustration administered during the experiment only represented a small increment. This might explain why they did not become significantly more depressed. It might also be hypothesized that a depressed individual maintains a psychological defense against further frustration. For example, were such an individual to significantly increase his level of hostility, an acute psychotic reaction might arise in the form of uncontrollable rage. Future research might examine the effects upon depressed subjects of greater intensities of frustration with this caution in mind.

It cannot be concluded from the data obtained in our research that the group of students who were scored as "depressed" are to be regarded as having what is conventionally diagnosed as a depressive personality structure. This study did not undertake to study depressive personalities as such but to identify depression as a dependent variable. In future research, it would be useful to study differences between clinically depressed patients, particularly, neurotic depressives, psychotic depressives, and individuals whose depressive symptoms are secondary to their main disorder, e.g., schizophrenics, obsessive-compulsive neurotics, and drug addicts.

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TABLE 1

Analysis of variance of MAACL Hostility scores

SOURCE	SS	df	MS	F	P
Between Subjects	1916	59			
Frustration-Control (A)	7	1	7	.26	
Depressed-Nondepressed (B)	449	1	449	18.15	.001
AB Interaction	77	1	77	3.11	
Subj. W. Groups	1384	56	25		
Within Subjects	524	60			
Pre-Post Test (C)	108	1	108	16.44	.001
AC Interaction	21	1	21	3.16	
BC Interaction	2	1	2	.25	
ABC Interaction	24	1	24	3.69	.05 (one tailed)
C x Subj. W. Groups	369	56	7		

TABLE 2

Pre and Post test means and (standard deviations) of MAACL Hostility scores for Depressed and Non-depressed groups under Frustration and Control Conditions.

	Nondepressed		Depressed	
Condition	Pre	Post	Pre	Post
Frustration	3.7 (2.3)	7.5* (5.3)	7.1** (3.7)	8.7 (3.9)
Control	4.3 (4.0)	4.7 (3.9)	9.1** (3.4)	10.8 (4.9)

*Post score is significantly greater than pretest score; t for correlated data = 2.6; $p < .01$.

**Significantly greater than pretest score of the nondepressed group; $p < .005$.

TABLE 3

Analysis of variance of MAACL Depression scores

SOURCE	SS	df	MS	F	P
Between Subjects	7978	59			
Frustration-Control (A)	19	1	19	.21	
Depressed-Nondepressed (B)	2745	1	2745	29.66	.0001
AB Interaction	28	1	28	.30	
Subj. W. Groups	5185	56	93		
Within Subjects	899	60			
Pre-Post Test (C)	10	1	10	.78	
AC Interaction	51	1	51	4.10	.05
BC Interaction	112	1	112	9.07	.005
ABC Interaction	34	1	34	2.76	
C x Subj. W. Groups	692	56	12		

TABLE 4

Pre and Post test means and (standard deviations) of MAACL Depression scores for Depressed and Non-depressed groups under Frustration and Control Conditions.

	Nondepressed		Depressed	
Condition	Pre	Post	Pre	Post
Frustration	7.3 (5.0)	12.7* (7.9)	18.9 (7.8)	17.8 (7.0)
Control	7.9 (6.4)	8.1 (6.0)	19.3 (7.7)	17.7 (9.5)

*Post test score is significantly greater than pretest score; t for correlated data = 2.4; $p < .05$.

TABLE 7

Pre and Post test means of MAACL Depression scores for Depressed and Nondepressed groups under Frustration and Control Conditions, in Replication study.

Condition	Nondepressed		Depressed	
	Pre	Post	Pre	Post
Frustration	12.7	16.9*	15.8	15.3
Control	12.1	12.9	20.7	17.7**

*Post test score is signfficantly greater than pretest score; t for correlated data = 1.75; $p < .05$, one tailed test.

**Post test score is significantly lower than pretest score; t for correlated data = 2.4; $p < .05$.

TABLE 6

Pre and Post test means of MAACL Hostility scores for Depressed and Nondepressed groups under Frustration and Control Conditions, in Replication study.

Condition	Nondepressed		Depressed	
	Pre	Post	Pre	Post
Frustration	7.1	10.4*	7.0	8.1
Control	7.1	7.8	7.1	8.7

*Post test score is significantly greater than pretest score; t for correlated data = 2.0; $p < .05$, one tailed test.

TABLE 5

Coefficients of correlation between depression and hostility scales.

Test	Beck Depression Inventory	MAACL Depression Scale
MAACL Hostility Scale	.51*	.76*
MAACL Depression Scale	.66*	----

Note.--N = 127 in each computation.

*-$p < .001$.