

DIFFERENTIAL EMOTIONAL AROUSAL OF MALES AND
FEMALES TO DIFFERENT IMAGINED STRESSFUL
CONDITIONS

By

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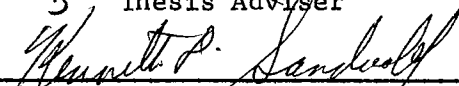
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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

The induction of stress in a laboratory setting has recently received increasing attention (e.g. Lazarus, 1966; Kaiser & Rossler, 1970). Studies have been concerned not only with the affective state per se, but also with a possible procedure for its use in validating therapy techniques. Some studies have found sex differences in response patterns, while other studies have failed to find this distinction. The purpose of the present study was to examine two categories of stress as a possible factor in previously mixed findings regarding sex differences.

It appears that there are two variables involved in whether or not sex differences are found in response to anxiety producing situations. These variables are type of anxiety (defined by the method of induction) and precision and validity of the measurement technique. Anxiety can be divided into that resulting from induction of mental stress (MENT STR) and that from induction of physical stress (PHYS STR). Examples of MENT STR are threat of work evaluation, stage fright, severe criticism, failure at a task, etc. No sex differences response pattern has been found related to the induction of MENT STR. Examples of PHYS STR include pain, physical discomfort, sensory deprivation, and the visual or auditory presentation of PHYS STR (i.e. an accident or

becoming ill). Studies that have used PHYS STR as a type of arousal have found sex differences in response patterns; however, there is some inconsistency in these reports.

Zuckerman has found support both for and against the occurrence of sex differences in response to stressful situations (Zuckerman, Lubin, Vogel, & Valerius, 1964; Zuckerman, 1960; Zuckerman & Biase, 1962; Zuckerman & Lubin, 1965). Zuckerman (1960) developed an adjective check list to measure momentary (state) or more permanent (trait) anxiety depending upon the instructions used during administration. (This check list is the anxiety scale of the Multiple Affect Adjective Check List, MAACL). During reliability and validity work of the MAACL, the paradox of sex differences appeared.

In one validity study (Zuckerman, 1960) the anxiety scale was administered (in the Today form, intended to measure state anxiety) to a class of elementary psychology students every day except those following examinations. The scores obtained on test days were significantly greater than the scores obtained on nontest days. Both male and female Ss reported in a similar manner. Zuckerman and Biase (1962) did a similar study which supported the validity of the anxiety scale, and again reported no sex differences to test anxiety (MENT STR).

In an attempt to validate the depression and anxiety scales Zuckerman, et al. (1964) employed a documentary film of the "detailed procedures in a slaughter house" (PHYS STR). The Today form of the MAACL was given to the Ss on the fourth day of class. Immediately afterwards the film was shown and the Today form of the checklist was readministered. Females showed a significant increase in

anxiety and depression scores from pre- to post-film testing. Males failed to show a significant increase on either scale. This may be partly accounted for by the fact that males had significantly higher pre-film anxiety than female Ss. However females' depression scores did increase and males' depression scores did not. In connection with this study, validation for the anxiety, depression and hostility scales was sought using MENT STR. After obtaining 3 baseline measurements (in consecutive weeks) using the Today form, an instructor told his class that an exam was to be given on that day, one week before it was expected. The MAACL was administered, and then the test was postponed until the scheduled time. The MAACL was also given before the examination and the following week when falsified low grades were handed back. Anxiety increased significantly over baseline on all three days (exam threat, real exam and low grades) while depression and hostility were higher on exam threat and low grades. There was no significant effect due to sex nor was there any interaction of sex with occasions.

Craig (1968) measured skin conductance, heart rate, nonspecific galvanic skin responses, and respiration rate over three conditions of PHYS STR induction. Observing another experience the situation and imagining oneself in the situation were compared to the direct experience of holding one's hand in 2° C water. Differences according to sex and condition of presentation were present. Direct arousal produced longer maintained and larger magnitude responses in frequency of nonspecific galvanic skin responses, changes in heart rate, and respiration rate than imagined or vicarious arousal. Qualitative differences were also present

in physiological responding over conditions with heart rate accelerating over baseline in the direct and imagined experiences and decreasing in the vicarious condition. Respiration rate decreased from baseline in the direct condition, while increases were present in the vicarious and imagined conditions. Women showed a larger increase in nonspecific galvanic skin responses and higher heart rate than males to the three arousal conditions. This study indicated that imaginary and vicarious experience produced arousal in which sex differences were present as measured by physiological indices. While arousal was present in these two conditions, it differed quantitatively and qualitatively from direct experiences.

Hare, Wood, Britain and Frazell (1971) also found physiological differences to the induction of PHYS STR. Color slides or ordinary objects (control), homicide victims (PHYS STR) and nude females were presented to Ss. The female Ss had initially lower levels of electrodermal activity but a higher tonic heart rate. These may be biased baselines because Ss were informed about the nature of the slides prior to the attachment of electrodes. This difference could be attributed to anticipatory imagining of the circumstances, similar to one of the groups in Craig (1968). Females gave a larger electrodermal response to the homicide slides, and the larger cardiac response to the nude slides. Males responded in the opposite manner.

The second variable involved in the question of obtaining sex differences in response to stress is that of the sensitivity, validity, and precision of the measurement involved. Weiner, Weber, and Concepcion (1973) found presentation of positive

(non-stressful) and negative (which were considered PHYS STR) scenes had a differential reinforcing value for males and females on the performance of a circle drawing task. When Ss were asked to rate their emotional reaction to each presentation on a twenty-one point scale ranging from most pleasant to most unpleasant, females rated on the extremes. That is, females tended to rate positive scenes more positively and PHYS STR scenes more negatively than males. In one measurement (circle drawing) significant sex differences was found, on another dependent variable (emotion reaction scale) there was a trend toward sex differences but not a significant one, suggesting the females did not act in accord with what they reported.

The differential findings of sex differences being related to the subtleness of the index is also supported in sensory deprivation literature. Biase and Zuckerman (1967) found sex differences in the MAACL, but not in an "anxiety button" Ss were asked to push when worried or anxious. Arnhoff and Leen (1963) failed to find sex differences due to sensory deprivation, of reported disturbances on post-isolation interview and questionnaire. Walters, Shurley, and Parrons (1962) employing a sensitive analysis of verbal reports did obtain sex differences.

