

Gender based Differences in Stress and Stress Coping Strategies in Cadets of Air Force Academy

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Abstract

Stress is defined as an organism's total response to environmental demands or pressures. It has a number of negative effects on the body and has been found to adversely affect brains functions. It is also well known that men and women react differently to stress. Many stress-related mental illnesses, including depression and post-traumatic stress disorder (PTSD), occur at least twice as often in women as in men. A study was conducted at the Air Force Academy on cadets of Ground Duty branches (Logistics, Administration, Accounts, Technical and ATC) to find out if any gender differences exist in their Stress and Stress Coping Strategies. Thirty male and an equal number of female cadets with mean ages of 24 yrs and 23yrs volunteered for the study. They were administered State and Trait Anxiety Inventory and Coping Orientation Problems Experienced (COPE) Questionnaire. State and Trait anxiety levels did not differ in the cadets of the two genders ($p=0.12$ and $p=0.52$ for State and Trait anxiety, respectively). No gender-based differences were identifiable in the coping strategies ($p=0.49$, $p=0.86$, $p=0.77$, $p=0.12$ and $p=0.69$ for Active Coping, Planning, Suppression of Competing Activities, Restraint Coping and Seeking of Social Instrumental Support, respectively). Five other dimensions (namely, Seeking of Emotional Social Support, Positive Reinterpretation, Acceptance, Denial, and Turning to Religion), which measure emotion-focussed coping, were also not found to be different ($p=0.77$, $p=0.55$, $p=0.55$, $p=0.23$ and $p=0.084$ for seeking of Emotional Social Support, Positive Reinterpretation, Acceptance, Denial and Turning to Religion, respectively). The remaining three scales, which are purported to measure Venting of emotions, Behavioural and Mental disengagement, were also not found to be different ($p=0.57$, $p=0.35$ and $p=0.45$ Venting of emotions, Behavioural disengagement and Mental disengagement respectively). The possible reasons for no significant gender differences being recorded are discussed.

Key words- Stress, Gender Differences, Air Force Cadets

Introduction

Stress is defined as an organism's total response to environmental demands or pressures. When stress was first studied in the 1950s, the term was used to denote both the causes and the experienced effects of these pressures. More recently, however, the word stressor has been used for the stimulus that provokes a stress response. [1]

Stress in humans results from interactions between persons and their environment that are perceived as straining or exceeding their adaptive capacities and threatening their well-being. The element of perception indicates that human stress responses reflect differences in personality, as well as differences in physical strength or general health.

Stress has a number of negative effects on the body and has been found to adversely affect brains functions. Liebrmann et al [2] conducted a study on 31 army officers undergoing a military exercise to simulate combat stress. At the end of the exercise, they found a significant degradation in vigilance, reaction time, memory, learning and logical reasoning. The subjective mood was found to be severely degraded and depression, anger and confusion found to increase dramatically.

It is well known that men and women react differently to stress [3]. Many stress-related mental illnesses, including depression and post-traumatic stress disorder (PTSD), occur at least twice as often in women as in men. While social and cultural factors

certainly may contribute to this statistic, potential neurobiological reasons for this discrepancy have been inadequately investigated.

In one study done to assess the effects of stress on memory, the authors, Shansky [4] et al, found that without stress, males and females performed equally well on the task. Likewise, after exposure to higher levels of stress, both males and females made significant memory errors. However, after exposure to a moderate level of stress, females were impaired, but males were not, suggesting that females were more sensitive to the PFC-impairing effects of stress.

Measuring Stress

Over the years a number of tests have been designed to measure stress levels. One popularly used test is the State and Trait Inventory (Spielberger, C.D. 1983.) This test is designed to measure the state and trait anxiety in a person.

State anxiety is defined as an unpleasant emotional arousal in face of threatening demands or dangers. A

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cognitive appraisal of threat is a prerequisite for the experience of this emotion (Lazarus, 1991) [5]. Trait anxiety, on the other hand, reflects the existence of stable individual differences in the tendency to respond with state anxiety in the anticipation of threatening situations.

The State-Trait Anxiety Inventory (STAI) was initially conceptualized as a research instrument for the study of anxiety in adults. It is a self-report assessment device, which includes separate measures of state and trait anxiety. The STAI is the definitive instrument for measuring anxiety in adults. It clearly differentiates between the temporary condition of "state anxiety" and the more general and long-standing quality of "trait anxiety". It helps professionals distinguish between a client's feelings of anxiety and depression. Adapted in more than forty languages, the STAI is the leading measure of personal anxiety worldwide.

