CHAPTER-VII

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Although stress is a biological term, it is commonly used in a metaphorical sense. It has also come to be accepted as a euphemism for describing difficulties faced by an individual. Every one faces challenges in life. These could be due to professional, societal and domestic environment. These challenges vary in intensity and are handled appropriately by human bodies, both at physical and emotional levels. Failure to adapt to challenges results in perceiving them as threats, which in turn generates pressures. When pressures become severe, human organism gets strained to respond. Extreme pressures become stress. Some experts consider stress to be as a subjective sensation as it differs with individuals with varied symptoms. When stress surpasses ability to handle, it becomes a threat to both physical and emotional well-being. While stress refers to the reaction of the organism, stressor implies perceived threat (Suman, 2009).

No human being is exempted from stress. The soldiers are no exception except that they are comparatively in an ideal stress breeding environment due to frequent and large number of uncertainties/ changes vis-à-vis civilian counterparts with similar service conditions. Stresses faced by soldiers are entirely different from those faced by civilians, both in nature and intensity. These stresses threaten emotional and psychological equilibrium of soldiers and generate the “fight-or-flight” response (Dixit, 2011).

Stress among the Indian Armed Forces has been a topic of discussion in the lay press, among civil society, and the political classes over the last decade, often leading to considerable concern for the military leadership. Alleged increases in the rates
of suicide, fratricide, stress related physical disorders, psychiatric illnesses, and substance use have been quoted in the lay press and these figures were viewed with concern by the lawmakers. Combat stress manifests as acute stress reaction, adjustment disorder, depression and post-traumatic stress disorder (PTSD). The consequences of chronic stress can be in the form of physical and psychological symptoms like headaches, bodyaches, tiredness, reduced sleep or appetite, and lethargy. Chronic stress may also manifest as psychosomatic disorders or psychiatric illnesses (Ryali, Bhat & Srivastava, 2011).

Neuroticism is also considered to be very important because it preexists in personality and anything that happens around, it reflects in person's behavior. Lönnqvist, Verkasalo, Mäkinen & Henriksson (2009), assessed whether neuroticism in emerging adulthood predicts mental disorders and self-esteem in early adulthood after controlling for possible confounding variables. A sample comprised of 69 male military conscripts. Neuroticism predicted future mental disorders and low self-esteem beyond more objective indicators of adjustment. The results support the use of neuroticism as a predictor of future mental disorders, even over periods of time when personality is subject to change.

Then, there are various adjustmental problems seen in soldiers in almost all spheres of life. With little systematic study or intervention, 3 million Vietnam veterans returned to the United States. Sixty four Vietnam combat returnees, completed their military obligations at a stateside Army post, were interviewed during their initial months of return. Common adjustment issues described by both adjusting and maladjusting veterans included family issues of adjusting to changes in family dynamics and to discrepancies between the fantasied and real homecoming, emotional issues of adjusting to changes in temperament, to recurrent thoughts and feelings about the Vietnam
experience, *social issues* of adjusting to one's participation in an unpopular war and to increased racial polarization and *military (job) issues* of adjusting to changes in military mission, group support, and leadership (Borus, 1973).

Depression is also commonly seen in the Army Personnel. Depression is a genuine medical condition that can affect thoughts, behaviors, feelings and even physical health of service members and veterans. We can say that Depression is a common mental disorder associated with poor health outcomes. Short-term mental and emotional reactions—insomnia, nightmares, flashbacks, anger, irritability are normal after return from a war zone, according to the U.S. Department of Veteran Affairs, but depression is more serious and lasts longer than sadness or grief. Depressed individuals may feel excessively guilty, worthless, helpless or hopeless about themselves, the world and the future. Problems with focusing, paying attention, remembering and making decisions are common. Suicidal thoughts are also common and should be taken seriously. Depression often causes physical symptoms. A depressed patient may complain of decreased energy, excessive fatigue, feeling slow or sluggish, headaches, stomach problems or chronic pain that does not improve with treatment. Weight loss or weight gain may also occur (Brinkley, 2010).

Chronic illness also plays a major role to further aggravate stress, anxiety, depression and adjustment problems in soldiers already facing so many major problems in personal as well in professional front.