With the less subtle measurements of emotionality (e.g. verbal reports and self-reported emotional reaction) sex differences have not been found. That is, when it is obvious what is being asked for, males and females do not respond in significantly different ways, although tendency toward extremes was present. But when indirect techniques are employed (e.g. circle-drawing task and

adjective check list), sex differences are found. Therefore, sex differences can be found using a subtle index, but Ss appear unwilling to express these trends openly.

One might expect that PHYS STR would be more intense than MENT STR, thus emphasizing sex differences. It could be inferred, therefore, that women are not necessarily more sensitive to PHYS STR, but as Weiner, et al. (1973) found, the women rate situations more towards the extremes than men do. Therefore, differences between male and female ratings would be greater for the more stressful PHYS STR than for less intense MENT STR. However, Zuckerman and Lubin (1965) state that moderate to severe anxiety (as measured by the MAACL) is produced by a threatening and unexpected examination (MENT STR), and only mild anxiety is elicited by viewing a movie about a slaughterhouse (PHYS STR). This is the same amount of anxiety (mild) produced by perceptual isolation (PHYS STR), stage fright (MENT STR), and an expected examination (MENT STR). Use of these mental stressors failed to produce differences in ratings of anxiety by sex, but in PHYS STR situations sex differences were found.

The present study was designed to determine if the supposed interaction of sex with different types of stress exists. Both PHYS STR and MENT STR were induced by having Ss listen to tape recorded descriptions of scenes. In the PHYS STR condition Ss were asked to imagine they were in the situation of being hit by an automobile. Taking a final examination was the scene Ss in the MENT STR condition were asked to imagine themselves in. This is a change from previous studies which employed in vivo as opposed

to imagined MENT STR situations. It is thought that the difference of participation in MENT STR and the imagining of PHYS STR is a variable which, in light of Craig's (1968) findings concerning differences of in vivo and in vitro experiences, should be controlled. The MAACL was used to obtain subjective rating of anxiety, hostility, and depression. It was thought that the MAACL is sensitive and subtle enough to detect sex differences to PHYS STR because of previous findings (e.g. Zuckerman, et al., 1964). Zuckerman and Lubin (1965) state that it is "probably" safe to combine male and female scores for normal Ss. But only one study using PHYS STR was cited in their review and in it sex differences were found. An emotional reaction scale similar to the one used by Weiner et al. (1973) was used to replicate differential findings along the subtle-obvious dimension.

Hypotheses

1. Women will express larger affect increase (as measured on the anxiety, depression, and hostility scales of the MAACL) to PHYS STR than males.
2. Women and men will not respond differently (as measured by the MAACL scales) to MENT STR.

CHAPTER II

METHOD

Subjects

Thirty female and thirty male volunteer undergraduate students at Oklahoma State University served as Ss. Half of the Ss were randomly assigned to the PHYS STR condition and half to the MENT STR condition. All Ss participated for extra course credit.

Apparatus and Materials

Multiple Affect Adjective Check List

(Appendix A):

A checklist of 132 items requiring the S to check every adjective that describes "how you feel right now."

Auditory Stimuli (Appendix B):

Physical Stress: A 90 second description of a person getting hit by a car. It includes vivid descriptions of blood and pain.

Mental Stress: A 90 second description of a person taking a final examination. It includes descriptions of confusion and fear of failure.

Emotional Reaction Scale (Appendix C):

This was a Likert-type scale ranging from 0 through 10 to 20, corresponding to a range of very pleasant to very unpleasant, with S instructed to indicate his/her emotional reaction by making a mark at the appropriate place on the line.

Tape Recorder:

The tapes were played on a Sony 110A Cassette recorder.

Procedure

When Ss arrived he/she was asked to fill out the MAACL at a desk outside of the experimental room responding to how he/she felt "right now." After completion and entering the room, E informed S that participation in the experiment was not required and S was free to leave. E then instructed S to imagine her-/himself in the situation they were about to hear "as best you can." After asking for questions, E instructed S to put on the headphones and then played the tape. When the tape was over, E instructed S to complete another MAACL, responding not as he/she thought he/she should feel, but as he/she was actually feeling at that very moment. S was asked to complete the emotional reaction scale, debriefed and asked not to reveal the experimental proceedings.

Experimental Design

The MAACL test data were analyzed using three 2 X 2 X 2 repeated measures analyses of variance, with anxiety, hostility,

and depression scores transformed into T scores as the dependent variables. Sex (male vs. female) was the A factor and MENT STR vs. PHYS STR was the B factor. The C factor represented the repeated measure over blocks of trials.

The emotional reaction scale was analyzed by a 2 X 2 analysis of variance, with sex (male vs. female) being one factor and MENT STR vs. PHYS STR being the other factor.

CHAPTER III

RESULTS

Each of the three 2 X 2 X 2 analyses of variance (sex X stress X trials) showed significant main effects for pre- to post-test (anxiety, $F(1,56) = 65.98, p < .01$; hostility, $F(1,56) = 58.49, p < .01$; depression, $F(1, 56) = 69.08, p < .01$) with post-test scores being greater. A main effect for type of stress approached significance for anxiety ($F(1,56) = 3.65, p < .06$) with PHYS STR scores being higher than MENT STR scores. Hostility and depression scores did not differ significantly with respect to different types of stress. Interaction of sex and type of stress (See Figures 1 and 2) was significant for hostility ($F(1,56) = 5.13, p < .05$) and approached significance for depression ($F(1,56) = 3.67, p < .06$). This interaction was not significant for the anxiety scale (See Figure 3). An examination of the MAACL scores for the sex by type of stress interaction indicated that pre-test scores on all scales did not differ significantly between sex groups. On the post-test, females scored significantly higher than males on the hostility scale (t one-tailed (56) = 1.75, $p < .05$). Comparison of the male and female post-test depression scores showed females scored higher than males approaching significance (t one-tailed (56) = 1.45, $p < .10$).

