EXAMINING THE SENSE OF COHERENCE AMONG SURVIVORS OF SUICIDE BOMBING: THE MODERATING ROLE OF TRAIT AND STATE RESILIENCE

By

JAWWAD MUHAMMAD SHUJAAT

DEPARTMENT OF PSYCHOLOGY
FACULTY OF SOCIAL SCIENCES
INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD

2019

1. Psychic trauma
2. Crisis intervention
3. Disasters -- Psychological aspects
4. Theses

CERTIFICATION

This is certified that we have read the thesis submitted by Mr. Jawwad Muhammad Shujaat, bearing Registration No. 12-FSS/PHDPSY/M11. It is our judgment that this thesis is of sufficient standard to warrant its acceptance by International Islamic University, Islamabad, for the degree of Ph.D in Psychology.

Committee;

External Examiner-I
Dr. Javed Iqbal,
Director National Institute of Public Administration, Islamabad

External Examiner-II
Dr. Huma Zafar,
Associate Professor,
Viqar Un Nisa Post Graduate College, for Women, Rawalpindi

Internal Examiner
Dr. Nazia Iqbal,
Assistant Professor,
Department of Psychology,
International Islamic University,
Islamabad

Supervisor
Dr. Seema Gul,
Associate Professor,
Department of Psychology,
International Islamic University,
Islamabad

Co- Supervisor
Prof. Dr. Muhammad Tahir Khalily,
Department of Psychology,
International Islamic University,
Islamabad

Chairman
Prof. Dr. Muhammad Tahir Khalily,
Department of Psychology,
International Islamic University,
Islamabad

Dean,
Faculty of Social Sciences,
International Islamic University,
Islamabad

EXAMINING THE SENSE OF COHERENCE AMONG SURVIVORS OF SUICIDE BOMBING: THE MODERATING ROLE OF TRAIT AND STATE RESILIENCE

By

JAWWAD MUHAMMAD SHUJAAT

A dissertation submitted to

The Department of Psychology, Faculty of Social Sciences,
International Islamic University Islamabad

In partial fulfillment of the requirements of the

DEGREE OF DOCTOR OF PHILOSOPHY

IN

PSYCHOLOGY

2019

CERTIFICATE

It is certified that the Ph. D dissertation entitled "Examining the sense of coherence among survivors of suicide bombing: The moderating role of trait and state resilience" prepared by Mr. Jawwad Muhammad Shujaatis approved for submission to the Department of Psychology, International Islamic University Islamabad.

Dr. Seema Gul
(Supervisor)

Prof. Dr. Muhammad Tahir Khalily
(Co-Supervisor)

Dedicated to

The Innocent Survivors of Suicide Bombing in Pakistan

The only trauma in life is that which ends without any change in life.

EXAMINING THE SENSE OF COHERENCE AMONG SURVIVORS OF SUICIDE BOMBING: THE MODERATING ROLE OF TRAIT AND STATE RESILIENCE

Table No	LIST OF TABLES	Page No

Table No	LIST OF TABLES	Page No

Figure No	LIST OF FIGURES	Page No

Annexure No	LIST OF ANNEXURES	Page No
Annexure A	Introduction and Informed Consent	24
Annexure B	Demographic Information Sheet	25
Annexure C	Sense of Coherence Scale (English Version)	26
Annexure D	Trait State Resilience Inventory (English Version)	27
Annexure E	Depression Anxiety Stress Scale (English Version)	29

Acknowledgement

Verily, all praise is due to Allah for His apparent and concealed bounties, and His Prophet and Messenger Muhammad (SAW), the most perfect and the best among those born on earth who enabled me to recognize my creator and live an exemplary life.

I would like to acknowledge my supervisor Dr. SeemaGul and Dr. Muhammad TahirKhalily for unconditional support and kindness that they have shown for my work which simply cannot be expressed in words. I owe them a lot, and words are not enough to show my gratitude for their dedication, expertise and positive attitude. It is worth mentioning that they are my respected teachers, exemplary mentors, and supervisors of my research. All the strengths of this research are credited to my supervisors and all the limitations are my own mistake. I have completed this project just because of their kind cooperation, unconditional support, and proficient guidance. They always tried to boost up my morale whenever I faced troubles. I never listen no from them whenever I asked for help.

I would like to acknowledge my respected teacher Prof. Dr. M. Anis-ul-Haque for his consistent guidance throughout my career. His gentle nature, helping attitude, and emotional empathy for others makes him an ideal teacher.

I am thankful to Dr. MuhamamdNaveedRiaz and Muhammad AkramRiaz for their positive attitude, support, and cooperation. Furthermore, I would like to acknowledge all those who helped me in data collection in general, and particularly my research participants. To my family, I can only say thank you for yourprayers and contribution: they gave me the strength to go on. I am thankful to the worthy foreign reviewers and external reviewers who accepted my thesis for review process.

In the end, I am very thankful to all those who either directly or indirectly contributed in this study.

Jawwad Muhammad Shujaat

27-7-2017

Abstract

The present study is based on the Theory of Sense of Coherence (Antonovsky, 2015). Sense of coherence is an ability of individuals to cope with stress and ensure health in time of traumatic life incidents. The study examined the moderating role of resilience among victims of suicide bombing between the sense of coherence and psychological problems including depression, anxiety, stress, and PTSD. Moderating effect of the domains of resilience, including trait and state resilience, was also examined. Initially, a pilot study was conducted with a relatively small sample of victims of suicide bombing (N = 100). Thus, descriptive statistics, alpha coefficients, normality analysis, and correlation coefficients were computed. The results revealed satisfactory reliability, normality of data, and empirically supported correlation coefficients among variables of study. Pilot study provided grounds to take decisions for conducting main study aimed at testing the hypotheses to draw inferences. Main study comprised of a purposive sample of the victims of suicide bombing (N = 300) with age ranged from 30 to 45 years (M = 12.23, SD = 6.73) further divided along gender lines. Data was taken using Sense of Coherence Scale, Trait-State Resilience Inventory, Depression Anxiety Stress Scale, and Impact of Events Scale. Hierarchical regression revealed that resilience significantly moderated the relationship between a sense of coherence and psychological problems, including depression, anxiety, and stress among victims of suicide bombing. More specifically, resilience moderated (influenced the relationship and served as a protective factor) between sense of coherence and PTSD among victims of suicide bombing. Trait and state resilience also moderated between sense of coherence and psychological problems among victims of suicide bombing. Similarly, trait and state resilience also moderated between sense of coherence and PTSD. The study confirmed the interacting effect of sense of coherence and resilience on reducing

psychological disorders resulted from a severe traumatic experience. The study also shed light on the dual functions of resilience—an ability to recover from trauma and stressful incidents of life. Along with sense of coherence, moderating effect of resilience inbuilt in an individual's personality (trait resilience) as well as the resilience gained to respond to trauma (state resilience), remained helpful in reducing psychological disorders in the aftermath of becoming of victims of suicide bombing in Pakistan.

Summary of the Research

The present study was based on the important factors related to trauma exposure. More specifically, the combined effect of two protective factors:(a) sense of coherence, and (b) resilience on the mental health related variables of survivors of suicide bombing was investigated. The study examined moderating effect of trait, state, and overall resilience in the relationship between sense of coherence and psychological problems among survivors of suicide bombing. The study targeted survivors spread across different cities in two provinces of Pakistan. Findings of hierarchical regression depicted that resilience and its two domains including trait and state resilience moderated between sense of coherence and psychological disorders such as:

- Resilience moderated between sense of coherence and depression
- Resilience moderated between sense of coherence and anxiety
- Resilience moderated between sense of coherence and stress
- Resilience and its two domains moderated between sense of coherence and PTSD

Findings on the two domains of resilience depicted that trait resilience moderated between sense of coherence and depression. Similarly, trait resilience moderated between sense of coherence and anxiety. Moreover, trait resilience moderated between sense of coherence and stress. Finally, trait resilience and its two domains moderated between sense of coherence and PTSD. State resilience moderated between sense of coherence and depression. Similarly, state resilience moderated between sense of coherence and anxiety. Moreover, state resilience moderated between sense of coherence and stress. Finally, state resilience and its two domains moderated between

sense of coherence and PTSD. The findings were supported by the empirical data produced in indigenous and international contexts.

INTRODUCTION

Chapter-I

1. Introduction

Health and illness are considered as two main concerns of all medical professionals. A few offer superfluous values on endorsing health, while the main the others main concern is treating illness. At its core, the medical sociologist Antonovsky approached the problem of health-illness through a*s alutogenesis model.* Among health and illness, coping acts as the fundamental gain of this point of view, this assures good health, and probably stops occurring illness. Despite combating illness, it is more suitable to endorse health prior to illness. Again, the approach to curing sickness should be to get rid of its origin with the help of coping and cautious prevention. These key imminent approaches, from *salutogenesis perspective,* urges to deal with health and illness (Antonovsky, 1979, 1984, 1996).

1.1. Sense of Coherence

Sense of coherence is a trait of a person; it demonstrates the persons 'aptitude to take action at times of stressful circumstances. Powerful sense of coherence will endeavor to achieve insight into the consequence of the stressor possibly, yet think it as a challenge. Subsequently, we pick the appropriate coping resource required for the specific circumstances and remain open if the state of affairs requests alteration of behavior (Antonovsky, 1996). Physical and mental health is connected to this construct (Antonovsky, 1987).

Sense of coherence is Antonovsky's (1987) innovation in a book entitled, "Health, Stress and Coping." that recognizes the association among stressor, coping, and health. This model was further explained in another book entitled, "Unraveling

the Mystery of Health" (1987) and the questionnaire of sense of coherence is there in the appendix of this book (Antonovsky, 1987). He proposed the theory of sense of coherence which argues that anyone's sense of coherence encompasses three dimensions defined as comprehensibility (social life is comprehensible and understandable), manageability (a person feels sense of control of their life and manage things), and meaningfulness (life has significance and meaning).

According to Antonovsky (1987) cultural stability, social support, and well-being are directly related to a sense of coherence. A good quality of study is noticeable (Vander Colff&Rothmann, 2009; Gibson & Parker, 2003; Feldt 1997) that sense of coherence has positive association with well-being. Antonovsky (1987) demonstrated that sense of coherence has negative relation with stress. Together, with the sense of coherence, social support is stated as it strongly predicts well-being (Sarason, Sarason, & Pierce, 1990; Kaufmann &Beehr, 1989). Likewise, social support acts as a buffer of the association among numerous concepts of positive psychology and stress (Cohen, 1998). All of the described constructs i.e. sense of coherence, social support, well-being and stress are considered below the concept of positive psychology, which is a rising discipline of psychology commending to guarantee psychological well-being in the general public (Sheldon, et al., 2000). Even though a great deal of research evidence is accessible on the correlates of sense of coherence in the individualistic society (Eriksson& Lindstrom, 2006) but comparatively few research work is present in the collective society (Rohani, Khanjari, Abedi, Oskouie&Langius, 2010; Suraj & Singh, 2011).

Antonovsky (1987) shaped the concept of sense of coherence and is primarily based on Salutogenic Model (physical and mental health is primarily considered by

sense of coherence). Salutogenesis model give emphasis to the origin of health, or wellness is derived from word salus meaning health, and genesis meaning origins. Hence, the word salutogenesis. To come across the factors aiding in management of these stressors Antonovsky (1987) constructed the concept of "Sense of Coherence" (SOC). According to Antonovsky (1987) sense of coherence is considered as a worldwide point of reference and orientation that states the degree to which someone has a persistent endurance in the course of self-motivated and influential way of thinking of assurance that: 1) the stimuli, draw from someone's inner and outer atmosphere in the manner of livelihood are ordered unsurprising and explainable; 2) the opportunities and chances are accessible to the individual to meet the stress created by these stimuli; 3) these delights are dares, admirable of assets and commitment (p. 19). Sense of coherence is a multidimensional construct and includes three major parts including comprehensibility, management, meaningfulness, and administration (Antonovsky, 1979; Antonovsky, 1987). The three concepts of sense of coherence are individually defined by Antonovsky (1987).

1. **Comprehensibility** refers to the level to which one picks out the stimuli that deal with one. It is drawn from the inside and outside atmosphere, as building cognitive sense, as knowledge and evidence is organized, reliable, steady, ordered, and apparent; instead of being noise messy, disarranged, unsystematic, unintentional, and incomprehensible (p. 16).
2. **Manageability** refers to the degree to which someone perceives that sources are at individual perspectives, which are sufficient to fulfill the demands caused by the stimuli that shower one (p. 17).
3. **Meaningfulness** refers to the level to which one thinks that life creates sense expressively, which at least several of the troubles and demands caused by

> living are valuable force are commendable of assurance and commitment, are challenge that are salutation rather than trouble that someone can do without something (p. 18).