In 1947, Hamburger reviewed the charts of 1266 consecutive patients treated by him in a year on a General Medical Section of an Army hospital in Assam, India. Nine hundred and twenty-eight patients (73.3 per cent) had organic, somatic diseases; 104 (8.2 per cent) had full-blown psychoneuroses; 234 (18.5 per cent) had a combination of the two: psychosomatic illnesses. In other
words, one out of every four general medical patients had a large emotional component to his illness. The soldier's life in India was detailed to illustrate how poor military objectives, monotony, homesickness, and subtropical physical discomforts over long periods of time can constitute sufficient stress in a non-combatant area to lead to psychological breakdown.

If we talk about the recent times, the prevalence of psychosomatic diseases, specially, diabetes and hypertension, is very common and expected. The new name given to these psychosomatic diseases is 'Lifestyle Diseases'.

Psychosomatic disorders or psychophysiologic illnesses involve symptoms that are caused by mental processes of the sufferer rather than immediate physiological causes. If a medical examination can find no physical or organic cause, or if an illness appears to result from emotional conditions such as distress, anger, anxiety, depression or guilt, then it might be classified as psychosomatic. They can include Alzheimer's disease, atherosclerosis, asthma, some kinds of cancer, chronic liver disease or cirrhosis, Chronic Obstructive Pulmonary Disease, Type 2 diabetes, heart disease, metabolic syndrome, chronic renal failure, osteoporosis, stroke, depression and obesity (Levenson, 2006).

The prevalence of one major psychosomatic disease that is, Type 2 diabetes and pre-diabetes has been increasing worldwide. Risk factors for the development of Type 2 diabetes had been studied to facilitate prediction and prevention of this condition. The world health organization has estimated the number of persons with diabetes worldwide at more than 220 million (WHO, 2009). These figures are expected to rise to 366 million by 2030. Besides, diabetes is associated with a two- to four-fold increased risk of coronary heart disease and also an increased risk of microvascular diseases such as retinopathy, nephropathy and neuropathy (Wild, Roglic, Green, Sicree & King, 2004).
Psychological factors such as stress have been implicated as one of the major factors in the development of Type 2 diabetes (Surwit & Schneider, 1993). There have been a number of large-scale cross-sectional studies investigating stress and Type 2 diabetes (Mooy, de Vries, Grootenhuis, Bouter & Heine, 2000; Agardh, Ahlbom, Andersson, Efendic, Grill & Hallqvist, 2003). Stressful life events were marginally correlated with the prevalence of undetected diabetes in the general population (Mooy, et al., 2000). However, there might be a bidirectional association between stress and diabetes, as recently reported in a study on depressive symptoms (Golden, Lazo, Carnethon, Bertoni, Schreiner & Roux, 2008). However, recently, several longitudinal studies have shown a relationship between psychological features and development of diabetes (Räikkönen, Matthews & Kuller, 2007; Norberg, Stenlund, Lindahl, Andersson, Eriksson & Weinehall, 2007). Patients with Type 2 diabetes are also at a risk of comorbid depression hampering the quality of life of patients (Pouwer, Beekman, Nijpels, Dekker, Snoek, Kostense, Heine, & Deeg, 2003; Schram, Baan, & Pouwer, F, 2009).

A spike in blood pressure is a direct result of stress. The body responds to physical or mental stress by releasing a surge of hormones in preparation for a "fight or flight" response (Mayo Clinic). The result is a faster heart rate and narrowed blood vessels, both of which increase blood pressure. Once the cause of the stress is resolved, heart rate and blood pressure return to normal. Over time, damage to the kidneys, heart and blood vessels can still occur, as with chronic hypertension (Mayo Clinic, 2012).

Stress can cause hypertension through repeated blood pressure elevations as well as by stimulation of the nervous system to produce large amounts of vasoconstricting hormones that increase blood pressure. Factors affecting blood pressure through stress include white coat hypertension, job strain, race,
social environment, anxiety, anger and emotional distress. Furthermore, when one risk factor is coupled with other stress producing factors, the effect on blood pressure is multiplied (Kulkarni, O'Farrell, Erasi & Kochar, 1998).

Our study comprised of Army Personnel who were not only living in tense area but were also making various kinds of adjustments to their chronic illness. Our sample group came from the different units and regiments of Indian Army deployed in the state of Jammu and Kashmir. For the three patient groups, that is, Psychosomatic, Diabetics and Hypertensives, the data was mainly collected from Military Hospital in Jammu.