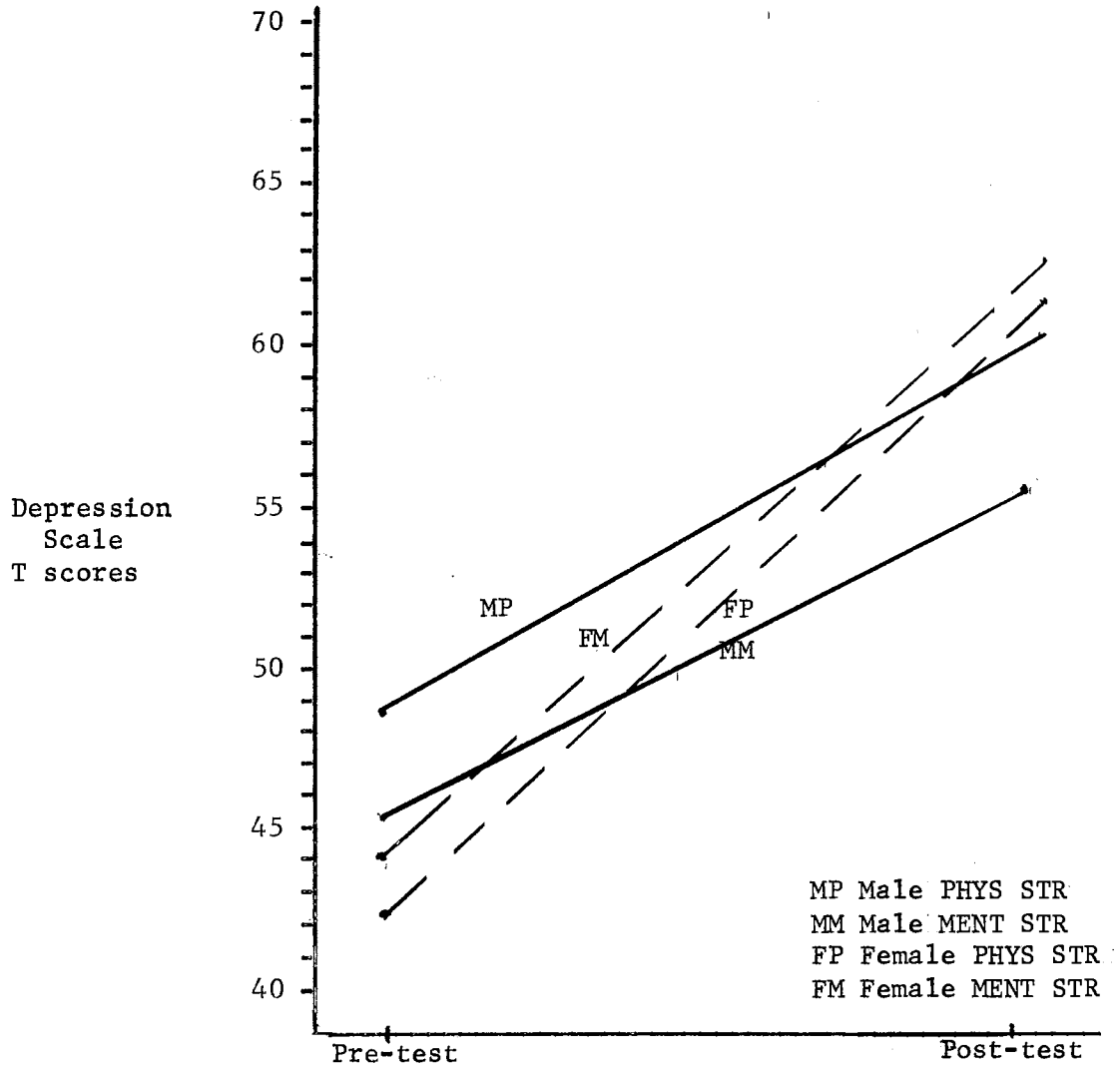


Figure 1. Depression Scores of Males and Females for Pre-test and Post-test in MENT STR and PHYS STR Conditions