According to Antonovsky the salutogenic orientation is mainly the study of individuals, no matter where they lie on the health illness scale, striving to become fit (Antonovsky, 1996, p. 171). Out of the three main elements in the construct of sense of coherence, the basic and most valuable element is meaningfulness, explained by Antonovsky (1979), and is essential to enlighten the significance of individuals in sense of coherence whilst working as a motivational aspect for a person. Antonovsky (1979) declared that among three aspects of sense of coherence meaningfulness act as essential component (see Figure 2); therefore, manageability is dependent on meaningfulness. So, the sense of meaningfulness is necessary to deal with stressor.

The value of perceived meaningfulness was also described by Antonovsky (1985) who also explained the significance of meaningfulness as when someone is trying to cope with stressful events; here meaningfulness is of great worth. The significance of meaningfulness was also studied by Frankl (1964) as giving meaning to life; it is a necessary component for the physical and mental health of a person. The three components of sense of coherence including meaningfulness, comprehensibility and manageability illustrate different scope when an individual cope with the stressors (Antonovsky, 1979).

Antonovsky (1987) declared that individuals having well-built, strong and influential sense of coherence are capable of coping with hazardous and distressing circumstances. The relationship among sense of coherence and individual's health is also supported by numerous researches (Suominen, Blomberg, Helenius,

&Koskenvuo, 1999). The relationship among health behaviors and sense of coherence was also studied by many researchers (Midanik, Soghikian, Ransom, Polen, &Vuori, 1992). Negative relationship is found among psychological distress and sense of coherence (Kalimo&Vuori, 1991). Sense of coherence and stress are negatively associated was also found by Flannery and Flannery (1990). Illness and disease are generally not present among persons having strong sense of coherence (Vahterta, et al., 1996). The relationship among sense of coherence and an individual's mental health as well as physical health is considerable (Antonovsky&Sagy, 1985). Numerous studies have shown relationship among mental, physical health and sense of coherence (Dangoor&Florian, 1994; Lundberg, 1996). A vast literature and research evidence has illustrated relationship among sense of coherence and a variety of illnesses associated withmental or physical wellbeing (Dahlin, Cederblad, Antonovsky&Hagnell, 1990; Nyamathi, 1991). Researchers have also found relationship between subjective well-being and happiness (Soderberg, Lundman, & Nordberg, 1997).

Some demographical variables are also associated to a sense of coherence including social class, age and economic matters was studied by Lundberg (1996). Larsson and Kallenberg (1996) also found relationship among age, occupation and income to be associated with a sense of coherence. He also found that number of friends and size of household has positive relation with well-built sense of coherence and found no relationship of qualification to sense of coherence. Good relationships among parents and infants, type of occupation, and higher income in adulthood are positively related to strong sense of coherence (Leppanen, 1999).

A stronger sense of coherence is seen among male as compared to females was found by some early researchers but there is a lack of research work found that whether the same factors are involved in strong sense of coherence between the two genders. Research shows that sense of coherence is found to build up in childhood and constantly enlarge till early adulthood although it is established and become stable when an individual's age is about thirty years (Antonovsky, 1987).

It was further stated by Antonovsky (1987) that sense of coherence provides protective and defensive personality trait so that these persons become capable of maintaining good physical shape and high-quality life even in stressful circumstances. Sense of coherence is not firm and strong in everyone hence everyone is not capable of retaining and sustaining himself in stressful circumstances. Three valuable aspects illustrated by Antonovsky and Sagy (1985) lie before the progress of an excellent sense of coherence includes:

1. Intellectual sense of self and distinctiveness in puberty, during which characteristics like psychological constancy and autonomy are also developed (Erickson, 1968).
2. A good relationship among parent and child together with the friendly communication and open sharing and discussion prototype.
3. Wide-ranging constancy and stability in the society where individuals are present and struggling for the survival to have a constructive ability to build strong sense of coherence and the position become visible to be consistent or reliable and applicable or valid across different cultures and efficiently answers the query that how individuals stay healthy and fit even after facing the stressful situation.

Erikson and Linderstom (2006) give evidence about sense of coherence that it don't only have relationship with a number of other variables but along with relation to other variables it also has the ability to give guess and make sure to give predictions due to having predictive ability related to mental health still don't give any information related to physical health which is a question till now (Endler, Haug, &Spranger, 2008). Antonovsky (1987) stated that sense of coherence has clinical importance so is clinically significant and considered to enhance the dominant and prevailing sense of coherence especially among youngsters to reduce the chances of depression and anxiety from developing psychiatric issues among youngsters. Social factors and individual's environment are also considered as contributing factor in enhancing sense of coherence declared by Antonovsky (1987) in his theory. Emotion-oriented coping is negatively influenced by strong sense of coherence for indicator of suicide among adolescent girls (Edwards, Ronald,& Holden, 2001). Along with the characteristic of independent variable sense of coherence also plays a role of mediator for psychological suffering (Kinnunen&Mauno, 2000).

Sense of coherence was supposed to be determined and constant in early adulthood and a little change of 10% can just occur which shows and acts as an indicator that individual has experienced certain major changes in life. Furthermore, the persons having strong sense of coherence show a little change of lower than 10% discrepancy in their sense of coherence with the passage of time (Antonovsky, 1993). Research shows that stressors of life generate a certainty about the world to be incomprehensible, meaningless and unmanageable (Antonovsky, 1987). Sense of coherence is found to be a mediator between consequence of challenges and depressive signs among college students (Ying et al., 2007). It has been claimed by

certain longitudinal studies that sense of coherence is an invariable construct and seems to have visible stability after ten years age (Erickson & Lindstrom, 2005).

Antonovsky (1987) explained that stress is influenced by sense of coherence in three manners together with (1) sense of coherence persuades an individual on the evaluation of stressor and assist in understanding either to be a stressor or not (2) sense of coherence manipulates the amount of stressor leading towards tension among individuals (3) sense of coherence (3) sense of coherence controls the degree of tension leading towards unhealthy effect. Volanen, Lahelma, Silventoinen and Suominen, (2004) found that complete development of sense of coherence can be achieved in case individual has Generalized Resistance Resources (GRR) for sense of coherence. These assets are capable of developing the three aspects of comprehensibility, meaningfulness and manageability in an individual. Individual's age, education and childhood environment are the fundamental resistance assets whereas career, communal life and relationship with family are considered to be significant in enhancing sense of coherence among adolescents.

1.2. State and Trait Resilience

Resilience is a notion which came out from the field of psychopathology and child development focus on the aspects which enlighten how various persons are capable to sustain in good physical shape despite the fact that others are unable to retain good health. The fact is still accurate still however the two groups of individuals come with equal threats and harsh circumstances in their everyday livelihood (Neiger, 1991).

Resilience is basically considered to be a method comprising of affirmative. helpful, positive and strong adaptation in good physical state inside the framework of

hardships (Luthar, Cicchetti, & Becker, 2003). Bonanno (2004) described that resilience is viewed to significantly contribute in the healthy physical condition and wellbeing of the person. According to many authors the research in the field of resilience will assist directions related to the treatment and therapies for curing the stress-relevant pathology (Johnson, Gooding, Wood, & Tarrier, 2010). In view of Hiew, Mori, Shimizu &Tominaga (2000), we can distinguish the resilience among adults, whether the characteristics of resilience are leading in the present situation or existing from childhood. Such different resilience was two types:state resilience and trait resilience.

Hiew (2004) stated that resilience is the ability to move forward, come out from trauma, distress, troubles, adversity, hardships, and carry on life in a good way. Resilient persons are supposed to be peaceful, stress-free, and undisturbed having a serene of view. They don't get frightened and threatened from calamities and their consequences; rather, theyaccept and maintain a well-built intellect, consciences, and autonomy (Hiew, 2004). Positive attitudes like love, bounty, humility, gentility, empathy, autonomy, confidence, self-respect, and assurance of fulfilling commitment are present among resilient persons. According to TCM (Traditional Chinese Medicine), susceptibility related to illness is caused by seven inner-feelings or psychological and emotional conditions.These conditions raises: threat, alarm, nervousness, annoyance, despair, attentiveness, and contentmentin a person's body. The resultant emotional instabilityensures a despoiled ability load, resulting in swift obstruction, thusaffecting the physical state by upsetting a pleasant power stream in the energy processes, which is crucial to hale and hearty body performance. Without any trial, consideration and exertion a corresponding mentality person release

traumatic conditions and demanding thoughts and illness related force. To trigger the self-renovation procedure and well-being, good self-judgment is rebuilt (Hiew, 2004).

State-Trait Resilience Scales (STRI) constructed by Hiew (2001) is a multidimensional assessment of resilience, which has been calculated among both individualistic and collectivistic civilization (Japan, Thailand and S.E. Asia). The responsive resilience developed due to hardships is proposed to be drained out of three fundamental resources: self-worthiness, self-regulation, and powerful physicalpsychosocial assistance. The facts verify Grotberg's (A Guide to Promoting Resilience: Strengthening the Human Spirit, 1995) influential research related to resilient kids with qualities entitled as "I Am" (inner potency and strength), "I Can" (communal inter-personal abilities) and "I Have" (outer help and funds or income).

Hiew and Matchett (1999) accounted data that verified the relationship among inside resilience and emotional stability. Research results show higher dysthymia (Spielberger's State-Trait Depression) among the Canadian students who had fewer score in SRC (state resilience) and face greater perceived stress. Results also indicated resilient persons to have considerably higher State-Trait anxiety, improved rage management, and a lesser concealed anger (anger-in). Similar results were found by Hiew (2001) with Japanese college student's sample. Japanese students with high resilience had considerably lesser scores in trait-anxiety, state-trait depression, and trait-anger when they met with hardships (College Life Stressors Schedule) of life, also shown by the research. Deficiency of emotional constancy or steadiness construes these emotional states. Positive traits like inquisitiveness and constructive emotional condition were also seen among resilient students by using Spielberger et al. (1995) ethylic measures.

Hiew (1998, 2003, 2004) give preposition that the tendency of resilience is reliant upon the activation of self-regulation or the practice to let things go to control the stress reaction produce due to activation in minds cognition. Hiew (2004) reported his research indicating that if resilient persons established the ability to let the things go, in response to the stressing stimuli,they will stay physically fit even in hardships. To get rid of annoying and stress promoting ideas, devastating distressing experiences, and constant worry can help to redevelop resilience. Resilience also supports regaining expressive stability and revival (Warburton & de la Cruz, 1996; Hiew, 2001). Resilience can be inherited having the characteristics of humbleness, expressive development, and deep passion. Self-healing people were also described by Friedman (1991) to have inherited characteristic of resilience sharing expressive stability, which develops by following the correct grouping of tasks suitable for the person himself.

1.3. Depression

Many psychological problems are seen among inhabitants of Pakistan, because of public, financial, and family issues. Among all those issues, depression takes the central position. In Pakistan, depression is considered as one of the major commonly happening disease. Depression is usually expressed as a mood condition portrayed by a sense of insufficiency, reduced physical activity or reaction, distrust, doubt, and associated signs (Reber, 1995). In common practice, the word depression is considered as an incident of a persistent sadness. The clinical definition of depression given by Nelson and Israel (2003) states, individual's familiarity with grief and sorrow or dysphoria as an intimate aspect of depression.

In our daily life depression is supposed to occur because of social, mental and psychological issues. Depressive disorders can cause severe cognitive and psychological damages. Cognitive impairments are considered to have relation with every main psychological illness. These impairments adversely affect the person's ability to do work or perform any task, whether the task is domestic or related to his occupation, resulting in delayed tasks (Trivedi, 2001). Some cognitive impairments were portrayed by Beck (1995) includes analyzing the incidents pessimistically, specifically related to loss, frustration, and dissatisfaction can generate indicating signs of depression (Beck, 1995). Three kinds of unenthusiastic thoughts related to negative inspection of self were considered essential in this respect: others, mankind, and future.

Historical Background: The word depression was primarily derived from Latin word *deprimere* which means force down. The Greeks used the term melancholia for depression resulting from the imbalance of body fluid associating it with various signs of mental and bodily illness (Scott et al., 1991). In the 11thcentury, depression was declared as a mood disorder, including symptoms of lying down, and. specific illogical fears (Haque, 2004). Later these ideas were disapproved, the humeral theory of melancholia claiming that the symptoms of depression occur owing to little energy and deliberate blood flow. Trend changed in the direction of treatment during the 17thcentury. In that era, researchers recommended taking proper diet and sound sleep, claiming that the actual conveying of issues can eliminate the signs of depression. Research done in the 18th century showed that melancholic mood can be a cause of conflicts related to moral values or ethics, which upsets the soul. In the later centuries most research explained this fact physiologically and psychologically (Rothmann, Jackson, & Kruger, 2003).