STAI has been used extensively in research to measure levels of stress in various populations. One such use was in cadets at the Air Force Academy of Italy, where Falaschi et al assessed level of stress experienced by cadets in an attempt to correlate levels of mental stress with their cardiovascular responses. [6]

Coping with Stress

A research team that included a Penn State Assistant Professor of Biobehavioral Health, Dr. Laura Cousino Klein[3], has identified a broad biological and behavioral pattern that explains a key used by women to cope with stress.

The way people deal with stress can be divided into two broad categories, Flight or fight and tend and befriend. Researchers have identified that men and women deal differently with the stress they face.

Carver et al (1989) [7], at the University of Miami developed a new scale to measure these and they called it the COPE Scales. It incorporates 13 conceptually distinct scales. The focus of each scale is as follows -:

Active Coping is the process of taking active steps to try to remove or circumvent the stressor or to reduce its effects.

Planning is thinking about how to cope with a stressor. Planning involves coming up with action strategies, thinking about what steps to take and how best to handle the problem.

Suppression of Competing Activities means putting projects aside trying to avoid being distracted by other events, even letting things slide in order to deal with the stressor.

Restraint Coping is waiting until an appropriate opportunity to act presents itself, holding oneself back and not acting prematurely.

Seeking Social Support For Instrument Reasons is seeking advice, assistance or information.

Seeking Social Support For Emotional Reasons is getting moral support, sympathy or understanding. This is an aspect of emotion-focussed coping.

Focussing On Venting Of Emotions is the tendency to focus on whatever distress or upset one is experiencing and to ventilate these feelings.

Behavioural Disengagement is reducing one's efforts to deal with the stressor, even giving up the attempt to attain goals with which the stressor is interfering.

Mental Disengagement is a variation of behavioural disengagement, postulated to occur when conditions prevent this behavioural disengagement. Tactics in this include day dreaming, escaping through sleep, escaping by immersion in TV etc. basically alternative activities to take one's mind off a problem.

Positive Reinterpretation and Growth is a type of emotion focussed coping: coping aimed at managing distress emotions rather than at dealing with the stressor per se.

Denial is a response that sometimes emerges in primary appraisal. It is perhaps useful, minimizes distress and thereby facilitates coping. It is the refusal that stressors exist or acting as if the stressor is not real.

Acceptance is the opposite of denial. It is full functional coping where a person accepts the reality of the stressful situation. Such a person is engaged in an attempt to deal with the situation.

Turning to Religion this way of coping may be quite important to some people.

Materials and Methods

The study was conducted at the Air Force Academy. The subjects were from first and second term of the Ground Duty branches (Logistics, Administration, Accounts, Technical and ATC). Thirty male and an equal number of female cadets with mean ages of 24 yrs and 23yrs volunteered for the study.

The exclusion criteria were as follows

- 1) Male and female cadets from flying branch. This was done because it was not possible to get an equal number of male and female subjects from the flying branch (only 02 female cadets were undergoing flying training)
- 2) Those suffering from any disease or those under any medication, which could possibly affect their performance in the cognitive tasks.
- 3) Cadets who were from the ranks and were therefore of higher age as compared to other cadets

Statistical Analysis

Physical attributes of the subjects were compared using a t test. A Mann &Whitney Test was used due to

departure of data from normality. Level of significance was set at $p < 0.05$.

RESULTS

State and Trait Anxiety scores were not significantly different between male and female cadets ($p=0.12$, and $p=0.52$ for state and Trait scores respectively). (Table 1 refers)

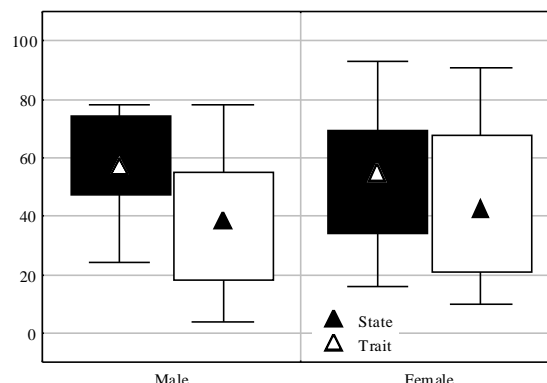
The COPE scores also showed not significant differences for the male and female cadets ($p= 0.49$, $p=0.86$, $p=0.77$, $p=0.12$, $p=0.69$, $p=0.77$, $p=0.55$, $p=0.66$, $p=0.084$, $p=0.57$, $p=0.23$, $p=0.35$, $p=0.35$, $p=0.45$ and $p= 0.82$ for Active coping, Planning, Suppression of Competing Activities, Restraint Coping, Social, Emotional Support, Reinterpretation, Acceptance, Religion, Venting, Denial, Behavioural Disengagement, Mental Disengagement and Alcohol respectively) (Table 1 refers)