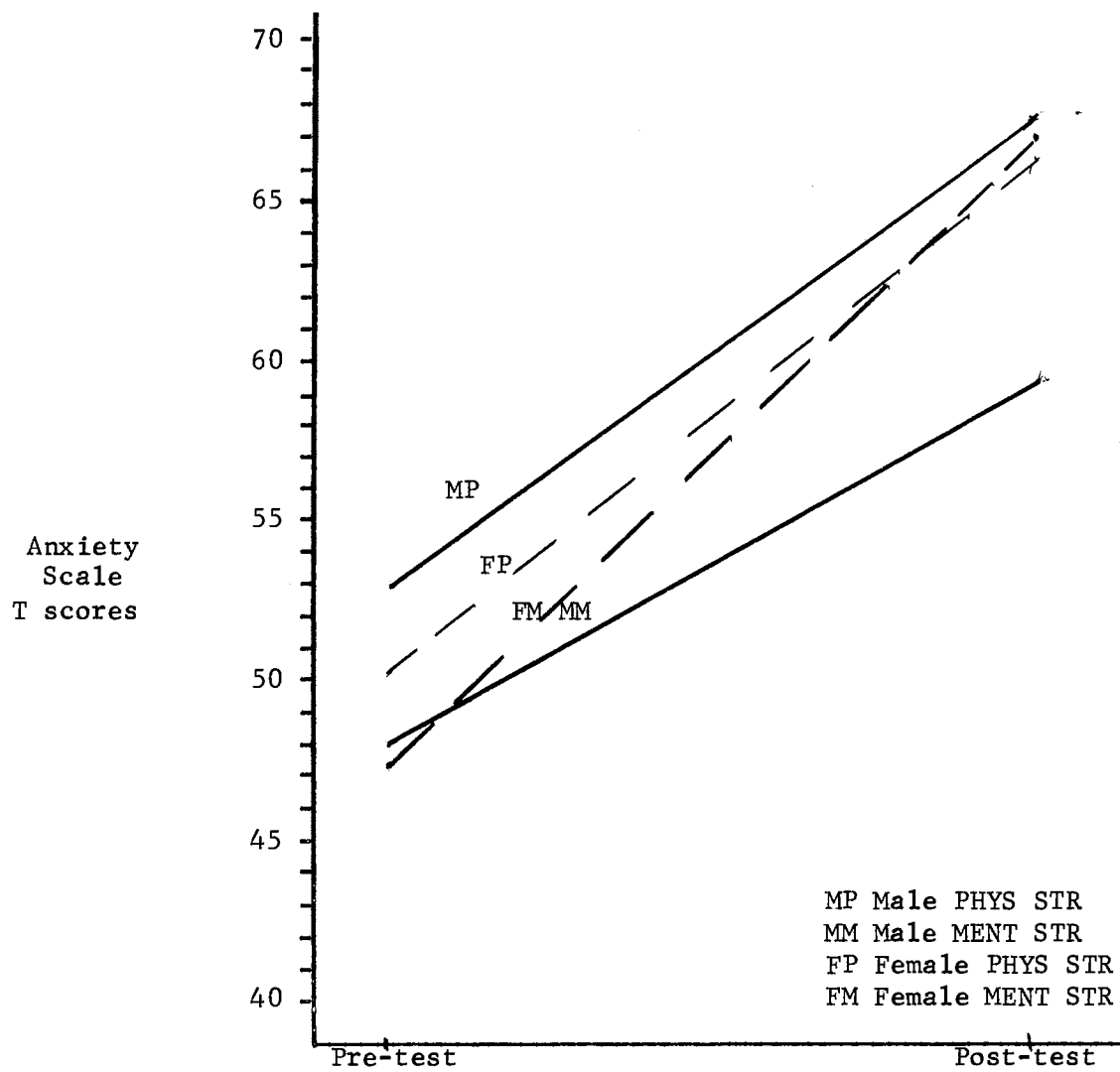


Figure 2. Anxiety Scores of Males and Females for Pre-test and Post-test in MENT STR and PHYS STR Conditions

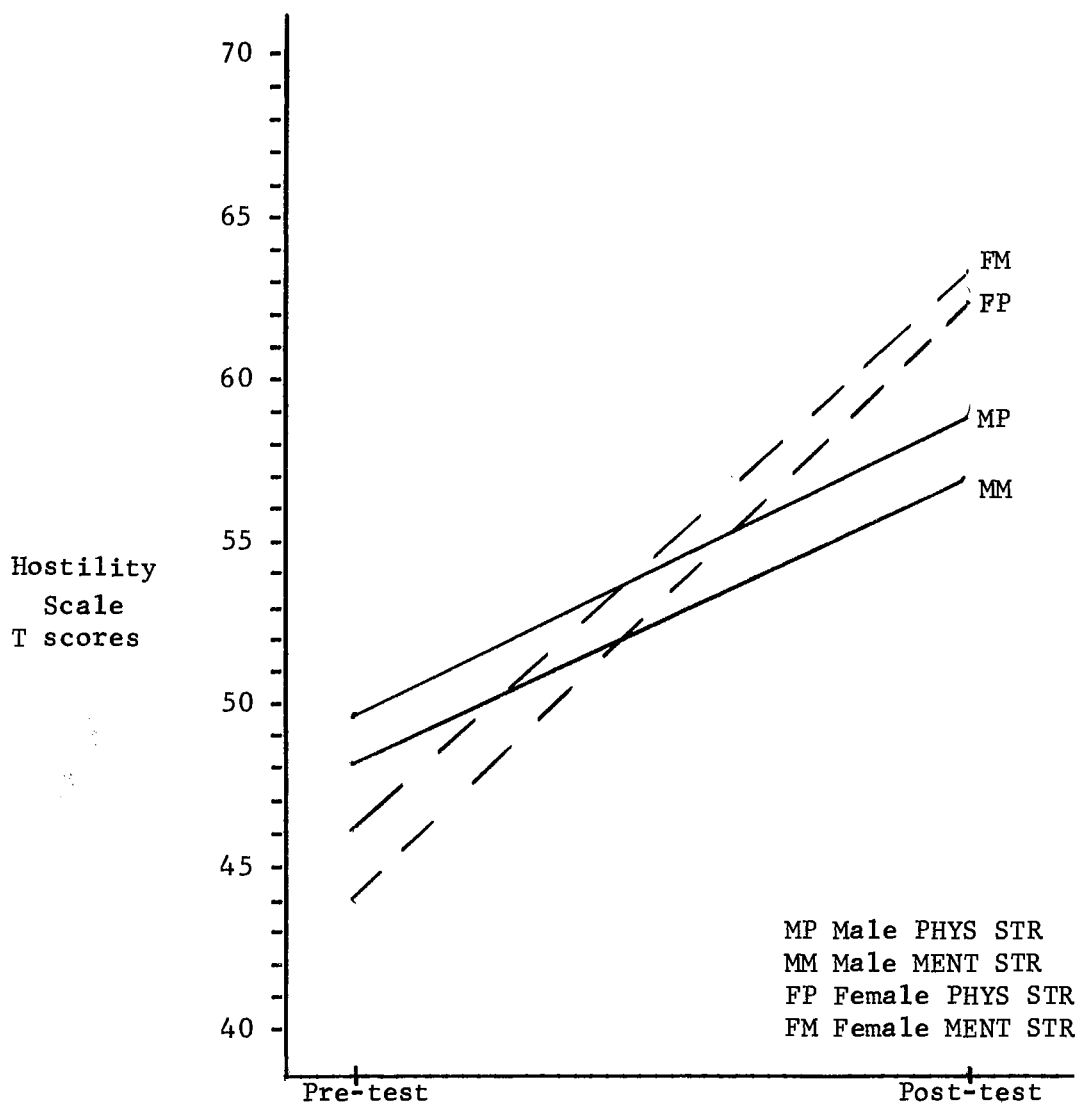


Figure 3. Hostility Scores of Males and Females for Pre-test and Post-test in MENT STR and PHYS STR Conditions

Planned comparisons of differential increases in scores by males and females as related to different stressful conditions were performed (See Figures 1, 2, and 3). There was no significant difference on any MAACL scale for the pre-test scores. Women did not differ significantly from men on any scale in the PHYS STR condition on post-test scores. In the MENT STR condition males scored significantly lower on all MAACL scales than females on the post-test (anxiety, t one-tailed (56) = 2.04, $p < .025$; hostility, t one-tailed (56) = 1.72, $p < .05$; depression t one-tailed (56) = 1.82, $p < .05$). Further analysis indicate post-test scores showed no difference between females in the two stress conditions. Males showed no difference in the two stress conditions except on the anxiety scale where MENT STR scores were significantly less than PHYS STR scores (t one-tailed (56) = 2.09, $p < .025$).