Depression is considered as the well-known mental disturbance from the earlier times. Furthermore it is considered to be the most common widespread mental illness. According to an estimate 1 out of 10 individuals experiences major affective episodes of depression in his life (American Psychiatric Association, 2001). In DSM-IV-TR depression is considered as a sort of mood disorder (American Psychiatric Association, 2001).

According to medical set of symptoms, depression is distinct: Past pleasant actions look as if to be unable to find their demand. Energetic and determined persons turn out with a reduction of motivation and character like irresolution, indecisiveness; concern and participation spin to lack of concern and abandonment. When it is severely critical then pathological despair is created instead of hope; which results in destructive self-concept (Kendall &Hollon, 1979). Children and adolescents are affected from depression as psychosomatic disorder which internalize. Significant effects of depression are found on physical and mental health of children and youngsters by impaired thinking patterns, socialization, actions, deeds, and educational life (Reynolds &Richmond, 1978).

Common feelings of depression are present among individuals due to disappointment and annoyance. This can be caused by certain loss or failure to achieve some goal. The negative feelings result in distrust, lack of energy, reduction in the feelings of contentment, and inspiration. These unpleasant and repulsive thinking are generally restricted to a specific time span. Contrary to the fleeting feature of usually disheartened mood, the symptoms of depression are illustrated as timely perseverance of the feelings related to depression and the related characters (American Psychiatric Association, 1994). Depression is varied in its typeset and

route. In its framework, depression occurs to have different features associated with the severity (mild, moderate, or severe), related particular features (e.g. neurotic symptoms, psychotic symptoms, confrontation, and retardation or catatonic stupor), its course (unipolar or bipolar) and etiology (reacts to ecological stress cause or endogenous). In addition depression can occur along with other psychological illnesses like Anxiety Disorder or Stress.

Complexity of depression is explained with literature. The life of individual is affected on many phases due to depression (Rost& Smith, 2001). Depression is generally considered as "emotional state" which is nearly associated to pathology and distinct with the sensation of defenselessness, desperation, and decreased mental and physical working (Rapmund&Moore, 2002). Psychiatrically, loss of reaction by an individual to the enjoyable and gratifying circumstances considers him depressed (Reber, 1985). The features of depression include failure to feel pleasure, sorrow, and grief together with certain other issues like indecisiveness, lack of attention, increased or decreased weight. Furthermore, physiological stirring, tiredness, ashamed, insignificance, thoughts of dying and in the depths of despair is also evident from DSM IV (1994)

Depression is the sensation of dysphoria, despair, deflation, blaming self, and deficiency of awareness, contribution, anhedonia, idleness and laziness (Lovibond & Lovibond, 1995). Kaplan and Sadock (1981) conceptualized the definition of depression in three different ways and recommended it to be considered as usual emotions haunted by individuals or taken as pathology indicating signs or a combination of numerous disorders. Beck defined depression as enthusiastic or

negative view of life (Beck, 1972). The feeling of sadness and sorrow is called depression (Nemiah, 1985).

Research has shown depression as a worldwide spreading disorder just different in outline having divergence in accordance to culture (Chen, Rubin & Li, 1995). In nonwestern society, it is manifested with bodily signs of tiredness, lack of sleep and decreased weight whereas in western society psychological symptoms like blaming oneself, remorse, and guilt are seen among depressive individuals (Manson & Good, 1993).

1.3.1. Major Perspective in Depression

1.3.1.1. Biological perspective: Comparative studies have shown that inheritance plays an important role in causing depression. Results indicate high level of depression among family members in contrast with other citizens (Carson & Butcher, 1992). Stress is also considered to be a leading factor towards depression due to numerous biochemical changes (Schwartz & Schwartz, 1993).

Nor-epinephrine is found to have important involvement to bring about stress relevant bodily changes (Selye, 1952). Research work done in later time proved nor-epinephrine as a basic neurotransmitter and plays important role in causing stress and depression. Along with nor-epinephrine, serotonin was also found to be involved in causing depression and anxiety symptoms (Coppen, Shaw, Malleson, Eccleston &Guddy, 1965). In biological researches, only the biological bases of depression were focused and the role of environmental factors was entirely overlooked in developing depression and indicating its intensity. Research done by David (1995) stated that the role of society is inevitable in the appearance of depressive symptoms along with the biological factors. It also stated depression to be appearance of anomia or isolation

faced by a person because of social disturbance. In his perspective, a person is unable to give worth to himself, if he is faced with social incompetence. As such, he/she becomes uncertain to achieve best and most demanding goals. These circumstances will bring on depression. (David, 1995)

1.3.1.2. Psychodynamic view. According to the psychodynamic perspective depression seems to be the effect of certain failure. Evolving depression is described as a reaction in real or imagined failure of any dear one, which can be an individual or something (Lowry, 1984). It was further explained by Freud that death is not the only loss, refusal or breakup can also create the signs of depression. This type of loss was termed as symbolic loss. Freud also narrated that depressive individuals engage themselves self-disliking due to blaming themselves responsible for the failure. These self-disliking thoughts fall them in the thinking of lower self-esteem, poor self-concept, and insignificance (Comer, 2004) that may decrease their confidence and decision-making abilities.

The causes of depression due to relationship particularly the mother and child relationship were studied by a well-known Neo-Freudian Melanie Kalein. According to her, the roots of depression develop if one experiences negative interaction with mother during childhood (Wetzel, 1984). Contrary to this, Freud recommended that unnecessary positive relation and care during childhood can also dispose an individual to have depression. It is a bitter reality that persons who receive much care, attention and love during childhood have reduced capability to face and tolerate difficulties in their adulthood (Comer, 2004). This extra pampering leads them towards indecisiveness and lack of confidence making them unable to take any decision or resolve some issue by themselves and depend on parents, family or friends to take

actions in their lives. Psychodynamic theory related to depression was mainly based on suppositions and lack scientific evidences due to which it faced strong criticism (Comer, 2004).

1.3.1.3. Beck's Cognitive Theory. Beck gave the cognitive perspective of depression in his cognitive theory of depression. Even though vast characters of psychopathology and psychotherapy are included in this theory but still its focus is on depression (Beck, 1972). According to Beck, the central cause of depression is the maladaptive thinking pattern among individuals. Maladaptive thoughts were defined by him as the pessimistic point of view about world and own self. In the previous decade,Boury, Treadwell, and Kumar (2001) further studied the theory of depression proposed by Beck. Students sample having maladaptive thoughts were considered and checked by implementing Beck Depression Inventory (BDI) with the view point that depressive persons misinterpret the realities, bounded on the pessimistic ideas and focus on the threatening events which leads toward hopelessness about upcoming opportunities. Accordingly, the brutality of depression is mainly dependent on the intensity of negative views.

The idea of cognitive triad that produces susceptibility for depression was also given by Beck (Beck, Rush, Shaw, & 1979; Beck, 1983). A group of maladaptive negative thoughts of depressive individuals about themselves, environment and coming life was called as cognitive triad. Individuals having cognitive triad were deemed to be desperate, vulnerable and valueless. In another research conducted on students having low percentage, it was found that these students were not hopeful,little expectation to clear the upcoming tests, and were not interested in pleasure seeking activities of class—and were more vulnerable to depression (Brown

et al., 1995). Depressive individuals are likely to memorize the incidents relevant to loss and disappointment rather than other events. It was also explained by Beck that thinking errors are usual among depressive individuals. Inferences are drawn by them on very small knowledge. They usually conclude things as extreme or insignificant (Beck, 1991).

Beck also explained certain other terms related to depression. Selective abstraction is a term where just negative features of certain incidents are considered and other aspects are paid no attention so broader aspect of event is overlooked by them. Over generalization is a term where just a single incident is being focused or a general statement or event is personalized and generalized as misjudgments attributing negatively to one's self. Involuntary thinking's are also faced by individuals suffering from depression was explained by Beck. Automatic thoughts were defined as a stable sequence of thoughts which build individuals constantly experience worthlessness and helplessness (Mendels, 1970).

1.3.1.4. Behavioral Perspective. The first proposal about the behavioral description of depression was given by Lewinsohn, Clark, Hope and Andrews (1990). According to them, a little achievement and appreciation leads a person towards depression by lowering his constructive attitude. Another research stated noteworthy relation among lower achievements of prize in life and depression. On the other hand, achievement is higher among non-depressed in comparison with depressed. It was also proved that increase of achievement and rewards can help decrease depressive symptoms. Along with it, they also found positive relationship of life satisfaction and well-being with encouraging and satisfactory life events (Lewinsohn, Youngren&Grosscup, 1979)

Social reward plays an important role in eradication of depressive symptoms was studied (Patereson, 1993). There is a great contribution of behavioral explanations in acknowledging the origin and cure of depression but is still criticized due to its dependence on individuals reports and not having scientific evidence for the reasons of depressive symptoms (Lewinsohn et al., 1979).

1.3.1.5. Learned Helplessness Theory. The basis of learned helplessness theory of depression is traced back with the commencement of animal model for the clarification of mental illness (Seligman, 1975). Animals under shock and trauma were studied by the behavioral theorists of that era. Due to the dedication of researchers, they concluded that they cannot come out of distress; therefore, they stopped trying to come out of the shuttle box apparatus. A new trait known as generalized helplessness was also introduced by behaviorists in consideration to their study. Even though there were many studies done on animals, still the behaviorists received importance on the opening of new ways for the evaluation of depression among humans. According to these views, it was recommended that in resemblance to animals that stop making efforts, after realizing that they cannot keep themselves away from shocks. Humans also face similar circumstances in their everyday life. In real life, distressing incidents act as shocks for individuals making them susceptible to depression. They explained that individuals inevitably avoid the situation. This theory was applied on human beings, by experimentation, in the last decade. Experiments proved that individuals become uncorrectable, and apathetical, thus showing passivity to the situation as compared to others.

1.3.1.6. Self-control Theory. For attaining long term aims, self-control theory emphasizes one's behavioral execution. This theory chiefly clarifies and focuses on behavioral management, and ways to direct human behavior for achieving long term goals. In worsening, human behavior management depression acts as a key factor. Depressed individuals become entirely helpless so unluckily becoming immobilized to manage their behaviors which are helpful in achievement of long term aims. Their basic focus is on the current situation and does efforts regarding the fulfillment of their daily chores rather in considering long term goals therefore face complications in performing this kind of behavioral responses whose results are not immediate (Rehm, 1977).

Depression is commonly considered as the occurrence of a continual dejected and heartrending mood. The clinical definition of depression also includes this personal awareness of unhappiness, or dysphoria as a necessary component (Nelson & Israel, 2003). During mid- to late adolescence, depression occurs for the first time (Hammen & Rudolph, 2003) as a predictor of maladjustments in the upcoming life related to academic performance (Puig-Antich et al., 1985).

According to research done by Bibring (1953), depression is considered as emotional condition where individual lacks self-esteem. He concluded that inclination to depression establishes during early childhood distressing incidents due to conflicts of the ego aroused from worry or nervousness rather than conflict among ego and superego. He also narrated depression as a statement related to emotions or consideration of ego to be defenseless and vulnerable (Bibring, 1953).

Depression is a severe illness that sways nearly all aspects of the life of depressive individual. Depressive individual lacks attention in all his favorite

activities which seemed enjoyable in the past. For the diagnosis of major depressions, the individual must show lack of interest in his pleasure-seeking activities (Schwartz & Schwartz, 1993). In the DSM-IV, the diagnostic criterion of depression is nearly similar for children, adolescence, and adults. However, among these groups, the evidence can differ for the presence of depression (Harrington, 2001).

Symptoms of depression are nearly similar in early adolescent and childhood (Nelson & Israel, 2003). However, the symptoms of depression during later adolescents is closely related to the symptoms of depression in adulthood due to the change in relations transferred from social, physiological and growth aspects (Cyranowski, Frank, Young, & Shear, 2000). At an age of 15.5 years, there is onset of major depressive disorder in a sample of adolescents of median age (Lewinson, Rohde, & Seeley, 1998). A comparative study was done by Harrington et al. (1997) on pre-pubertal onset depressed youngsters with post pubertal onset among depressed youngsters. There was no difference in the level of depression among the relatives of both groups of individuals. Familial differences were also seen among the groups. It was also stated by the authors that permanence to major depression in adulthood was higher among post pubertal onset youngsters as compared to those with pre-pubertal onset youngsters having depression. Consistent results were seen for onset of depression among adolescents and adults as compared to childhood depressed individuals. Due to the development of brain and higher cognitive functioning during adolescence, it is considered an important period during which susceptibility for depression is increased (Andersen &Teicher, 2008). Usually, the stressful moments related to family affairs, performance in study; relation with peer group and friends; and relationships with partner and economic concerns are common among adolescents (Byrne, Davenport, &Mazanov, 2007; Moksnes, Byrne, Mazanov, &Espnes, 2010). In

these circumstances, if the individual is unable to reach contentment level, he is endangered to depression.

