The Effect Of Stress And Anxiety On Performance

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Abstract: The present study purported to investigate the effect of stress on the response of high-anxiety and low-anxiety male and female students (response measure being scores on selective attention task) The sample consisted of 75 subject. The subjects were the students of science college, Modasa (H.North Gujarat Unviversity, Patan, Gujarat.) the subject were administered the IPAT Anxiety scale questionnaire form individually. For the selective attention task, the multiple choice Reaction Tester and Electric shock Apparatus were used. The score obtained by each subject on the selective attention task was subjected to A×B×C factorial design with repeated measure on one factor. Factor A, B and C are stress, anxiety and sex respectively. Each factor has affects performance in an attention task adversely, anxiety like stress deteriorated performance, sex does not have any effect on performance, the effect of stress and non-stress is dependent of sexes, stress and non-stress, in addition to anxiety were also found to be significant affecting performance.

Keyword: Stress- Anxiety- Frustration – Conflict – Strain – Performance – Personality – Variables.

INTRODUCTION :

The psychologist and the industrial engineer have both concentrated upon many of the problem in industry, but with the growing change and development in industries it is necessary to pay attention to some of the important factors, personality variables viz. anxiety and stress and their effect on performance in industry so as to avoid strain, dissatisfaction, frustration, conflict and unpleasantness in order to achieve the organizational objectives estimated earlier.

The importance of anxiety as a powerful influence in contemporary life is increasingly recognized, and manifestation of current concern with anxiety phenomena are ubiquitously reflected in literature, the arts, science and religions as in many other facets of our culture. Anxiety seems to be the dominent fact-and is threatening to become the dominent cliche-of modern life. It shouts in the headlines, laughs nervously at cocktail parties, nags from advertisement, speaks suavely in the boardroom, whines from the stage, clatter from the wall street ticker. Not merely the black statistic of murder, suicide, alcoholism and divorce betray anxiety but almost any innocent, everyday act.

Anxiety is found as a central explanatory concept in almost all contemporary theories of personality, and it is regarded as a principle causative agent for such diverse behavioural consequences as insomnia, immoral and sinful acts, instances of creative self-expression, debilitating psychological psychosomatic symptoms and idiosyncratic mannerism of endless variety, which have an adverse effect on the work.

Although various studies have been conducted on anxiety and performance in different fields, a small experimental study has been conducted as on stress, anxiety and selective attention task as performance.

The present study purported to investigate the effect of stress on the response of high-anxiety and low-anxiety males and females (response measure being scores on selective attention task).

Selective attention task in the present study has been used as the work performance here, because in industries that the highly mechanized or where automation has taken place the task involved is generally of the detection sort and if the person is working stressful situation will be unable to concentrate fully on his work, hence the economic production of the industry will be largely affected.

OBJECTIVES OF THE STUDY :
(1) To check the effect of stress and non-stress on the performance for the selective attention task in reference to sex.
(2) To check the effect of anxiety (High and Low) on the performance for the selective attention task in reference to sex.

HYPOTHESIS OF THE STUDY :
(1) There will be no significance difference between the average score of different stress (stress and non stress) on the performance for the selective attention task reference to sex.
(2) There will be no significant difference between the average score of different stress anxiety (high and low) on the performance for the selective attention task in reference to sex.

METHODOLOGY
Variables :
1.Independent Variables : Stress and non-stress condition (stress induced by electric shock); high-anxiety and low-anxiety levels of the subject.
2.Dependent Variables : Responses of subjects in terms of correct response, overlooked number, missed reaction and number of times the key was pressed.

Sample : The sample consisted of 75 subjects. The subjects were the students of Science College, Modasa (H.N.G.U. Patan). The subjects were administered the IPAT Anxiety Scale questionnaire forms (cattell and scheier, 1963)

individually. The IPAT forms were scored with the help of the punched key. On the basis of raw scores, two clusters : one at high anxiety pole and another at low-anxiety pole (containing equal number of males and females) were sorted out as subjects for the selective attention task. 12 males and 12 females (6 highly anxious and 6 low anxious) were selected for the selective attention task. For the selective attention task, the Multiple Choice Reaction Tester was used.

Apparatus : 1. The Multiple Choice Reaction Tester.
2. Electric Shock Apparatus and the electrodes to fit in the fingers of the subject in the left hand.

Procedure : Stress was induced by electric shock. The tester must make the subject full acknowledged that when a particular combination (it is selected before hand here in this case 92 i.e. 9 on the left window and 2 on the right window : they may be in any position) is exhibited, the subject must press the reaction key. There are three counters-one for the correct number, one for the correct response and the third for the reaction number. To start with, the three panels must be adjusted by the experimenter so that they read zero.