Military Hospital in Jammu, is one of the finest establishments in India by Army Medical Corps in Northern Command. Patients are referred from various Medical Inspection (MI) Rooms, Forward Surgical Centers (FSC) and different remote areas where Indian army in deployed in counter insurgency and counter terrorism role. The Army Personnel (patients) are also referred from the border nearby Jammu for their regular checkups and treatment. All these places come under modified field areas and field areas respectively. The patients are generally from Samba, Rajpura, RS pura, Ramgar, Vijaynagar, Bobyian, Jarian, Manihari Ratnuchak, Kaluchak, Jammu, Akhnoor, Rajouri, Poonch etc.

So along with chronic illness, in a place like Jammu and Kashmir, there are lot many more things that contribute to a soldier's physical and mental illness. Including all the factors stated above, other things that effect are living in an environment where they face both physical (threat to life) and emotional stresses, serving in isolated, lonely and oxygen-starved high altitude areas of the Himalayas affects physiology and psychology of soldiers. Along with that Military’s highly disciplined, hierarchal and restrictive environment deters giving vent to or sharing pent up frustrations. Another very important thing is that soldiers these
days are better educated and consequently better aware of their rights. This, coupled with falling standards of command and control among some of the undeserving officers who have risen to command units, is becoming a major cause for worry. They are also connected to their family members through mobiles and internet all the time. Inability to be with parents and family in times of domestic emergencies weighs heavily on the minds of these soldiers (Suman, 2009; Gokhale, 2012).

In the last three years, nearly 400 soldiers committed suicide. This, even as 25,063 army personnel including Junior Commissioned Officers (JCO) and jawans sought pre-mature retirement in the last three years. Recent studies by the armed forces indicated that most the suicides took place soon after the soldiers joined duty after returning from home. Reasons like land or family dispute and apathy of the local administration to resolve them led to anxiety and a trigger in stressful environment like counter-insurgency operations generally led to suicides or fratricide (Indian Military News, 2012).

On the basis of above discussion, as stated earlier the present study has been conducted on army personnel who were serving in Jammu and Kashmir. The present investigation was an attempt to study the effect of Diabetes, Hypertension, and other Psychosomatic Problems on Neuroticism, Depression, Stress and Adjustment in army personnel.

Aims and Objectives

The current study deals with following aims:

1. To compare the score on Neuroticism/Anxiety of the patients of Diabetes, Hypertension and other Psychosomatic problems with the normals. The reason being that the person will become more neurotic with the onset of the various psychosomatic problems and vice versa.
2. How the test scores which are related to the daily life hassles and family matters affect the soldier.

3. To know the effect of all the variables on the adjustment of the soldier in the various areas of the life.

4. To see if the diabetics in comparison to the hypertensive and patients suffering from other psychosomatic problems have high scores in neuroticism, depression and stress because of its greater complication.

5. To see if normal score high in adjustment.

Hypotheses

By given due consideration to the above mentioned aims, the following hypotheses had been formulated:

1. Stress scores will be higher in patients as compared to the normal

2. Neuroticism / Anxiety scores will be higher in patients as compared to the normals.

3. Depression scores will also be higher in patients as compared to the normals.

4. Adjustment level will be less in patients as compared to the normals.

5. Diabetics will score higher in neuroticism and depression as compared to the other groups because of its greater complication.

6. Hypertensive will score higher in stress in comparison to the other group.

Methodology

Design

The present investigation was designed to study the effect of Diabetes, Hypertension, and other Psychosomatic problems on
the ten variables that is Neuroticism, Depression, Stress- Stress (a)-Daily Life Hassles, Stress (b)-Life Events and Stress (Total) and Adjustment- Home Adjustment, Health Adjustment, Social Adjustment, Emotional Adjustment and Occupational Adjustment in army personnel and also to study what effect does these ten variables have after the onset of the disease.

Hence ANOVA (analysis of variance), i.e. randomized group design was applied to verify if there were significant differences between our sample groups, that is, Psychosomatics, Diabetics, Hypertensives and Normal. Then Post-hoc Comparison, Duncan’s New Multiple Range Test was computed to see the significant difference between each sample group individually. Then lastly Regression Analysis was used to see the predictors of Depression in the three patient groups, Psychosomatics, Diabetes and Hypertensives.

Sample

The sample comprised of total 200 army personnel who are presently serving army. These 200 subjects were further divided into four groups: Group I consisted of 50 Psychosomatics, Group II consisted of 50 Diabetics and Group III consisted of Hypertensives taken from Military Hospital, Jammu (See Table 7.1). Group IV consists of 50 Normals from various units and regiments in Jammu and Kashmir.