In early adolescence genders differences dominate in causing depressive symptoms. Sexual differences are not considerably seen before early adolescence. Depression is found to have prevalence and its severity level is also increased in girls after the age of 12 years (Compas et al., 1997). Research has shown double chances of depression among girls as compared to boys at the age of 15 (Hankin et al., 1998). A thorough and keen research and observation is needed to reveal the issues that direct towards depression differently among both genders. Cognitive impairments, wrong attribution, desperation are common among depressed adolescents. Along with it they attribute their failure to the environmental factors rather than themselves. In contact with a stressing situation a dysfunctional description related to event is given by the depressed adolescents and retain a depressed mood throughout the event (Asarnow, Jaycox, & Thompson, 2001). The diagnosis of depression in children and adolescents was not accepted worldwide till 1970's (Costello et al., 2002).

Research has shown depression present among 2.5% Childs and the percentage of depression among adolescents is 8.5% (U.S. Department of Health and Human Services, 1999). Sexual maturity occurs among adolescents leading towards depression and its onset is double among girls as compared to boys (Costello et al., 2002). This disorder must be acknowledged and treated essentially to be probably earlier. If it is not diagnosed and treated earlier, its chances of continuity in the adulthood increase. In 2003 it was evident from research that almost 50% mental disorders in adults have their onset during childhood or adolescence (Kim-Cohen et al., 2003).

There is a broad variance among children and adolescents on the occurrence of depression, even though complex studies come into view regarding this. They concluded depression to be most prevalent in adults as compared to children but its onset among adolescents gets higher (Kashani, Hoeper, Beck, & Corcoran, 1987). Research has shown dysthymia to be most prevalent among young child as compared to major depressive disorders which are found to be more prevalent among adolescents. Adults and adolescents are more likely to have major depressive disorders rather than dysthymia (Kashani et al., 1987). Santor and Kusumakar (2001) found Major depressive disorder to be more common among female adolescents just like adults but not in the case of mild depression. The gender differences related to depression are usually common in adolescents but the question about severity level to be higher among girls is still under consideration.

According to western epidemiological view of adolescent depression, boys show 15% to 20 % depression whereas girl's show 25% to 40% of the depressive symptoms (Santrock, 1998). Higher rates of depression among adolescent girls as compared to boys are also evident from the findings (Marcotte, Laurier, Pierre, & Myra, 2002; Rahman, Dawood & Saleem, 2000) of Depression is found to be present among male and female in the ratio of 1:10 (as cited in Ellis & Bernard, 1985).

A sample of 1,265 children for a 21-year period was studied showing clear adjustment problems among adolescents who got depression. These adolescents were more likely to have anxiety disorders, substance abuse disorders, and repeated depressive symptoms occurrence in comparison to the non-depressed adolescents (Fergusson & Woodward, 2002). In adolescence, brain development occurs, and the susceptibility for the occurrence of depression increase (Andersen &Teicher, 2008).

Out of these individuals, ratio of 1:4 having major depressive disorder in adulthood shown their onset when they were child or adolescent (Sorenson, Rutter, &Aneshensel, 1991). It is essential to search the threat and defensive factors to avoid depression during adolescence.

According to Robertson and Simons (1989), supposed refusal or dejection from parents towards their child act as a huge threat to have depression and low self-esteem in adolescents. Self-esteem decreases with perceived parental rejection. Depression is closely linked with low self-esteem. The reason for low self-esteem was considered as guilt and charge on self for every bad happening. This self-blaming attribution may be a result of humiliation, blameworthiness and extensive disapproval by parents.

1.4. Anxiety

Anxiety is considered as an aversive emotional and motivational state of individual that take place in frightening situation. State anxiety (the currently experienced level of anxiety) is found in interaction with trait anxiety and by conditional stress (Eysenck, 1992). It is a notion described as a condition in which a person is not capable to bring about an obvious type of behavior to eliminate or change the incident/thing/understanding that is frightening an accessible target (Power &Dalgleish, 1997). Persons suffering from anxiousness normally concerned regarding the hazard or risk to an accessible target and attempt to build up valuable plan for lessening anxiety to accomplish the target. It is linked to the unpleasant consequences related to cognitive functioning so have valuable contribution in the field of cognition and concern (Eysenck, 1992).

Anxiety is defined as a psycho physiological condition comprising cognitive, bodily, emotional and behavioral assets. These components combine and produce unlikable feeling, usually connected with nervousness, threat or extra concern (Seligman, Walker, & Rosenhan, 2001). Anxiety is found to have no definite eliciting stimulus discrimination for the sweeping mood, although, a person can be isolated from the occurrence of dangerous events causing fear in the person. Fear is connected to the escape and avoidance behavior; however, anxiety is a consequence of the danger that an individual perceives to be unmanageable or inevitable (Ohman, 2000). Anxiety is taken as future-oriented mood state making individual ready to come out of negative upcoming circumstances (Barlow & David, 2002). If the anxious responses happen contrary to the anxiety-provoking stimuli obstructing daily functioning they will be considered unbearable and abnormal (Hintze, 2002).

Many features are covered by anxiety including behavioral, psychological, and bodily components, closely linked with one another. An individual faced with anxiety is not just experiencing anxiousness in thinking pattern rather shows nervous behavior and bodily responses that distinguish him from normal individuals (Rachman, 1978). There is certain kind of anxiety usually prevailing among anxiety patients affecting their daily performance and control their ordinary working but the experienced anxiety is much more than the stimuli provoking anxiety departing with unpleasant results on the life which cannot be taken as ordinary. These individuals need to take therapeutic assistance (Hintze, 2002). Lovibond and Lovibond (1995) described the group of signs that include autonomic stimulation, skeletal muscle effects, incidental agonize, and occurrence of anxious affect is considered as anxiety. Anxiety is considered as mental and physical state containing cognitive, bodily, effective and behavioral component. These theories also describe that these components can

together prepare a person to involve in annoying emotions causing nervousness and restlessness (Seligman, Walker and Rosenhan, 2001).

Anxiety was stated as generalized mood state, which doesn't require any external stimulus for its onset (Ohman, 2000). Researchers further distinguished between anxiety and fear indicating that a triggering stimulus of threat is essential for its onset. According to Barlow and Durand (2005) a state of mood associated to future preparing an individual to face inescapable and out of control circumstances is called anxiety.

1.4.1. Historical Background. It is disposed from the historical review that anxiety was found from diverse models and theories that were considered much valuable in the past where behaviors and characters were measured as the consequence of environmental factors. It has been verified from history that to be aware of psychopathology, the supernatural point of view was important (Barlow & Durand, 2005). According to supernatural model immorality and sin direct an individual in the direction of irrational and strange behavior, later , psychological and the effectof agony was assumed as a reason of anxiety. This was believed as usual practice and demonic forces cause emotional stress and nervous psychological condition. Similarly, depression and distress, anxiety is also considered to be curable (Barlow & Durand, 2005).

Barlow and Durand (2005) suggested that treatments including exorcism, bloodletting and other treatments containing ointments and baths found appropriate for treating anxiety. Turner, Beidal and Costello (1987) gave genetic explanation of anxiety disorders concluding that children of anxiety patients have more chances to be affected from anxiety disorders together with other issues related to study, occupation,

social life and family. These children face greater stress and anxiousness related to self, family, and others together with the feelings of worthlessness, insignificance and bodily pains in comparison with those children having no parental history of depression. Anxiety was found to be ingrained during infancy and during later life infants' personality shows symptoms of anxiety. Heredity is found to be a reason of anxiety was evident from research along with it if it comes together with physiological susceptibility than the probability of anxiety enhances.

1.4.2. Theories of Anxiety. Anxiety is a very comprehensive phenomenon and it is much more than merely the general experiences of human life. Consequently, it has been defined in various ways (Castellanos & Hunter, 1999). Since anxiety is significantly correlative with life continuation, intelligence, life origin, performance level and numerous other important factors also play important role in it—but trauma is a major reason among victims of suicide bombing. However, anxiety is likely to derail normal human-life functioning and be the cause of relationship clashes, learning hardships and depression if it goes boundless and shifts from normality to intensity (Bernstein &Borchardt,1999). Anxiety shares the same signs and symptoms with fear symptoms that emerge when situation is inconclusive and hard to comprehend (Marks, 1977).

Behavioral and Cognitive Perspective—To understand anxiety, one can use two most commonly practiced explanations. These two principles explain two things, namely 1) maintaining anxious behavior, and 2) how to treat this behavior. The Behavioral model refers to the one that was founded on the doctrine of operant conditioning, which spotlights reinforcement. According to this theory, the environment can modify the anxious behavior positively or negatively. In other

words, anxious behavior can be either positively or negatively reinforced by the stimuli that the environment offers (Hintze, 2002). On the other hand, Cognitive model of Anxiety refers to a situation where maladaptive thoughts are considered as the only cause of anxiety. According to this school of thought people respond to a stimulus in an unwanted manner only because they possess maladaptive thoughts that are against common rationality (Ellis, 2002).

This school of thought refers anxiety as egotistic impulse. Scholars have labeled ego as a poor creature that is bound to function exclusively as the slave of three controlling factors. Effectively, these factors are no less than dangers. These factors include libido, strictness of superego and the environment. This principle states that ego exhibits an undue and unwelcoming impulse (with additional nervousness) in the face of these dangers. Moreover, this idea also suggests that if anxiety exists at normal level, it has some survival value. In a nutshell, anxiety is not a bad thing completely. This is proven when people get assistance from normal levels of anxiety in the optimum preservation of human life. This indicates that anxiety is alsoa desirable trait which is documented in the literature. According to Freud, anxiety can be categorized into three very basic types namely 1) realistic, 2) moral, and 3) neurotic. He opines that these types of anxiety bubble to the surface as an impulse to the three aforesaid controlling factors or (Ewan, 1992).

Albeit genetic impacts assume a generous part in influencing individual contrasts in the development of emotional disorders, different examinations have discovered that ecological elements assume a noteworthy part, for example, individual life occasions, family connections, and peer relationships (Gasteiger, Klicpera, &Klicpera, 2001; Gladstone, Parker, &Malhi, 2006). In one of their studies, Widiger,

and Clark (2000) conducted a review and discovered confirmation that both genetic and environmental factors represent co-morbidity between anxiety and depression. The roots of socio cultural perspective of anxiety are found in different social situations. Regarding this, when individuals face social pressure or situations full of threat, anxiety emerges. Baum and Fleming (1993) proposed that those individuals who experience exceptionally threatening circumstance are at more danger of having feelings of tension, nervousness, fatigue, unnerved responses, and sleep disorders. Compton (1991) expressed that urban zones are at more danger of nervousness when contrasted with provincial regions of unpleasant fast changes in the public arena. Besides, he additionally portrayed certain progressions of society that lead toward uneasiness including war, urbanization, modernization, political persecution, and pertinent national events.

Hunt (1999) clarified that nervousness is a psychic state of increased sensitivity to some apparent danger, hazard, peril or risk. A difference between anxiety and fear appears both possible and attractive, but is not ultimately sustainable. Fear can be defined as a reasonable nervousness, a prompt reaction to hazard or risk, and tension is summed as non-immediate uneasiness. Anxiety and its disorders are among the most well-known types of psychopathology in adolescence (Costello, Mustillo, Erkanli, Keeler, &Angold, 2003) and over the life expectancy, with lifetime. Pervasiveness of anxiety disorder rose 29% (Kessler, Berglund, Demler, Jin, and Walters, 2005). These rates are disturbing, because of how anxiety psychopathology adversely impacts working over different spaces (McGee and Stanton, 1990); keeps up a perpetual course for a noteworthy extent of youth influenced; and expands the hazard for different sorts of disorders (Cole, Peeke, Martin, Truglio, &Seroczynski, 1998).

Bernstein and Borchardt (1991) explained that both children and adolescents (of both gender) go through the symptoms of anxiety. Brown, Chorpita, and Barlow (1998) showed that at some specific levels anxiety serves versatile capacities. Intense anxiety can be the cause of mental weakness. Anxiety disorders can badly affect the mental health of children and adults. Nervousness issue is the most well-known emotional wellness issues that influence youngsters and youths. According to the trait models of personality traits for example, the Five-Factor Model (Costa &McCrae, 1995), Neuroticism, which istendency to experience negative emotions, such as anxiety, is a fundamental personality dimension. Moore and Shellman (2002) defined anxiety is a fundamental feeling that at specific levels serves adaptive functions, for example: inspiration, protection, and survival.