Table 1 - Comparisons

STAI				
	Males	Females	U*	P
State	37.9±21.1	47.0±24.0	346.0	0.12
Trait	56.7±16.8	53.6±22.6	407.0	0.52
COPE				
	Males	Females	U*	P
Active Coping	12.9±1.7	12.3 ±2.5	404	0.49
Planning	13.57±2.7	13.53±2.6	439	0.86
Suppression	9.2±2.9	9.4±2.6	431	0.77
Restraint	11.3±2.7	10.2±2.2	341	0.12
Social	11.5±2.7	11.4±2.9	424	0.69
Emotional	9.7±2.9	9.5±3.1	431	0.77
Reinterpretation	14.5±1.4	14.6±1.7	410	0.55
Acceptance	10.7±3.1	11.3±2.9	420	0.66
Religion	9.8±3.2	11.1±3.1	333	0.084
Venting	7.5±2.1	8.3±2.9	412	0.57
Denial	5.8±1.8	5.7±2.9	369	0.23
Behavioural	4.8±1.1	5.2±2.8	387	0.35
Mental	8.3±2.4	8.7±2.3	399	0.45
Alcohol	1.0±0.2	1	435	0.82

* A Mann Whitney Test was done due to significant departure of data from normality

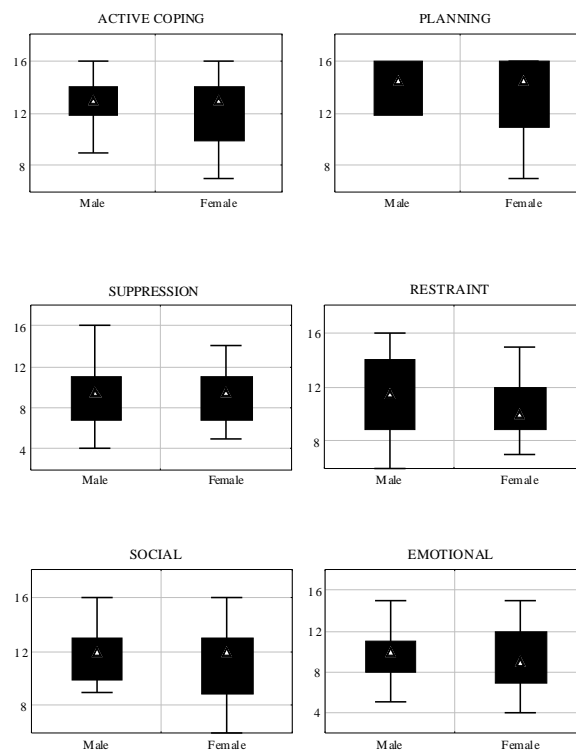
Fig-1 STATE & TRAIT ANXIETY SCORES IN THE MALE & FEMALE CADETS (n=30 in each group)

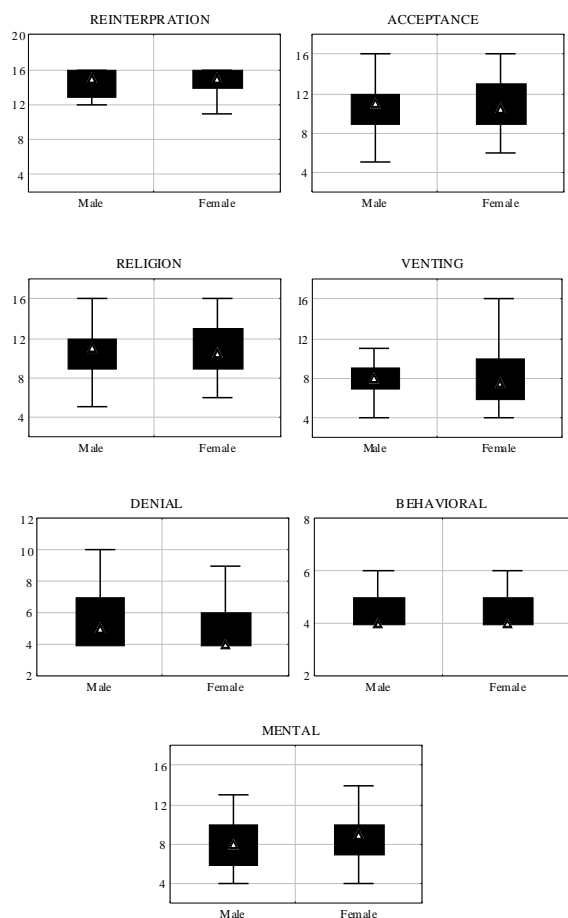


(Note Centre points represent median values, margins of boxes are 25% & 75% percentiles and whiskers are maximum and minimum.)