The 2 X 2 analysis of variance (sex X stress) for emotional reaction ratings showed a significant difference between all S_s ' ratings of different types of stress (F (1,56) = 6.46, $p < .05$) with PHYS STR being rated more unpleasant than MENT STR. There were no differences between males and females of emotional reaction ratings of the different stressful scenes.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

The results did not support either of the hypotheses concerning sex differences in responding due to different stress conditions. Females did not respond differently than males to PHYS STR, but did produce higher scores on affect scales than males in the MENT STR condition. The simple effects test did not follow conventions concerning the probability of type I error, although it was thought that this breach of tradition was justified due to the consistency of these findings across scales and the exploratory nature of this research. The borderline significance of the results is also understandable in lieu of the literature concerning subtleness of index. The MAACL is a self-report questionnaire which is approximately midway on a subtle-obvious dimension. With the more obvious indices of emotional arousal (e.g., emotional reaction scale and unanalyzed verbal reports) sex differences are not found. The subtle instruments (i.e., circle drawing tasks, physiological responses and content analysis of verbal report) indicate significant sex differences to stressful situations. The MAACL is obvious in that Ss are asked to respond in accord to how they are feeling. But it has subtle factors due to its empirical derivation, i.e. some words are scored on a scale even though the face validity would be low. Through examination of the

data it is also thought that combining over type of stress would allow for better explanation of the results (See Figure 4). The rationale for this include the similarity of female scores over all scales irrespective of stress condition (See Figures 1, 2, and 3), and the similarity of male scores combined over stress condition on the hostility and depression scales. The difference in male post-test anxiety scores in different stress conditions can to a large part be accounted for by near significant differences in pre-test scores in the different stress conditions.

Combining over types of stress, females increased more than males in hostility and depression from pre- to post-test (By examining Figure 4 one can observe this trend present for anxiety scores, although it is not significant). Females, therefore, tended to express more emotionality than males to the stressful scenes. This finding partly supports the hypothesis of sex differences in responding. The condition, however, under which most of the differential responding was present was MENT STR, in which no differences were hypothesized. This apparent paradox can be explained by the in vivo MENT STR of previous studies and the in vitro MENT STR employed here. It appears as if imagining a stressful scene produces qualitatively different responses than actual participation in the event. Craig's (1968) finding of qualitative and quantitative differences in physiological indices to in vivo and in vitro PHYS STR support the real vs. imagined distinction. Sex differences in responding appears not to be a function of type of stress (MENT STR vs. PHYS STR) but of mode of presentation (imagined vs. real situation). The above cited

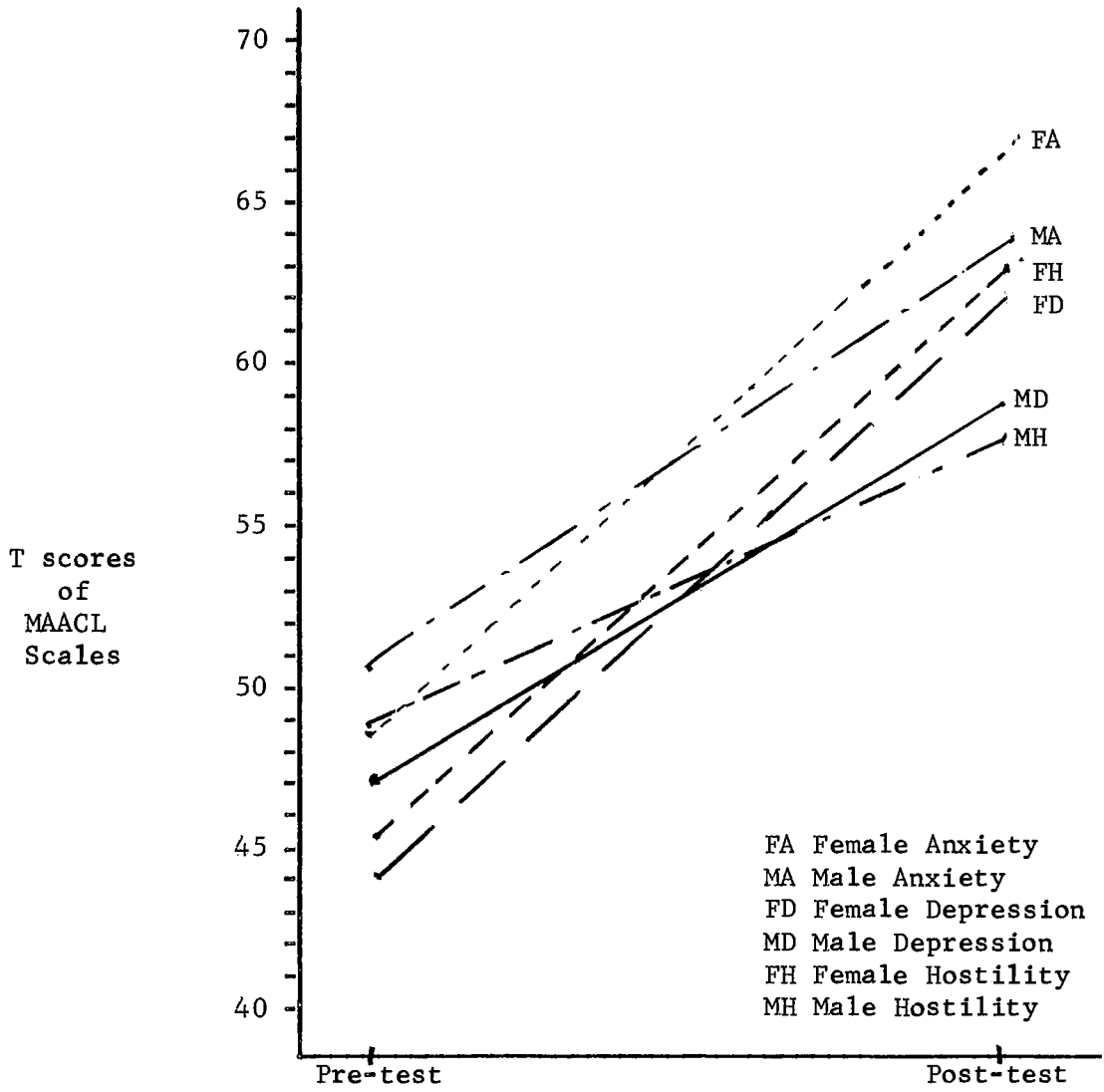


Figure 4. MAACL Scores of Males and Females for Pre-test and Post-test

literature indicates no sex differences in MENT STR conditions which are in vivo. The imagined MENT STR of this study produced sex differences in emotional arousal.