The experiment was conducted in a sound proof and fully lighted room. Each group (high-anxious and low-anxious) was taken under non-stress and stress conditions with a day's gap, so that one condition may not effect the other condition. The subject was made to sit in front of the reaction tester and instructed. Some practice trials were given to each subject. After the instructions were clearly understood, the experiment was started. When the correct number on panel indicated '0050' the test was stopped. The reaction number and the correct answer were noted at the panel readjusted. Electrodes were fastened over the first and second finger of the left hand of those subjects who belonged to the treatment employing the shock (stress condition). The electric shock was given twice, once in the beginning of the experiment and then in between the experiment – as the subject concentrated on the task. The scores obtained are presented in Table – I

TABLE-I

	Subjects	Stress (A_1)	Non-Stress (A_2)
	1	31	42
	2	24	36
High-Anxiety	3	37	39
(B_1)	4	22	39
	5	18	41
	6	42	46
Males			
(C_1)	7	42	45
	8	43	45
Low-Anxiety	9	40	44
(B_2)	10	39	47
	11	40	48
	12	43	46

	Subjects	Stress (A_1)	Non-Stress (A_2)
	13	25	33
	14	54	22
High-Anxiety	15	20	38
(B_1)	16	37	24
	17	31	32
	18	15	34
Females			
(C_2)	19	38	48
	20	33	41
Low-Anxiety	21	47	46
(B_2)	22	41	48
	23	46	44
	24	39	45

ANALYSIS OF THE DATA

The score obtained by each subject on the selective attention task was subjected to A B C factorial design with repeated measures on one factor (Winer, 1971). that is one factor A. Factors A, B, and C are stress, anxiety, and sex respectively. Each factor has two levels. The factor A have two levels A1 (Stress) and A2 (Non-stress); the factor B have two levels B1 (High-anxiety) and B2 (Low-anxiety); and the factor C have also two levels C1 (males) and C2 (females).

The results of the 2 2 2 factorial design with repeated measure on one factor is represented in Table-II

TABLE – II : Summary of Analysis of Variance for 2 2 2 Factorial Design with Repeated Measure on Factor A.

TABLE-II

Source of Variance	SS	Df	MS	*F*	*p*
Between Subjects	2325.00	23			
A (Stress & Non-stress)	280.41	1	280.41	9.836	<01
B (Anxiety)	1474.16	1	1474.16	51.71	<.01
A B	0.26	1	0.26	< 1	NS
Subjects Within Groups (Error-I)	570.17	20	28.51		
Within Subjects	**1613.00**	**24**			
C (Sexes)	48.08	1	48.08	<1	NS
A C	70.01	1	70.01	1.0002	NS
B C	26.92	1	26.92	<1	NS
A B C	70.16	1	70.16	1.004	NS
C Ss Within Groups (Error-II)	1397.83	20			

FINDINGS

It is evident from the Table-II that the two conditions. viz. A1 (stress) and A2 (non-stress) differ significantly i.e. F (1,20)=9.836; p< -01. This implies that there is a significant difference in the scores of subjects obtained under these two conditions in the present study. The mean square is significant and leads us to conclude that the two means differ significantly i. e. stress affects performance in an attention task adversely.

The second main effect is that of B, which represents a comparison between the means for B1, the high anxiety and B2, the low anxiety averaged over the two levels of A and two levels of C. It is evident from the Table-II that the two means for B1 and B2 are significant at 01 level $F_{(1,20)} = 57,71; p< -01$. Thus, the two groups, i.e high anxious and love anxious under each condition have a significant effect on the performance. Anxiety like stress deteriorated performance.

The third main effect is that of C, which represents a comparison between the means for C1, the male and C2, the females, averaged over the two levels of B. It is evident from the Table-II that two the sexes are not significant. Sex does not have any effect on performance, under stress and non-stress condition, on high anxious subjects.

The A B interaction mean square is not significant and indicates that the difference between the means of A1 and A2 for the first levels of B is not significantly different from the difference among the means of A1, and A2, for the second level of B. With this non-significant A B interaction, it can be inferred that the anxiety effect independent of stress and non-stress, i.e. there is approximate the same difference among high-anxiety and low anxiety regardless of the conditions of stress and non-stress.

The B C interaction mean square is not significant and indicates that the difference between the means of B1 and B2 for the first level of C is not significantly different from the difference among the means of B1 and B2 for the second level of C. Thus it can be concluded that the effect of stress and non-stress is independent of sexes.

It is evident from Table-II that the A C interaction is not significant,

It is evident from Table-II that the A B C interaction mean square is not significant. Implies that A C interaction for the separate levels of A are of the same form; that the B C interaction for the separate levels of B are of the same form and that the A C interaction for the separate levels of B are of the same form.

The present findings are corroborated with the result of Hodges and Speilberg (1996). Their results indicated that both high and low anxiety subjects in the stress condition showed an immediate and substantial increase in heart rate in response to threat of shoch, whereas subjects in control group, showed little or no change in heart rate as they continued work on verbal conditioning task.

The present findings are also corroborated by the results demonstrated by Kenneth, W.Spence E. Taylor. In the Present study, like those of Spence and Taylor anxiety was found to be a significant factor affecting performance but in the present study stress and non-stress, in addition to anxiety were also found to be significant affecting performance.

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