1.5. Stress

Simeon, Gorelik, Schmeidler, Sirof, and Knutelska (2001) allude that stress consists of the following four elements: stressors, adoptions (reactions), perceptions (cognitive/emotional), and effects (intense and chronic). Stressor stimulates the events, which challenges the consistency or the health of the body and the way our body reacts this is the stress response (Sokolov & Kutcher, 2001). Our negative thoughts and reactions which are produced by dire situation of life are defined as stress (Bernard &Krupat, 1994)

Franken (1994) portrayed worry as neurological and mental response which includes in adaptive functioning. Stress has been examined in the past with the pertinence of body's response and cognitive process which impact incredibly while perceiving anxiety. McCraty (2006) contended that models of stress characterized it as physiological response, because the perception and examination of dangerous

event. Quintessence of stress was overlooked by these models. He proposed that stress is an emotion which appears when we response to threating stimulus. Analyst likewise exhibited that stress affects differently to different people. People who experience more stressful life are more open to depression in their later life (Barrett, 1979).

Strain refers to physiological, emotional and cellular reactions. For instance, emotional reactions encompass negative effects, emotional deadening and lower positive effect. Cohen, Janickki-Deverts, and Miller (2007) characterized stress as negative affective state described by various indications, for example, anxiety, apprehension, absence of hunger, wretchedness and social withdrawal and so forth. The latest neurobiological research indicates that adolescents, particularly at the time of puberty, may be more sensitive to stress as compared with children and adults (Romeo, 2010).

1.5.1. Historical Background. Lumsden (1981) depicted that anxiety implies hardships and misfortunes. History uncovered that Robert Hooke was a man who first utilized the term stress. He was keen on investigating how humans make structures like bridges to shoulder substantial burdens. He explained load as a burden that is put on structure; stress as an area over which load or weight encroaches; and strain as the distortion that is caused by both load and stress. Hook's description of stress greatly influenced the stress related models in psychology, sociology, and physiology. Today, stress is defined as an external load on a person's biology and psychology. This can be traced back to Hook (Hinkle, 1973)

According to Grinker and Spiegel, the idea of stress was common in World War Two. Combat related stressors were considered the cause of emotional

breakdown at the time. At that time that idea was quite famous that significant events like marriage, growing up and illness have a great effect on human's life. This idea compelled the researchers to study effect of stress as distress and dysfunction. This idea followed Hook's thought that information:load on structure can cause output; and its disfigurement, which he called strain. This all conveys the idea that unbearable demands and conditions that a person receive lead him toward stress. Later, Lazarus and Eriksen (1952) uncovered that each everyone is not influenced by upsetting conditions in the same way. One situation may have a high level of stress on one person, but have only slight effect on the other. It is very much possible that one condition may damage the performance of one individual, but the same situation may enhance the performance of another. Therefore, it is pertinent to keep in mind the individual differences while studying stressors and reactions toward stress.

1.5.2. Theories of Stress. Different life occasions are the reasons for stress. These occasions might be examination, relationship issues or other risk-full related circumstances. Many factors are responsible for stress; as a result, it is difficult to define it properly. To understand the background of stress, it is important to understand the Bio-psychological model (Bernard &Krupat, 1994). According to this model, there are three components of stress: internal, external, and interaction between both components. On the surface, every one of these natural occasions are included, which lead individual towards weakness of stress. Internally, all neurological and mental responses are incorporated. The third segment of this model include in the blend of interior and outside segments.

Generally, stress theories are separated in to two groups. One is systematic stress, which deals with physiological and psychological aspects of stress (Selye,

1976), and the other group of theories manages mental anxiety and is identified with cognitive psychology (Lazarus, 1991; Lazarus & Folkman, 1984).

1.5.2.1. Systematic Stress: Selye's Theory. Selye noted that different stimulus such as heat or cold can produce nonspecific changes which can be called common effect of all stimulating events if they are applied for a long time. In 1976, Selye described stress as "a state manifested by a syndrome which consists of all the non-specifically induced changes in a biologic system". The stereotypical response pattern was labeled as General Adaptation Syndrome (GAS). To him, a person who faces stress for a long time comes under three stages of GAS - alarm reaction, resistance and exhaustion. The organism's potential to overpower threat is activated by this set of reaction. Alarm reaction is much the same as battle or flight reaction and holds different reactions under its wings identified with neurology and physiology because of stress. This phase is set apart via autonomic excitation, increased release of adrenaline and gastro intestinal ulceration. In the event that the stressful condition dragsout,then the second stage begins. A clear indication of this stage is the constant arousal. Constant arousal and expanded hormonal movement may aggravate the internal system of the body resulting in the vulnerability of diseases. Exhaustion stage begins because of prolong resistance phase. In this stage, the individual's assets to manage stressors are depleted and body's energies are saved. Even though Selye's hypothesis was very prominent in its time, yet, it invited much criticism. They contended that by characterizing stress is an effort to lose its scientific importance (Engel, 1985).

1.5.2.2. Interruption Theory. According to Mendle (1982), stress can be defined as emergency signaling interruption. . He explained that if there will be an

interruption in organized action and thought process, it can lead to autonomic hyperactivity. Interruption can be defined as any internal or external event that can create hurdle to complete some action or plan. This interruption can involve in any area including perception, cognition, and behavior. This theory introduced a change between internal component and interaction component of bio psychosocial model.

1.5.2.3. The Psychological Stress: The Lazarus Theory. The most persuasive theory of psychological stress is displayed by Lazarus (1966). Many a times this theory is revisited (Lazarus, 1991; Lazarus & Folkman, 1984). According to the latest version of this theory, stress is a rational concept. That implies stress is not subject to any particular external events; and is not just a consequence of any physiological and behavioral patterns; it is; however, an aftereffect of relationship between individual appraisal and external environment. This definition has two focal mediators between individual and environment: one is cognitive appraisal and the second is adaption.

1.5.2.4. Innocent Victim Model of Stress. In the history of stress, this model is considered the earliest one and it gives a very simple description connected to stress. This approach suggested that individual become a victim of stress as a result of stressful events or conditions that he exposes by chance (Dohrenwend&Dohrenwend,1981). Catastrophic event such as war purely justified the concept of this model. Most of the time civilians become a victim of anxiety and stress in these stressful circumstances because everything is uncertain and people are not psychologically ready to deal with these threats (Ursano, Boydstun, & Wheatley,1981).

1.6. Post-Traumatic Stress Disorder (PTSD)

Walsh, MacMillan, Trocme, Jamieson, and Boyle (2008) presumed that post disaster stress reactions are grim and generally preserving. They went to study Mt. St. Helens community and they showed that adult stress reactions were increased when adults were exposed to the disaster. A thorough investigation concluded that there was considerable rise in stress-induced disorders, mental illness, alcohol abuse, family stress, along with some other adjustment problems. The cases of domestic violence which were reported to police expanded to 45.6 %. Post-Traumatic Stress Disorder (PTSD) is a moderately new term in psychiatric nosology. Post-Traumatic reactions to disasters have been studied systematically amid the last two decades. The term Post-Traumatic Stress Disorder (PTSD) stands for prolonged and extremely delayed reaction to a strongly stressful event. Hyper arousal, re-experiencing of aspects of the stressful events and avoidance of reminders are the basics components of PTSD.

DSM-V expresses that appraisals of life term prevalence of (PTSD) from community samples shifts near 1% and 14%, and pervasiveness among high-hazard groups (e.g., crisis administrations, combat veterans) changes about 3% and 58%. It was noted that variability in these numbers is related to the methodology differences in the studies. Janowsky, El-Yousaf, Davis, and Sererke (1991) discovered lifetime predominance rates of PTSD of 9.2% for grown-ups having a place with an urban health maintenance organization. Of the adult population in the sample of earthquake victims,32–60% suffers from PTSD as indicated by the report of National Center for PTSD (2000). Moreover, when a seismic tremor happens, the victims need to live with the fear of potential repeat, or consequential aftershocks, as a few quakes regularly happen in progression. Apprehension and worry follow when people live in

a constant fear that disaster can happen again and again. After a calamity, survivors regularly show outrage and fractiousness, which can likewise be communicated as the need to censure somebody for the horrendous accident (Tennen & Affleck, 1990).Since we have no control over natural disaster, therefore, we cannot blame someone for it, but people blame institutions and governments for poor management and insufficient help.

Another study observed that eighty-two percent of the survivors displayed elements of PTSD 35 days after the bomb blast. In another report, it was discovered that 94% female instantly reported about rape after it happened and 43% reported after three months (Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). Findings on specific hurricane are in accordance with the findings about other kinds of trauma which have examined the factors responsible for having or not having chronic PTSD. Life stress and social support from others are the two most important factors which influence recovery. The latest research with survivors of assault and motor vehicle mishaps has reliably demonstrated that the presence of negative social help blocks recuperation (Dunmore, Clark, & Ehlers, 2001; Ullman &Filipas, 2001). The occurrence of Post-Traumatic Stress Disorder (PTSD) and Depression in earthquake survivors living in pre-assembled housing sites after the 1999 quake in Turkey, the assessed rates of PTSD and significant depression were 39% and 18%, individually. Female gender, older age, participation in rescue work, having been trapped under rubble, and personal history of psychiatric illness are closely connected to acute PTSD symptoms. More serious severe depression identified with old age, loss of close ones, single conjugal status, past psychiatric disease, previous trauma experience, female gender, and family history of psychiatric sickness. The findings of above mentioned studies show that catastrophic earthquakes have long-term psychological

consequences for survivors with high levels of trauma exposure (Salcioglu, Basoglu, &Livanou, 2003).

After Hurricane, Armen et al. (2001) noted the severity of posttraumatic stress and depressive reactions among Nicaraguan adolescents. They also established the relationships of these reactions to objective and subjective features of hurricane exposure, death of a family member, forced relocation, and thoughts of revenge. Six months later after the hurricane, 158 young people from three differentially exposed urban areas were assessed by utilizing hurricane exposure questionnaire, the Child Posttraumatic Stress Disorder Reaction Index, and the Depression Self-Rating Scale. Adolescent's people from two most heavily affected cities showed severe levels of posttraumatic stress and depressive reactions. Seriousness of posttraumatic stress and depressive responses and components of objective hurricane-related experiences followed a "dosage of-exposure" design that was harmonious with the rates of death and demolition across the urban communities. 68% of the fluctuation in severity of post-traumatic stress reaction is the result of level of effect, objective and subjective elements, and thoughts of revenge. The percentage of the death of a family member, and sex is 59% regarding post traumatic reaction.

There is another idea which is very important to understand that why some people react well in adverse circumstances. It is observed that if someone is exposed to acute trauma earlier then it is seen that there will be development of PSTD in such individuals. It is proposed that people with absence of confidence, absence of individual control and alienation will probably encounter elevated amounts of despondency and PTSD side effects resulting to exposure to traumatic mishaps (Regehr, Hill, &Glancy, 2000). People generally go through the higher levels of

distress when they experience a traumatic event if they do not trust other people, shy to rejection, and introvert (Regehr, Hemsworth, & Hill, 2001). Another study revealed that PTSD predictors include fragmentation of the familial nucleus, low educational level and prior psychiatric history (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003). It is obvious that if someone has a strong personality, he or she will be affected against extreme trauma (Kobasa, Maddi, & Kahn, 1982). Strength has three measurements: inspiration to discover importance to day by day life, the conviction that one can impact environment and the results of occasions, and the conclusion that one can learn and develop with positive and negative encounters. Having predisposed confidence, social support and overcoming of adversities make it easier to handle stress. In another examination it was discovered that, strength and changing variables that took after stressors were intervened by the experience with positive emotions: solidarity, appreciation, intrigue, and love (Fredrickson, Tugade, Waugh, & Larkin, 2003).

1.7. Rationale

A medical sociologist, Aaron Antonovsky, coined the term *Salutogenesis.* Instead of focusing onthe factors which leads towards disease, the Salutogenesis Perspective concentrated on guaranteeing well-being and prosperity in public. What is the interrelationship between health, stress and how to cope it is the major concern of *salutogenic model.* Antonovsky(1979) begat the expression "health versus disease continuum" with a specific end goal to depict the health and recouping sickness along a continuum by dismissing the health and illness division of customary medical experts.Thus, at the same time an individual not only strives to remain healthy, but also to cope with stress. The word "Autogenesis" is the combination of two words ***salus*** and ***genesis*** and is taken from Greek and Latin languages. Salus means health and genesis means origin. Antonovsky (1987), focused on the origins of the health in his model.