The sex differences in response to imagery can be accounted for by the different identification tasks for the respective sex role stereotypes. Lynn (1968) states that girls have a model present most of the time with whom they can identify. Their cognitive style would therefore center around a personal relationship and imitation. Boys, although, do not have a model present for a majority of the time. The cognitive style that a male would acquire would involve restructuring the field and abstracting principles from the field. Females should depend more on the field and males more on their own cognition. These different cognitive styles imply that boys would have more experience screening out irrelevant cues. Maccoby (1966) states females are more oriented toward external stimuli than males. This orientation is exemplified by field dependence and less ability to break set or restructure in a problem solving setting.

The relevance of these different cognitive styles to the present study is that males would be more apt to screen out the auditory input as irrelevant due to the fact that it would be incongruent to their own internal state. Females would be more dependent in responding on the artificial (i.e., imagined) external stimuli and therefore, be more aroused.

The results of this study support the notion of two factors being involved in the detection of sex differences in response to stress. Lack of sex differences in the emotional reaction

scale and significant difference in the MAACL scales indicate that the sensitivity, and even more important, the subtleness of the measurement instrument is important. The subtleness distinction may involve Ss willingness to openly express their feelings in an experimental situation. It is thought, however, that if inhibition of expression were indeed the cause then magnitude of responses would be affected in a non-differential manner. That is, the degree of emotionality expressed would be lowered irrespective of type of stress or method of presentation. With the more subtle instruments then sex differences should be less, the opposite of what has been found. From these findings, however, no definite conclusions can be made concerning the mechanics involved in this question of subtleness.

The second factor involved in the detection of sex differences appears to be whether or not Ss are required to cognitively restructure the stressful situation. The difference of MENT STR vs. PHYS STR, if it in fact exists, is overshadowed by the real vs. imagined dichotomy. Sex differences may be due to different cognitive processes and not attributable to different types of stress. Further research should compare in vivo and in vitro experiences of MENT STR and PHYS STR using a number of indices of emotionality ranging in their obvious connections to the expression of emotionality.

CHAPTER V

SUMMARY

This study investigated sex differences in responding to different types of imagined stressful conditions. Previous work had indicated that with imagined situations which involved physical injury or pain, males and females would respond differently. In experienced situations in which people were evaluated, males and females responded in a similar manner.

Tape recorded descriptions of taking a final examination and being hit by an automobile were used in this study. It was hypothesized that sex differences would be found with the accident scene and not with the examination scene. Two self rating scales were employed. A check list to measure emotional arousal was given before and after listening to the scene. A Likert-type scale was given after the stressful scene was heard.

Sixty undergraduates were used as Ss. Fifteen males and 15 females were assigned to listen to each of the tapes. The results indicated that there was no difference according to sex due to the type of stress that Ss were exposed to. There was a general trend for females to report more emotional arousal to both conditions. This was of border line significance.

It was suggested that the pertinent variable as to whether or not sex differences are obtained is not type of stress but the

method of presentation of the stressful situation. It was also thought that the subtleness of the measurement instrument is important, with the more subtle indices finding sex differences in in vivo and in vitro presentations of stressful situations.

SELECTED BIBLIOGRAPHY

- Arnhoff, F. N., & Leon, N. Sex differences in response to short-term sensory deprivation and isolation. Perceptual and Motor Skills, 1963, 17, 81-82.
- Biase, D., & Zuckerman, M. Sex differences in stress response to total and partial sensory deprivation. Psychosomatic Medicine, 1967, 29, 380-390.
- Craig, K. Physiological arousal as a function of imagined, vicarious and direct stress experiences. Journal of Abnormal Psychology, 1968, 73, 513-520.
- Hare, R., Wood, K., Britain, S., & Frazelle, J. Autonomic responses to affective visual stimulation: Sex differences. Journal of Experimental Research in Personality, 1971, 5, 14-22.
- Kaiser, C., & Rossler, R. Galvanic skin responses to motion pictures. Perceptual and Motor Skills, 1970, 30, 371-374.
- Lazarus, R. Psychological stress and the coping process. New York: McGraw-Hill, 1966.
- Lynn, D. Parental and sex role identification. Berkeley: McCutchan Publishing Corporation, 1969.
- Maccoby, E. Sex differences in intellectual functioning. In E. Maccoby (Ed.), The development of sex differences. Palo Alto: Stanford University Press, 1966.
- Walters, C., Shurley, J., & Parsons, O. Differences in male and female responses to underwater sensory deprivation: An exploratory study. Journal of Nervous and Mental Disease, 1962, 135, 302-310.
- Weiner, E., Weber, R., & Concepcion, P. Emotive aspects of visual imagery. Journal of Clinical Psychology, 1973, 29, 418-422.
- Zuckerman, M. The development of the Affect Adjective Checklist for the measurement of anxiety. Journal of Consulting Psychology, 1960, 24, 457-462.
- Zuckerman, M., & Biase, D. Replication and further data on the Affect Adjective Check List for the measure of anxiety. Journal of Consulting Psychology, 1962, 26, 291.

Zuckerman, M., & Lubin, B. Manual for the multiple Affect Adjective Check List. San Diego: Educational and Industrial Testing Service, 1965.