Figure 7.1
Design of the Present Study

200
Army
Personnel

50
Psychosomatic
Group

50
Diabetic
Group

50
Hypertensive
Group

50
Normal
Group
Tools Used

The following tools were used for the study:

2. ICMR Psychological Stress Questionnaire – (Srivastava, ICMR, Fourth Advisory Committee, 1991-1992)
3. The Adjustment Inventory: Adult Form – (Hugh M. Bell, 1938).

Proposed Statistical Analysis

1. Analysis of variance: It has been used to verify if there were any significant differences between the four sample groups, i.e. psychosomatics, diabetics, hypertensives and normal.
2. Duncan’s New Multiple Range Text (MRT): It has been used to see if there was significant difference between each sample group, i.e. psychosomatics versus diabetics, psychosomatics versus hypertensives, psychosomatics versus normals, diabetes versus hypertensives, diabetes versus normal and hypertensives versus normals.
3. Regression Analysis: It has been used to reflect the variance that could be explained by each independent variable in predicting the dependent variable, i.e. Depression.

Results

A) Analysis of Variance (ANOVA) and Post-Hoc Comparison, Duncan’s New Multiple Range Test

1) Neuroticism

After computing ANOVA (Analysis of Variance), Neuroticism is seen highest in Diabetics (Mean=38.46) in comparison to
Psychosomatics, Hypertensives and Normals with F-ratio being is 11.73**, p<.01.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Neuroticism, the highest significant difference is seen between Diabetics and Normals, that is qr = 18.16**, p<.01.

2) Depression

After computing ANOVA (Analysis of Variance), Depression is seen highest in Diabetics (Mean = 15.39) in comparison to Psychosomatics, Hypertensives and Normals with F-ratio being 13.45**, p<.01.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Depression, the highest significant difference is seen between Diabetics and Normals, that is qr = 8.63**, p<.01.

3) Adjustment

Home Adjustment

After computing ANOVA (Analysis of Variance), lowest Home Adjustment is seen in Diabetics (Mean=10.65) as they scored the highest in comparison to Psychosomatics, Hypertensives and Normals with F-ratio being 7.18**, p<.01.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Home Adjustment, the highest significant difference is seen between Diabetics and Normals, that is qr=7.60**, p<.01.

Health Adjustment

After computing ANOVA (Analysis of Variance), lowest Health Adjustment is seen in Diabetics (Mean=11.96) as they scored highest in comparison to Psychosomatics, Hypertensives and Normals with F-ratio being 11.69**, p<.01.
Then after applying Post-hoc comparison, Duncan's new multiple range test on Health Adjustment, the highest significant difference is seen between Diabetics and Normals, that is $q_r=7.88^{**}$, $p<.01$.

**Social Adjustment**

After computing ANOVA (Analysis of Variance), lowest Social Adjustment is seen in Psychosomatics ($\text{Mean}=11.54$) as they scored highest in comparison to Diabetics, Hypertensives and Normals with F-ratio being $11.34^{**}$, $p<.01$.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Social Adjustment, the highest significant difference is seen between Psychosomatics and Normals, that is $q_r=5.42^{**}$, $p<.01$.

**Emotional Adjustment**

After computing ANOVA (Analysis of Variance), lowest Emotional Adjustment is seen in Psychosomatics ($\text{Mean}=12.02$) as they scored highest in comparison to Diabetics, Hypertensives and Normals with F-ratio being $7.05^{**}$, $p<.01$.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Emotional Adjustment, the highest significant difference is seen between Psychosomatics and Normals, that is $q_r=7.72^{**}$, $p<.01$.

**Occupational Adjustment**

After computing ANOVA (Analysis of Variance), lowest Occupational Adjustment is seen in Hypertensives ($\text{Mean}=12.40$) as they scored highest in comparison to Psychosomatics, Diabetics and Normals with F-ratio being $9.89^{**}$, $p<.01$.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Occupational Stress, the highest significant difference is seen between Hypertensives and Normals, that is $q_r=5.55^{**}$, $p<.01$. 

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4) Stress

**Stress (a)- Daily Life Hassles**

After computing ANOVA (Analysis of Variance), Stress (a)- Daily Life Hassles is seen highest in Psychosomatics (Mean=23.25) in comparison to Diabetics, Hypertensives and Normals with F-ratio being is 21.90**, p<.01.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Stress (a)- Daily Life Hassles, the highest significant difference is seen between Psychosomatics and Normals, that is qr = 11.17**, p<.01.