Sense of coherence takes us towards various health results among non-clinical and clinical groups at the same time (Antonovsky, 2007). Apart from normal populations, sense of coherence also contains prominent clinical significance as stated by Antonovsky (2011). He expressed that it is clinically substantial to build up the high and intense sense of coherence specifically in the disaster victims to diminish the risk factors of psychiatric problems like depression, anxiety and stress as well as PTSD. Not with standing, most of the researchers focused on normal samples (Richardson & Ratner, 2015; Fok, Chair, & Lopez, 2016) instead of stressing on disasters and other traumatic samples. The reason that is put forward for this is very logical and simple. It is said that most of the research was done in advanced nations and generally they encountered relatively less disasters as compared to Asian

countries. Moreover, the impact of these disasters was not very severe as the process of the rehabilitation was very swift. Regarding this, it is advisable for the future researchers that they should take disaster victims into consideration, since the idea of coherence itself comes from the experiences of man-made disaster. It can be more beneficial (Antonovsky, 2012), if we incorporate resilience in tackling the effects of disasters through sense of coherence. In health-disease, care-cure, and prevention-intervention continuum, sense of coherence focuses on health while care and prevention ensure long-ranged strategic health gains (Griffiths, 2008; Holmberg, Thelin, &Stiernstrom, 2004). It has been confirmed from the studies that were conducted in Pakistan (Riaz et al., 2012a, Riaz et al., 2012b) that severe results and effects are faced by the victims of man-made disasters as compared to the natural disasters. To be more precise and specific, it was observed and noted that victims of suicide bombing have intense effects in the form of depression and PTSD as compared to victims of natural disasters (Riaz et al., 2012b). Apart from Antonovsky (2012) recommendation regarding the more pertinence sense of coherence for man-made disasters, the severely affected disasters victims are the victims of suicide. Subsequently with a specific end goal to connect this gap, the present examination concentrated on the balanced role of state and trait resilience in the connection between sense of coherence and health results as misery, uneasiness, stress and PTSD among casualties of suicide bombarding.

1.8. Conceptual Framework

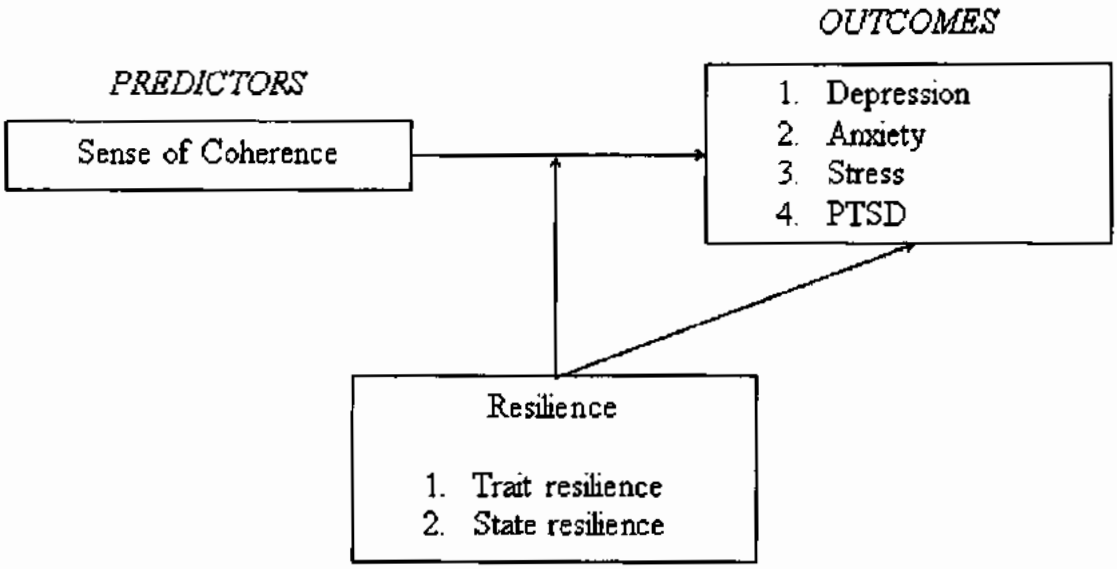

Figure I. Schematic representation of the moderating role of trait and state resilience in the relationship between sense of coherence and outcomes among victims of suicide bombing

Chapter-II

1.9. Objectives and Research Design

1.9.1. Objectives

The following were the objectives of the study:

1. Investigate the moderating effect of resilience in the relationship between sense of coherence and psychological problems among survivors of suicide bombing.
2. Find out the moderating effect of trait resilience in the relationship between sense of coherence and psychological problems among survivors of suicide bombing.
3. Find out the moderating effect of state resilience in the relationship between sense of coherence and psychological problems among survivors of suicide bombing.

1.9.2. Research Design

The present study consists of two segments.

Phase I Pilot study: Phase I comprised on pilot study. The purpose of this portion was to examine the descriptive statistics, alpha coefficients and normality analysis and to investigate the relationship patterns through person correlation of all variables of the study.

Phase II Main Study: 2nd phase comprised of the main study. The study has targeted mainly focused on the moderating effect of resilience between sense of coherence and mental health related consequences among survivors of suicide bombing in Pakistan.

PILOT STUDY

METHOD

Chapter-III

2. 1. Phase I: Pilot Study

Phase I comprised on pilot study. Most important purpose of pilot study was to examine the descriptive statistics of all the variables and to investigate the relationship patterns through Pearson correlation among variables of the study.

2.2. Method

2.2.1 Objectives

The pilot study is conducted to check the suitability of the scale for the main study. The objectives were two folds:

1. Examine the descriptive statistics, alpha coefficients and normality analysis of all variables, including sense of coherence, resilience, trait resilience, state resilience, depression, anxiety, stress and PTSD.
2. Investigate the relationship patterns through Pearson correlation among variables of the study including sense of coherence, resilience, trait resilience, state resilience, depression, anxiety, stress and PTSD.

2.2.2. Operational Definitions

2.2.2.1. Sense of Coherence. Sense of coherence was measured through Sense of Coherence Scale in which high scored depicted victims' general ability to cope with stressful events of life and to ensure health. Lower scores were taken to draw the inference regarding the victims' inability regarding coping with stressors and failure in ensuring health during hardships of life.

2.2.2.2. Resilience. Resilience was measured through Trait State Resilience Inventory (TSRI). Higher scores were interpreted as higher level of victims' ability to recover from trauma and low scores were interpreted as lack of victims' ability to recover from stressful traumatic incidents.

2.2.2.3. Trait Resilience. Trait resilience was measured through trait resilience subscale of TSRI. Higher scores were interpreted as higher level of dispositional ability of victims to recover from trauma and low scores were interpreted as lack of victims' personality traits regarding recovery from stressful traumatic incidents.

2.2.2.4. State Resilience. State resilience was measured through state resilience subscale of TSRI. Higher scores were interpreted as higher level of situational ability of victims to recover from trauma and low scores were interpreted as lack of victims' situational capability regarding recovery from stressful traumatic incidents.

2.2.2.5. Depression. Depression was measured with a subscale of Depression Anxiety Stress Scale (DASS) which measures depressive symptoms. Higher scores were regarded as more depressive symptoms and vice versa.

2.2.2.6. Anxiety. Anxiety was measured with a subscale of DASS which measures anxiety related symptoms. Higher scores were regarded as more symptoms related to experience of anxiety and vice versa.

2.2.2.7. Stress. Stress was measured with a subscale of DASS which measures stress related symptoms. Higher scores were regarded as more symptoms related to experience of stress and vice versa.

2.2.2.8. PTSD. PTSD was measured with Impact of Events Scale which measures the collection of traumatic incident and related thoughts. Higher scores were regarded as more symptoms of PTSD and vice versa.

2.2.3. Participants

The study used cross-sectional designs for collecting data from the linage of victims of suicide bombing in Pakistan ($N = 100$) with age ranged from 35 to 55 years ($M = 44.35$, $SD = 6.51$). Purposive sampling was the major strategy for data collection for four cities including Islamabad, Sargodha, Lahore and Peshawar. Inclusion criteria was related to direct experience of suicide bombing, sustaining injuries and time of that tragic incident is not more than 6 months (which is a requirement to collect information related to PTSD). Remaining victims of suicide bombing were not included who were deficient even in the single domain of the above mentioned inclusion criteria. Thus victims—having exposure to suicide bombing but not experiencing it, sustaining no injury from suicide bombing incident and the time of that incident has exceeded the time limit to collected data for PTSD—were excluded from the sample. The data was further divided along gender lines as male ($n = 65$, 65%) and female victims ($n = 35$, 35%) participated in the study. Further information related to the family system of victims was also collected as victims belonged to nuclear ($n = 87$, 87%) and extended families ($n = 13$, 13%). Written informed consent was taken from all participants.

2.2.4. Instruments

2.2.4.1. Sense of Coherence Scale (SCS). First scale was 13-items Sense of Coherence Scale (Antonovsky, 2005) which was used for measuring sense of coherence a. The scale is further divided into 3 subscales including manageability,

comprehensibility and meaningfulness. The items were positively worded that were rated on 6-point Likert-type scale with 1 = *very seldom* and 6 = *very often*. The minimum scores on the scale were computed as 13 whereas maximum were 68. Low-high scores were taken to examine the low and high level of sense of coherence among victims. Reliability of the original scale is .96 which represented high internal consistency. Existing research confirmed that SCS is a reliable and valid measure of coherence in indigenous context (Shaheen, 2016). The scale was translated in Urdu by the researcher.

2.2.4.2. Trait-State Resilience Inventory (TSRI). The TSRI was developed by Hiew (2003) and translated in Urdu by Sarwar (2005). It is a 33 items scale with two subscales measuring trait resilience with 18 items and state resilience with 15 items. There are no reverse items in the scale and all items are rated on 5-point Likert-type response format with 1 = *strongly disagree* to 5 = *strongly agree*. The 15-75 and 18-90 are minimum and maximum scores for state and trait resilience respectively. Low and high scores were interpreted as low and high level of resilience respectively. Reliability of the original scale is reported as .87 for trait resilience and .82 for state resilience. Existing empirical studies conducted by using this scale reported it as a reliable and valid measure of multidimensional resilience.

2.2.4.3. Depression, Anxiety, Stress Scale (DASS-21). In the present study, DASSwas used to measure depression, anxiety and stress among victims of suicide bombing. The scale was developed by Lovibond and Lovibond (2000). The scale was translated in Urdu by Aslam (2007). The scale comprised of 21 items and 3 subscales. Each subscale consisted of 7 items. All items are positively worded and there is no reverse item in the scale. The scale is based on four point Likert scale. Response categories range from 0 = *never* to 1 = *always*. The scores can be interpreted as cut off

scores as well as low and high scores. Minimum scores on a single subscale can 0 whereas maximum scores can be 21. Reliability of the original scale is reported as .98, .92 and 90 for depression, anxiety and stress respectively. Past research indicates that it is reliable and valid measure of depression, anxiety and stress among victims of suicide bombing (Mujeeb, 2009).

2.2.4.4. Impact of Events Scale (IES). The IES was developed by Horovitz et al. (1989) and Urdu translated by Aslam (2007). It is 15-items scale in which all questions are positively worded. The questions are scored on 4-point Likert-type response pattern in which 0 = *not at all* to 3 = *often*. The scores can be interpreted as cut off scores as well as low and high scores. Minimum scores on a single subscale can 0 whereas maximum scores can be 45. Reliability of the original scale is reported as .92. Past research indicates that it is reliable and valid measure of depression, anxiety and stress among victims of suicide bombing (Aslam, 2007).

2.2.5. Procedure

The study has mainly followed probability data collection technique of purposive sampling. Major data collection was completed in three cities of Pakistan including Sargodha, Lahore and Peshawar. Information regarding that statistics of different suicide bombing incidents and affected individuals was obtained from law enforcement agencies in general and police department in particular. However, in all departments, the officials provided information conditionally by making sure that neither their identities will be disclosed nor data will be used other than research purpose. Even at this stage, most of the officials were scared to share information due to the sensitivity of the issue in general and because of fear factor in particular. After taking addresses of the victims of suicide bombing, they were approached at their

residences. Firstly, they were taken into confidence regarding the purpose of research and the ultimate use of data. Most of the survivors cooperated, some were reluctant at start and few survivors refused to provide the information. Before contacting the participants at their homes, it was ensured that the incident in which they became victims fall within the specified time range which was set as inclusion criteria.

The researcher personally visited all participants and distributed scales. One the time convenience of survivors, the researcher requested made it sure to fill out scales in his physical presence instead of dropping the scales at residences. After providing comprehensive account of study objectives, they were given instructions regarding completion of scales. Afterwards, they were requested to sign the informed consent. The researcher remained vigilant during scale completion and whenever participants faced any confusion or difficulty, the researcher addressed their queries. No incentive was admissible for research participation. About 35 to 45 minutes were taken by participants. The response rate was 76% as 100 scales were returned out of 132 distributed scaled.