Zuckerman, M., Lubin, B., Vogel, L., & Valerius, E. Measurement of experimentally induced affects. Journal of Consulting Psychology, 1964, 28, 418-425.

APPENDIXES

APPENDIX A

MULTIPLE AFFECT ADJECTIVE CHECKLIST

Today Form

By Marvin Zuckerman
and
Bernard Lubin

Name _____ Age _____ Sex _____

Date _____ Highest grade completed in school _____

DIRECTIONS: On this sheet you will find words which describe different kinds of moods and feelings. Mark an X in the space beside the words which describe how you feel now--today. Some of the words may sound alike, but we want you to check all the words that describe your feelings. Work rapidly.

- | | | |
|--------------------|---------------------|---------------------|
| 1. ___active | 28. ___critical | 55. ___gloomy |
| 2. ___adventurous | 29. ___cross | 56. ___good |
| 3. ___affectionate | 30. ___cruel | 57. ___good-natured |
| 4. ___afraid | 31. ___daring | 58. ___grim |
| 5. ___agitated | 32. ___desperate | 59. ___happy |
| 6. ___agreeable | 33. ___destroyed | 60. ___healthy |
| 7. ___aggressive | 34. ___devoted | 61. ___hopeless |
| 8. ___alive | 35. ___disagreeable | 62. ___hostile |
| 9. ___alone | 36. ___discontented | 63. ___impatient |
| 10. ___amiable | 37. ___discouraged | 64. ___incensed |
| 11. ___amused | 38. ___disgusted | 65. ___indignant |
| 12. ___angry | 39. ___displeased | 66. ___inspired |
| 13. ___annoyed | 40. ___energetic | 67. ___interested |
| 14. ___awful | 41. ___enraged | 68. ___irritated |
| 15. ___bashful | 42. ___enthusiastic | 69. ___jealous |
| 16. ___bitter | 43. ___fearful | 70. ___joyful |
| 17. ___blue | 44. ___fine | 71. ___kindly |
| 18. ___bored | 45. ___fit | 72. ___lonely |
| 19. ___calm | 46. ___forlorn | 73. ___lost |
| 20. ___cautious | 47. ___frank | 74. ___loving |
| 21. ___cheerful | 48. ___free | 75. ___low |
| 22. ___clean | 49. ___friendly | 76. ___lucky |
| 23. ___complaining | 50. ___frightened | 77. ___mad |
| 24. ___contented | 51. ___furious | 78. ___mean |
| 25. ___contrary | 52. ___gay | 79. ___meek |
| 26. ___cool | 53. ___gentle | 80. ___merry |
| 27. ___cooperative | 54. ___glad | 81. ___mild |

82. ___miserable
83. ___nervous
84. ___obliging
85. ___offended
86. ___outraged
87. ___panicky
88. ___patient
89. ___peaceful
90. ___pleased
91. ___pleasant
92. ___polite
93. ___powerful
94. ___quiet
95. ___reckless
96. ___rejected
97. ___rough
98. ___sad
99. ___safe
100. ___satisfied
101. ___secure
102. ___shaky
103. ___shy
104. ___soothed
105. ___steady
106. ___stubborn
107. ___stormy
108. ___strong
109. ___suffering
110. ___sullen
111. ___sunk
112. ___sympathetic
113. ___tame
114. ___tender
115. ___tense
116. ___terrible
117. ___terrified
118. ___thoughtful
119. ___timid
120. ___tormented
121. ___understanding
122. ___unhappy
123. ___unsociable
124. ___upset
125. ___vexed
126. ___warm
127. ___whole
128. ___wild
129. ___willful
130. ___wilted
131. ___worrying
132. ___young

APPENDIX B

AUDITORY STIMULI

MENTAL STRESS SCENE

Imagine yourself walking into class on the day of the final exam. Looking around the room for a place to sit, you have to squint, the lights are so bright. You were up late last night studying and you wonder if it wouldn't have been better to have gotten more sleep. But there was so much information, seventeen weeks of materials to get ordered and understood. It's all so confusing . . .

As you sit down you hear the continuous sound of rustling papers as everyone else is trying in the last minutes to get all that information ordered and understood. Your whole grade depends on this test and you must do well! You try to look over your notes once more but with all the noise you can't concentrate.

The noise stops as the professor walks into the room. You had heard that he was hard and that he gave impossible tests, and now you are going to find out for yourself. Perhaps it would have been better if you had not taken the class, but now it is too late. As the instructor passes out the exam booklets you hear moans of despair as people gage the test's level of difficulty. You receive your test. You were expecting an essay test and it is multiple choice. As you look at the first ten questions you know the answers of only two of them. You try to remember but can't. Your mind goes blank. . . .

PHYSICAL STRESS SCENE

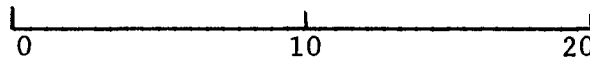
Imagine yourself stepping off the curb on your way to school. You turn around suddenly and you hear the screech of brakes and you see a car bearing down on you. You try to get out of the way but you can't and it crashes into your body. You get thrown into the air and you come down hard on the side of your face and on your stomach into the rough pavement. You feel the skin ripping off your body and you see it laying behind you as the red blood starts oozing from all parts of your body. You look up and the car is over you. You try to move but you can't and the pain aches in your side and in your head. You try to untwist your legs. As you lift your arm you can see the hand is gone and there is nothing but a jagged bloody stump. With each pounding of your heart you see the blood gushing out of the torn arteries, forming pools around your legs and in your eyes. The dirty red blood oozes from your body and the smell of burned flesh from scraping across the pavement comes into your nose. You can't move, you look, and people are standing around staring. You want to cry for help but you can't, nobody listens to you. You just lie there in pain. You try to cry for help but as the blood fills your eyes you can't see any longer. Finally the blood oozes down your cheeks and you feel the slime from the blood and the pus and the ripped skin covering your head and someone leans over and says, "He's a gonner, he won't make it."