The difference between the two groups is not significant, statistically ($p=0.12$ and $p=0.52$ for State and Train anxiety, respectively) A Mann & Whitney Test was used due to departure of data from normality

Fig-2 COPE SCORES IN THE MALE & FEMALE CADETS (n=30 in each group)





(NOTE Centre points represent median values, margins of boxes are 25% & 75% percentiles and whiskers are maximum and minimum.)

The difference between the two groups is not significant, (Table 13 B refers)

A Mann & Whitney Test was used due to departure of data from normality

Discussion

In the present study, STAI inventory was used for the measurement of anxiety levels. Since state anxiety represents an unpleasant arousal in the face of threatening demands or danger, the scores on this scale can be appreciated as the responsiveness of an individual to stressful surroundings. On the other hand, trait anxiety represents a stable and constitutional difference amongst individual.

State and Trait anxiety levels did not differ in the cadets of the two genders ($p=0.12$ and $p=0.52$ for State and Trait anxiety, respectively). The invariance of these attributes is suggestive of the fact that the two groups were similar 'constitutionally' and the training evoked similar levels of anxiety in them. There are studies that do report differences in the genders in their anxiety levels, using the same STAI inventory [8].

However, findings of a more recent study [9] are in

conformity with the findings of the present study. In this study, Carrillo et al (2001) have not found significant differences in male and females State and Trait anxiety scores (males $n=15$, females $n=23$). It is noteworthy that the authors used the same inventory and the age group was also similar, consisting of undergraduate students.

In all, thirteen coping processes based upon specific theoretical assumptions about functional coping processes and empirical precedents notifying important coping strategies, were evaluated with the help of Coping Orientation Problems Experienced (COPE) Questionnaire, which is a multidimensional inventory. Five scales of the inventory measured conceptually different aspects of problem-focussed coping. These were Active Coping, Planning, Suppression of Competing Activities, Restraint Coping and Seeking of Social Instrumental support. No gender-based differences were identifiable in the coping strategies ($p=0.49$, $p=0.86$, $p=0.77$, $p=0.12$ and $p=0.69$ for Active Coping, Planning, Suppression of Competing Activities, Restraint Coping and Seeking of Social Instrumental Support, respectively). Five other dimensions (namely Seeking of Emotional Social Support, Positive Reinterpretation, Acceptance, Denial, and Turning to Religion) which measure emotion-focussed coping, were also not found to be different ($p=0.77$, $p=0.55$, $p=0.55$, $p=0.23$ and $p=0.084$ for seeking of Emotional Social Support, Positive Reinterpretation, Acceptance, Denial and Turning to Religion, respectively). The remaining three scales, which are purported to measure Venting of emotions, Behavioural and Mental disengagement, were also not found to be different ($p=0.57$, $p=0.35$ and $p=0.45$ Venting of emotions, Behavioural disengagement and Mental disengagement respectively). The validity of this questionnaire is well-documented (7, 10).

These results appear to be at variance with the studies reported in literature where gender differences in stress coping have been reported [5]. However, this variance can partially be explained on the basis of the fact that stress coping has been found to be related to personality type [12]. The cadets selected for training belong to fairly narrow spectrum of personality type based on the requirements of Officer Like Qualities for the IAF. It is reasonable to thus conclude that certain personality types are weeded out at the entry stage itself. This could explain the lack of gender differences in the present study.

Additionally, the internal consistency amongst various scales of Coping Strategies Questionnaire was extremely poor (results from this analysis are not presented). Poor consistency amongst these scales has also been reported recently by certain other Indian investigators [12]. It is possible COPE Inventory, originally designed for a western population, is not very well suited for assessment of coping strategies in an Indian population.

It will be reasonable to conclude that the adjustment of

male and female cadets undergoing military training to the training environment is similar and that they undergo similar anxiety levels.

Conclusion

Sixty cadets (30 male and 30 female) from the Air Force Academy were assessed for Gender based differences in Stress and Stress Coping Strategies. The two groups were comparable in age. No gender-based difference in the State and Trait Anxiety and Coping strategies was identifiable.

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