RESULTS

2.3. Results of Pilot Study

The pilot study is carried out for describing salient statistical characteristics of study variables. Furthermore, correlations among variables were also computed.

Table 1

Descriptive statistics and alpha coefficients for variables (N = 100)

Variables	*M*	*SD*	α	Range		Skewness	Kurtosis
				Potential	Actual		
Sense of coherence	55.38	15.33	.92	13-78	29-61	-.25	-.44
Resilience	111.89	29.40	.94	33-165	60-153	-.42	-.42
Trait resilience	61.04	16.49	.85	15-75	30-72	-.39	-.39
State resilience	50.85	13.72	.81	18-90	26-60	-.40	-.37
Depression	6.82	5.56	.91	0-21	0-20	.37	-.97
Anxiety	5.63	4.85	.92	0-21	0-17	.73	-.56
Stress	5.48	4.44	.87	0-21	0-17	.57	-.77
PTSD	32.07	12.35	.88	0-45	17-42	.71	-.61

Table 1 reveals descriptive statistics, alpha coefficients and normality statistics for all variables. Alpha coefficients of all scales and subscales range from .81 to .94 which depict that the reliability of the scales being used in the present study is quite satisfactory and the scales / subscales can be used for further analyses. Normality statistics show that skewness and kurtosis are less than +1 and -1 for all variables which are less than 1 and this in the desirable range for normality of the data.

Table 2

Pearson correlation among variables including sense of coherence, resilience, trait resilience, state resilience, depression, anxiety, stress and PTSD (N = 100)

Variables	1	2	3	4	5	6	7	8
1. Sense of coherence	-	.73***	.70***	.73***	-.69***	-.62***	-.66***	-.70***
2. Resilience		-	.89***	.98***	-.83***	-.76***	-.85***	-.77***
3. Trait resilience			-	.97***	-.82***	-.76***	-.82***	-.77***
4. State resilience				-	-.84***	-.78***	-.86***	-.79***
5. Depression					-	.64***	.72***	.68***
6. Anxiety						-	.71***	.73***
7. Stress							-	.72***
8. PTSD								-

***p< .001

Table 2 shows correlation coefficients among variables. Results depict that sense of coherence has positive correlation with resilience, trait resilience and state resilience whereas negative correlation with depression, anxiety, stress and PTSD. Resilience has positive correlation with trait resilience and state resilience whereas negative correlation with depression, anxiety, stress 1 and PTSD. Trait resilience has positive correlation with state resilience whereas negative correlation with depression, anxiety, stress and PTSD. State resilience has negative correlation with depression, anxiety, stress and PTSD. Depression has positive correlation with anxiety, stress and PTSD. Anxiety has positive correlation with stress and PTSD. Stress has positive correlation with PTSD. Magnitude of the all correlation coefficients ranged from .64

to .98 which indicates moderate to high correlations and the directions among variables are theoretically and empirically desirable.

DISCUSSION

2.4. Discussion of Pilot Study

The pilot study examined descriptive statistics, reliability coefficients, and normality analysis and zero-order correlations among variables. By using a relatively small sample of the survivors of suicide bombing in Pakistan, data were collected with four scales measuring sense of coherence, resilience and its domains, three psychological problems and PTSD respectively. Initially alpha reliability analysis (which is measure of covariance among items) was carried out for ensuring internal consistency (Coakes& Steed, 2003). Alpha coefficients of all scales and subscales ranged from .81 to .94 which depicted that the reliability of the scales being used in the present study is quite satisfactory and the scales / subscales can be used for further analysis in the large-scale main study. Kline (1999) suggested that the alpha coefficient of .70 or greater is considered satisfactory for scales measuring different behaviors.

The major statistical technique intended to use in main study is regression analysis which is a sound parametric statistics used for making predictions. For computing a parametric statistical test, the prime condition is the normality of the data. Thus in order to ensure the data normality, tests of skewness and kurtosis were conducted. In a normal distribution, majority of scores cluster in the center of the bell-shaped curve whereas remaining less number of scores spread by descending towards tails of the curve. Field (2005) explained that normal curve is either affected by the lack of symmetry (skewness) or in other cases pointiness (kurtosis). Skewness takes to forms as negatively skewed curve has clustering of scores on left tail whereas positively skewed curve has clustering of the scores of right tails. In either case, both distort the bell-shaped formation of the curve (Miles & Shevlin, 2001). Pointiness also appears in two forms as heavy clustering of most of the cases in the center of the

curve makes it leptokurtic whereas heavy clustering of most of the cases on tails turns it into a platykurtic curve (Cisar&Cisar, 2010). In order to ensure that normality of the data, skewness and kurtosis values were computed. The values of skewness (.37 to .73) and kurtosis (-.37 to -.97) were less than -1 and +1 which is essential for claiming normality (Muthen& Kaplan, 1985).

Right after reliability and normality analyses, correlation coefficients were computed among scales and subscales. Relationship patterns of subscales within a scale provided information regarding the convergent validity. As depicted by it nomenclature, Trait-State Resilience Inventory (TSRI) comprised of two domain including trait related resilience and state related resilience. Positive relationship between these two domains of resilience and further positive relationship of these two domains with overall TSRI (Hiew, 2003) confirmed that patterns of association in the scale and its domains are in desired directions and thus ensuring convergent validity. Similarly, correlations among the subscales of Depression Anxiety Stress Scale (DASS-21) were appropriate as all three subscales including depression, anxiety and stress were positively associated with each other and with the overall DASS (Lovibond & Lovibond, 1995). Moreover, the intended major statistical strategy for drawing moderation related inferences was selected as regression. For conducting a regression, prime condition is presence of correlation among variables. Therefore, Pearson correlation among predictors and outcomes were computed.

In this study, findings confirmed that sense of coherence was negatively associated with depression, anxiety and stress which are in line with the available empirical data in Pakistan (Asghar, 2014). Moreover, the inverse relationship between sense of coherence and PTSD is also not counter intuitive. Sense of coherence is the brainchild of Antonovosky (1998) who illustrated that sense of coherence is a

protective factor which helps individuals to cope with traumatic stressful incidents in life. Resilience and its two domains were correlated with depression, anxiety, stress and PTSD. The correlations with constant with the insights of the existing disaster research in Pakistan. In a similar study with man-made disaster victims, Mujeeb (2009) negatively linked resilience with depression, anxiety and stress. Moreover, resilience was inversely related to depression and PTSD in the victims of terrorism in Pakistan (Riaz et al., 2015). Patterns of relationship among study variables were same as depicted by the existing empirical data—providing evidences for conducting large scale study by using the same scales confidently.

MAIN STUDY

METHOD

Chapter-IV

3. Phase II: Main Study

3.1. Method

3.1.1. Objectives

1. To investigate the moderating effect of resilience in the relationship between sense of coherence and psychological problems among survivors of suicide bombing.
2. To find out the moderating effect of trait resilience in the relationship between sense of coherence and psychological problems among survivors of suicide bombing.
3. To find out the moderating effect of state resilience in the relationship between sense of coherence and psychological problems among survivors of suicide bombing.

3.1.2. Hypotheses

1. Resilience will moderate the relationship between sense of coherence and depression among survivors of suicide bombing.
2. Resilience will moderate the relationship between sense of coherence and anxiety among survivors of suicide bombing.
3. Resilience will moderate the relationship between sense of coherence and stress among survivors of suicide bombing.
4. Resilience will moderate the relationship between sense of coherence and PTSD among survivors of suicide bombing.

5. Trait resilience will moderate the relationship between sense of coherence and depression among survivors of suicide bombing.
6. Trait resilience will moderate the relationship between sense of coherence and anxiety among survivors of suicide bombing.
7. Trait resilience will moderate the relationship between sense of coherence and stress among survivors of suicide bombing.
8. Trait resilience will moderate the relationship between sense of coherence and PTSD among survivors of suicide bombing.
9. State resilience will moderate the relationship between sense of coherence and depression among survivors of suicide bombing.
10. State resilience will moderate the relationship between sense of coherence and anxiety among survivors of suicide bombing.
11. State resilience will moderate the relationship between sense of coherence and stress among survivors of suicide bombing.
12. State resilience will moderate the relationship between sense of coherence and PTSD among survivors of suicide bombing.

3.1.3. Participants

The study used cross-sectional designs for collecting data from the linage of survivors of suicide bombing in Pakistan (N = 300) with age ranged from 31 to 55 years (M = 43.87, SD = 6.16). Purposive sampling was the major strategy for data collection for four cities including Islamabad, Sargodha, Lahore and Peshawar. Inclusion criteria was related to direct experience of suicide bombing, sustaining injuries and time of that tragic incident is not less than 6 months (which is a requirement to collect information related to PTSD). Remaining survivors of suicide

bombing were not included who were deficient even in the single domain of the above mentioned inclusion criteria. Thus survivors—having exposure to suicide bombing but not experiencing it, sustaining no injury from suicide bombing incident and the time of that incident was less than the time limit to collect data for PTSD—were excluded from the sample. The data was further divided along gender lines as male and female victims participated in the study. Further information related to the family system of victims was also collected as victims belonged to nuclear and extended families. Written informed consent was taken from all participants.

3.1.4. Instruments

3.1.4.1. Sense of Coherence Scale (SCS). First scale was 13-items Sense of Coherence Scale (Antonovsky, 2005) which was used for measuring sense of coherence a. The scale is further divided into 3 subscales including manageability, comprehensibility and meaningfulness. The items were positively worded that were rated on 6-point Likert-type scale with 1 = *very seldom* and 6 = *very often.* The minimum scores on the scale were computed as 13 whereas maximum were 68. Low-high scores were taken to examine the low and high level of sense of coherence among victims. Reliability of the original scale is .96 which represented high internal consistency. Existing research confirmed that SCS is a reliable and valid measure of coherence in indigenous context (Shaheen, 2016). The scale was translated in Urdu by the researcher.

3.1.4.2. Trait-State Resilience Inventory (TSRI). The TSRI was developed by Hiew (2003) and translated in Urdu by Sarwar (2005). It is a 33 items scale with two subscales measuring trait resilience with 18 items and state resilience with 15 items. There are no reverse items in the scale and all items are rated on 5-point Likert-

type response format with 1 = *strongly disagree* to 5 = *strongly agree*. The 15-75 and 18-90 are minimum and maximum scores for state and trait resilience respectively. Low and high scores were interpreted as low and high level of resilience respectively. Reliability of the original scale is reported as .87 for trait resilience and .82 for state resilience. Existing empirical studies conducted by using this scale reported it as a reliable and valid measure of multidimensional resilience (Qaiser, 2014; Riaz, 2014).

3.1.4.3. Depression, Anxiety, Stress Scale (DASS-21). In the present study, DASS was used to measure depression, anxiety and stress among victims of suicide bombing. The scale was developed by Lovibond and Lovibond (2000). The scale was translated in Urdu by Aslam (2007). The scale comprised of 21 items and 3 subscales. Each subscale consisted of 7 items. All items are positively worded and there is no reverse item in the scale. The scale is based on four point Likert scale. Response categories range from 0 = *never* to 1 = *always.* The scores can be interpreted as cut off scores as well as low and high scores. Minimum scores on a single subscale can 0 whereas maximum scores can be 21. Reliability of the original scale is reported as .98, .92 and 90 for depression, anxiety and stress respectively. Past research indicates that it is reliable and valid measure of depression, anxiety and stress among victims of suicide bombing (Mujeeb, 2009; Riaz, 2015).

3.1.4.4. Impact of Events Scale (IES). The IES was developed by Horovitz et al. (1989) and Urdu translated by Aslam (2007). It is 15-items scale in which all questions are positively worded. The questions are scored on 4-point Likert-type response pattern in which 0 = *not at all* to 3 = *often*. The scores can be interpreted as cut off scores as well as low and high scores. Minimum scores on a single subscale can 0 whereas maximum scores can be 45. Reliability of the original scale is reported

as .92. Past research indicates that it is reliable and valid measure of depression, anxiety and stress among victims of suicide bombing.

3.1.5. Procedure

The study has mainly followed probability data collection technique of purposive sampling. Major data collection was completed in three cities of Pakistan including Sargodha, Lahore and Peshawar. Information regarding that statistics of different suicide bombing incidents and affected individuals was obtained from law enforcement agencies in general and police department in particular. However, in all departments, the officials provided information conditionally by making sure that neither their identities will be disclosed nor data will be used other than research purpose. Even at this stage, most of the officials were scared to share information due to the sensitivity of the issue in general and because of fear factor in particular. After taking addresses of the survivors of suicide bombing, they were approached at their residences. Firstly, they were taken into confidence regarding the purpose of research and the ultimate use of data. Most of the survivors cooperated, some were reluctant at start and few survivors refused to provide the information. Before contacting the participants at their homes, it was ensured that the incident in which they became victims fall within the specified time range which was set as inclusion criteria.