APPENDIX C

EMOTIONAL REACTION SCALE

EMOTIONAL REACTION

One of the
most unpleasant
situations I
can think of



One of the
most pleasant
situations I
can think of

APPENDIX D

ANOVA SUMMARY TABLES

TABLE I
ANOVA SUMMARY TABLE FOR ANXIETY SCORES

Source of Variation	df	MS	F
Between Subjects	59	139.31	
A (sex)	1	21.67	0.16
C (stress condition)	1	484.01	3.65*
AC	1	297.08	2.11
Subjects W. Group Error (between)	56	132.44	
Within Subjects	60	242.31	
B (trials)	1	7696.01	65.98**
AB	1	216.01	1.85
BC	1	2.40	0.02
ABC	1	91.88	0.79
B x Subjects W. Group Error (within)	56	116.65	

*p < .06

**p < .01

TABLE II
ANOVA SUMMARY TABLE FOR HOSTILITY SCORES

Source of Variation	df	MS	F
Between Subjects	59	106.11	
A (sex)	1	10.80	0.10
C (stress condition)	1	3.33	0.03
AC	1	97.20	0.89
Subjects W. Group Error (between)	56	109.80	
Within Subjects	60	117.48	
B (trials)	1	5200.83	58.49**
AB	1	465.30	5.13
BC	1	12.03	0.14
ABC	1	0.03	0.00
B x Subjects W. Group Error	56	88.93	

**p < .01

TABLE III
ANOVA SUMMARY TABLE FOR DEPRESSION SCORES

Source of Variation	df	MS	F
Between Subjects	59	114.18	
A (sex)	1	6.08	0.05
C (stress condition)	1	88.40	0.76
AC	1	190.01	1.65
Subjects W. Group Error (between)	56	115.21	
Within Subjects	60	188.60	
B (trials)	1	6063.41	69.08**
AB	1	330.01	3.76*
BC	1	6.08	0.07
ABC	1	1.88	0.02
B x Subjects W. Group Error	56	87.77	

*p < .05

**p < .01

TABLE IV
ANOVA SUMMARY TABLE FOR EMOTIONAL
REACTION SCORES

Source of Variation	df	MS	F
A (sex)	1	11.27	1.86
B (stress condition)	1	38.40	6.46*
AB	1	3.27	0.55
Within Cell Error	56	5.94	

*p < .05

APPENDIX E

RAW DATA

TABLE V
MAACL SCORES

Anxiety		Male Mental Stress		Depression	
pre	post	Hostility pre	Hostility post	pre	post
54	73	48	48	51	55
48	48	50	48	48	50
40	81	43	94	34	83
32	57	35	45	30	50
43	51	38	48	44	50
48	65	56	63	48	66
54	62	45	61	51	65
57	76	81	73	68	68
84	40	40	48	40	36
57	57	50	58	51	61
48	51	43	53	37	43
46	54	48	53	54	54
48	70	40	53	33	57
54	59	56	63	54	57
37	43	45	40	37	38
Male Physical Stress					
59	81	56	56	68	71
76	65	43	61	48	56
46	51	53	61	50	48
35	81	40	56	40	72
62	65	53	50	55	65

TABLE V (continued)

57	57	53	53	41	47
48	57	38	66	48	52
37	76	50	61	36	60
57	70	56	63	51	65
57	68	56	61	54	58
68	76	58	58	57	62
51	79	50	59	41	59
62	76	45	71	59	69
51	57	45	53	50	65
32	62	45	61	43	65

Female Mental Stress

55	51	35	50	33	51
54	87	43	68	41	80
43	59	45	58	85	50
37	78	43	84	31	68
57	57	43	48	44	52
43	84	48	66	37	78
51	59	56	58	55	60
37	78	32	81	34	66
48	43	48	40	40	41
62	70	56	61	58	68
46	65	48	58	54	62
59	70	71	71	66	69
43	54	40	58	50	55

TABLE V (continued)

43	87	38	73	38	69
48	70	50	63	45	62

Female Physical Stress

40	54	35	50	41	48
32	84	35	63	41	83
68	81	50	66	44	74
46	84	45	73	41	76
32	70	38	61	33	58
62	59	53	63	52	62
37	40	40	45	33	37
57	87	35	86	38	72
65	59	43	40	52	50
59	57	53	61	54	55
54	57	45	58	52	57
43	59	43	66	41	64
48	70	50	66	45	58
62	62	56	61	45	51
51	73	43	71	44	72

TABLE VI
EMOTIONAL REACTION SCALE

Male Mental Stress	Female Mental Stress
6	5
2	2
2	3
5	9
6	4
2	6
2	3
8	9
3	6
3	7
5	2
5	5
2	5
8	3
6	2
Male Physical Stress	Female Physical Stress
1	0
0	1
1	3
2	1
2	9
7	3

TABLE VI (continued)

0	0
7	2
2	3
3	7
4	8
1	1
2	6
1	4
1	6

APPENDIX F
TABLE OF MEANS AND STANDARD
DEVIATIONS

TABLE VII

Means and Standard Deviations for Anxiety Scores				
	Pre-test		Post-test	
	\bar{x}	SD	\bar{x}	SD
Male Physical Stress	53.2	11.83	68.0	9.95
Male Mental Stress	47.6	19.13	59.5	11.39
Female Physical Stress	50.1	11.12	66.7	12.91
Female Mental Stress	47.1	12.36	67.8	12.85

Means and Standard Deviations for Hostility Scores				
	Pre-test		Post-test	
	\bar{x}	SD	\bar{x}	SD
Male Physical Stress	49.4	6.12	59.3	5.53
Male Mental Stress	47.9	16.22	56.5	13.01
Female Physical Stress	44.3	5.67	62.0	10.84
Female Mental Stress	46.4	8.80	62.8	6.96

Means and Standard Deviations for Depression Scores				
	Pre-test		Post-test	
	\bar{x}	SD	\bar{x}	SD
Male Physical Stress	48.9	7.27	60.5	10.41
Male Mental Stress	45.3	9.97	55.5	13.60
Female Physical Stress	43.7	5.16	61.5	12.25
Female Mental Stress	44.7	9.92	62.1	10.0

Means and Standard Deviations for Emotional Reaction Scores		
	\bar{x}	SD
Male Physical Stress	2.27	1.09
Male Mental Stress	4.33	2.13
Female Physical Stress	3.60	2.85
Female Mental Stress	4.73	2.41

VITA²

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