**Stress (b)- Life Events**

After computing ANOVA (Analysis of Variance), Stress (b)- Life Events is seen highest in Psychosomatics (Mean = 10.92) in comparison to Diabetics, Hypertensives and Normals with F-ratio being is 27.98**, p<.01.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Stress (b)- Life Events, the highest significant difference is seen between Psychosomatics and Normals, that is qr = 7.36**, p<.01.

**Stress (Total)**

After computing ANOVA (Analysis of Variance), Stress (Total) is seen highest in Diabetics (Mean=35.17) in comparison to Psychosomatics, Hypertensives and Normals with F-ratio being is 61.38***, p<.001.

Then after applying Post-hoc comparison, Duncan's new multiple range test on Stress (Total), the highest significant difference is seen between Diabetics and Normals, that is qr = 21.21**, p<.01.
B) Regression Analysis

Dependent Variable: Depression

1) Psychosomatic Group

After computing Regression Analysis for Psychosomatic group, the variable of Neuroticism turned out to be the most significant predictor of Depression and the second highest predictor was the variable of Stress(b)-Life Events.

Depression has significant correlation with Neuroticism (as $r=0.73^{**}$, $p<.01$) and results of Regression Analysis show that it explained 52% of variance in Neuroticism (F-ratio being $54.75^{***}$, $p<.001$).

Depression also has significant correlation with Stress(b)-Life Events ($r=0.55^{**}$, $p<.01$) and results of Regression Analysis show that it explained 3% of variance in Stress(b)-Life Events (F-ratio is $31.46^{***}$, $p<.001$).

2) Diabetic Group

After computing Regression analysis for Diabetic group, the variable of Neuroticism turned out to be the most significant predictor of Depression and the second highest predictor was the variable of Emotional Adjustment.

Depression has significant correlation with Neuroticism ($r=0.73^{**}$, $p<.01$) and results of Regression Analysis show that it explained 52% of variance in Neuroticism (F-ratio being $54.82^{***}$, $p<.001$).

Depression also has significant correlation with Emotional Adjustment ($r=0.67^{**}$, $p<.01$) and results of Regression Analysis show that it explained 6% of variance in Emotional Adjustment (F-ratio is $35.29^{***}$, $p<.001$).
3) **Hypertensive Group**

After computing Regression analysis for Hypertensive group, the variable of Neuroticism turned out to be the most significant predictor of Depression and the second highest predictor was the variable of Stress(b)-Life Events.

Depression has significant correlation with Neuroticism ($r=0.74^{**}$, $p<0.01$) and results of Regression Analysis show that it explained 54% of variance in Neuroticism ($F$-ratio being $57.78^{***}$, $p<0.001$).

Depression also has significant correlation with Stress(b)-Life Events ($r=0.65^{**}$, $p<0.01$) and results of Regression Analysis show that it explained 8% of variance in Stress(b)-Life Events ($F$-ratio is $41.07^{***}$, $p<0.001$).

Depression is recognized as a major health problem in jawans. All the above factors get together and cause depression. At times depression is to the extent of being suicidal and fratricide.

Though the previous researches have focused on the effect of Neuroticism/anxiety and stress in the causal of psychosomatic diseases. (Costa & McCrae, 1985; Farrell et.al., 2004), similarly the present study also highlights this. But apart from this, the present study has also emphasized on the increase in the level of Neuroticism/Anxiety, Depression, Stress and Adjustment Problems after the onset of the disease.

The military is a restricted, controlled environment in which soldiers are exposed to stress. Inherent in military training composes of multiple sources of stress, including dramatic changes in living arrangements, separation from normal sources of social support, and intense physical and emotional challenges.

Though psychosomatic diseases and hypertension also aggravate neuroticism, depression, stress, and adjustment problems, but diabetes because of its greater complications has
more impact. It aggravates the already existing Neuroticism in the personality of the jawans along with stress and depression. There are many environmental factors like lots of exercises, too much of discipline, no control on eating habits, which cause a lot of anxiety and stress, emotional disturbances along with adjustment problems in jawans and diabetes as a result of it make all the more tough for jawans to respond positively to the medical treatment they are prescribed.

Though, there are few restrictions for hypertensives also but not to the extent which aggravates their anxiety. But in diabetics there is always an expression of hypertension.

Hence, the traits of neuroticism/ anxiety, stress and depression exists in the personality of an individual before the disease, it makes them vulnerable and after the onset of the disease it again rises. Incase of diabetes, after the onset of the disease neuroticism has participated more. This aspect has to be always kept in reckoning as the research in this regard is devoid of evidence.