The researcher personally visited all participants and distributed scales. On the time convenience of victims, the researcher requested made it sure to fill out scales in his physical presence instead of dropping the scales at residences. After providing comprehensive account of study objectives, they were given instructions regarding completion of scales. Afterwards, they were requested to sign the informed consent. The researcher remained vigilant during scale completion and whenever participants

faced any confusion or difficulty, the researcher addressed their queries. No incentive was admissible for research participation. About 35 to 45 minutes were taken by participants. The response rate was 84.75% as 300 scales were returned out of 354 distributed scaled.

RESULTS

3.2. Results of Main Study

The main study is carried out to test he moderation models. Initially, descriptive statistics, reliability analysis, normality statistics, and correlation coefficients are computed for all variables. Moreover, hierarchical regression analysis is computed for moderation analysis.

Table 3

Descriptive statistics and alpha coefficients for variables (N = 300)

Variables	*M*	*SD*	α	Range		Skewness	Kurtosis
				Potential	Actual		
Sense of coherence	60.30	15.79	.90	13-78	27-68	-.52	-.18
Resilience	115.92	29.28	.96	33-165	60-153	-.55	-.38
Trait resilience	60.03	16.65	.93	15-75	30-64	-.53	-.27
State resilience	52.88	13.25	.91	18-90	26-73	-.54	-.37
Depression	6.44	5.24	.75	0-21	0-20	.41	-.92
Anxiety	5.52	3.94	.78	0-21	0-17	.68	-.08
Stress	6.25	3.92	.71	0-21	0-16	.42	-.58
PTSD	30.53	10.51	.84	0-45	12-40	.82	-.22

Table 3 reveals descriptive statistics, alpha coefficients, and normality statistics for all variables. Alpha coefficients of all scales and subscales range from .71 to .96, which are greater than .70; therefore, depict that the reliability of the scales

being used in the present study is quite satisfactory, and the scales / subscales can be used for further analyses. Normality statistics show that skewness (.41 to .82) and kurtosis (-.08 to -.92) are less than +1 and -1 for all variables, which are less than 1, and in the desirable range for claiming normality of the data.

Table 4

Pearson correlation among variables (N = 300)

Variables	1	2	3	4	5	6	7	8
1. Sense of coherence	-	.75***	.72***	.74***	-.66***	-.58***	-.57***	-.75***
2. Resilience		-	.98***	.97***	-.84***	-.64***	-.75***	-.82***
3. Trait resilience			-	.92***	-.82***	-.63***	-.72***	-.79***
4. State resilience				-	-.81***	-.63***	-.72***	-.82***
5. Depression					-	.50***	.63***	.74***
6. Anxiety						-	.62***	.65***
7. Stress							-	.67***
8. PTSD								-

***$p < .001$

Table 4 shows correlation coefficients among variables. Results depict that sense of coherence has positive correlation with resilience, trait resilience, and state resilience; as opposed to negative correlation with depression, anxiety, stress, and PTSD. Resilience has positive correlation with trait resilience and state resilience; as opposed to negative correlation with depression, anxiety, stress, and PTSD. Trait resilience has positive correlation with state resilience; and, negative correlation with depression, anxiety, stress, and PTSD. State resilience has negative correlation with depression, anxiety, stress and PTSD. Depression has positive correlation with anxiety, stress and, PTSD. Anxiety has positive correlation with stress and PTSD. Stress has positive correlation with PTSD. Magnitude of all correlation coefficients

ranged from .57 to .98, which indicates moderate to high correlations, and the directions among variables are theoretically and empirically desirable.

Table 5

Hierarchical regression showing moderating effect of resilience between sense of coherence and depression (N = 300)

	Outcome: Depression		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	16.27***	22.80***	[17.07, 28.54]
Sense of coherence	-.05**	-.17**	[-.28, -.07]
Resilience	-.06***	-.13***	[-.19, -.07]
Sense of coherence x resilience		.01*	[.01, .02]
R^2	.43	.44	
F	113.79***	78.76***	
ΔR^2	.01		
ΔF	5.36*		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 5 shows moderation of resilience between sense of coherence and depression in victims of suicide bombing. The R^2 value of .43 in Model 1 shows that 43% variance in depression is explained by predictors with F (2, 297) = 113.79, $p <$ .001. The R^2 value of .44 in Model 2 shows that 44% variance in depression is explained by predictors with F (3, 296) = 78.76, $p < .001$ by an additional effect of

1%. Findings depict that sense of coherence ($\beta = -.71$, $p < .01$), resilience ($\beta = -.95$, $p < .001$) and sense of coherence x resilience ($\beta = .90$, $p < .05$) has significant effect on depression. Therefore, the interactive effect of sense of coherence and resilience is confirmed through the findings.

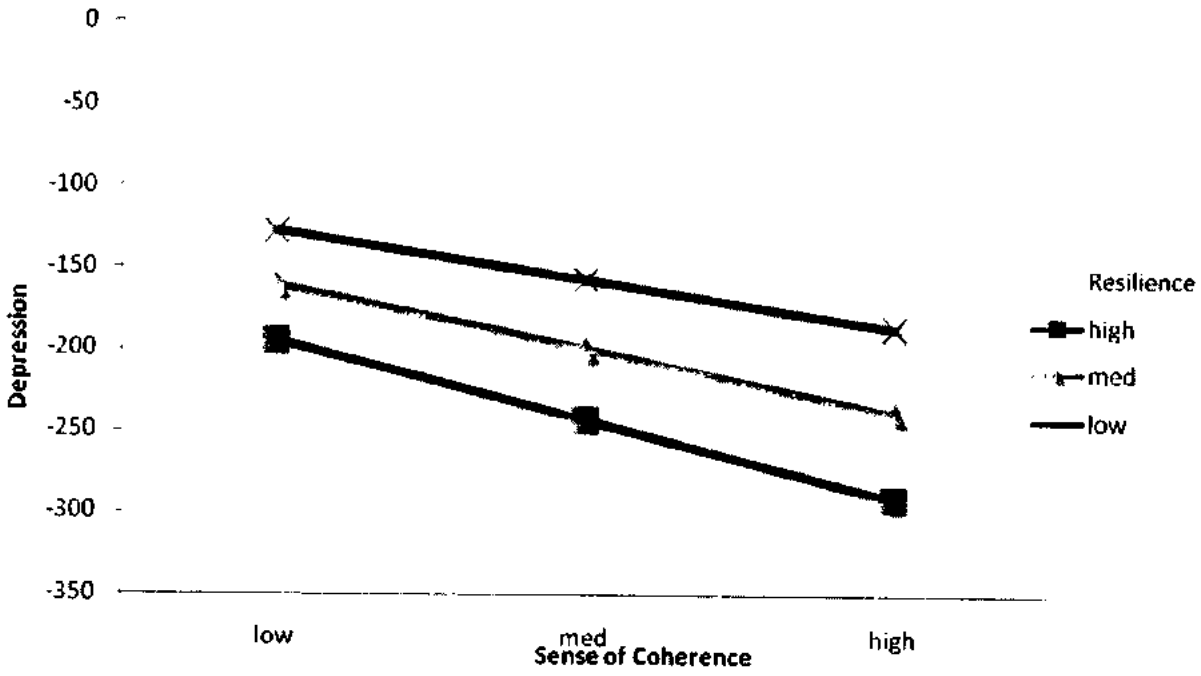

Figure 2. Mod-Graph showing moderating effect of resilience between sense of coherence and depression

The inverse effect of two interactive variables, including independent variable and moderator variable on the dependent variable with sufficient level, is confirmed through the Mod-Graph.

Table 6

Hierarchical regression showing moderating effect of resilience between sense of coherence and anxiety (N = 300)

	Outcome: Anxiety		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	16.26***	21.86***	[16.18, 27.53]
Sense of coherence	-.06***	-.16**	[-.27, -.05]
Resilience	-.13***	-.25***	[-.37, -.13]
Sense of coherence x resilience		.02*	[.00, .04]
R^2	.42	.43	
F	109.83***	75.31***	
ΔR^2	.01		
ΔF	4.03*		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 6 shows moderation of resilience between sense of coherence and anxiety in victims of suicide bombing. The R^2 value of .42 in Model 1 shows that 42% variance in anxiety is explained by predictors with F (2, 297) = 109.83, $p < .001$. The R^2 value of .43 in Model 2 shows that 43% variance in anxiety is explained by predictors with F (3, 296) = 75.31, $p < .001$ by an additional effect of 1%. Findings

depict that sense of coherence (β = -.66, p < .01), resilience (β = -.85, p < .001) and sense of coherence x resilience (β = .77, p < .05) has significant effect on anxiety. Therefore the interactive effect of sense of coherence and resilience is confirmed through the findings.

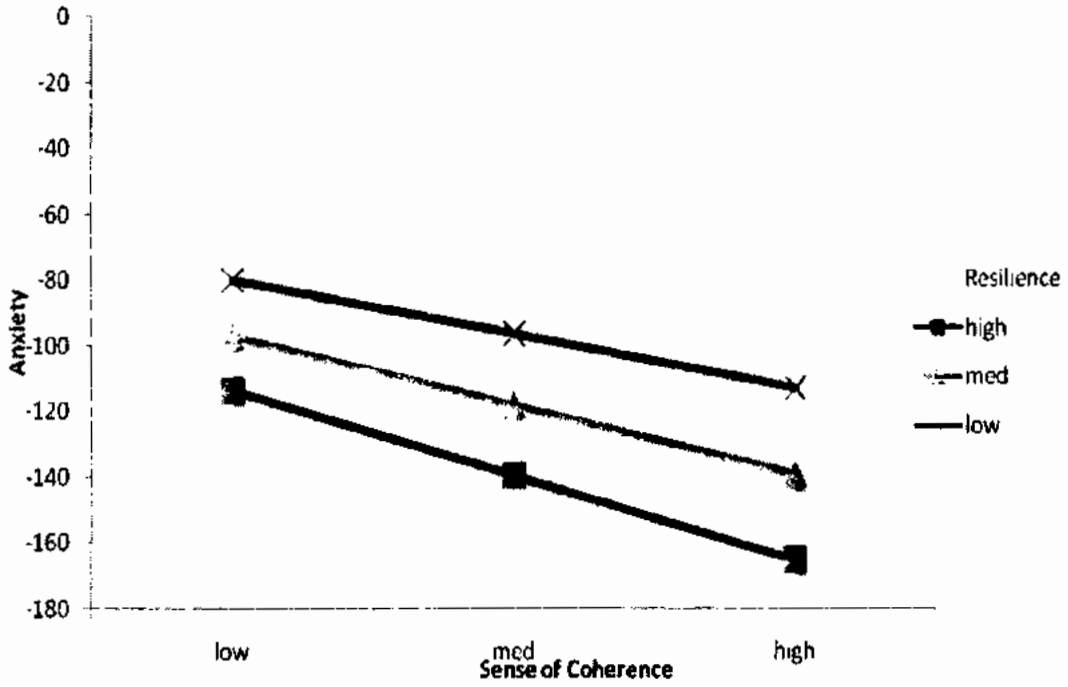

Figure 3. Mod-Graph showing moderating effect of resilience between sense of coherence and anxiety

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 7

Hierarchical regression showing moderating effect of resilience between sense of coherence and stress (N = 300)

	Outcome: Stress		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	43.11***	43.08***	[38.93, 47.23]
Sense of coherence	-.30***	-.46***	[-.16, -.18]
Resilience	-.87***	-.36***	[-.14, -.59]
Sense of coherence x resilience		.03***	[.03, .02]
R^2	.66	.70	
F	292.76***	238.23***	
ΔR^2	.04		
ΔF	44.13***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 7 shows moderation of resilience between sense of coherence and stress in victims of suicide bombing. The R^2 value of .66 in Model 1 shows that 66% variance in stress is explained by predictors with $F(2, 297) = 292.76$, $p < .001$. The R^2 value of .70 in Model 2 shows that 70% variance in stress is explained by predictors with $F(3, 296) = 238.23$, $p < .001$ by an additional effect of 4%. Findings depict that

sense of coherence (β = -.42, p < .001), resilience (β = -.18, p < .001) and sense of coherence x resilience (β = .76, p < .001) has significant effect on stress. Therefore the interactive effect of sense of coherence and resilience is confirmed through the findings.

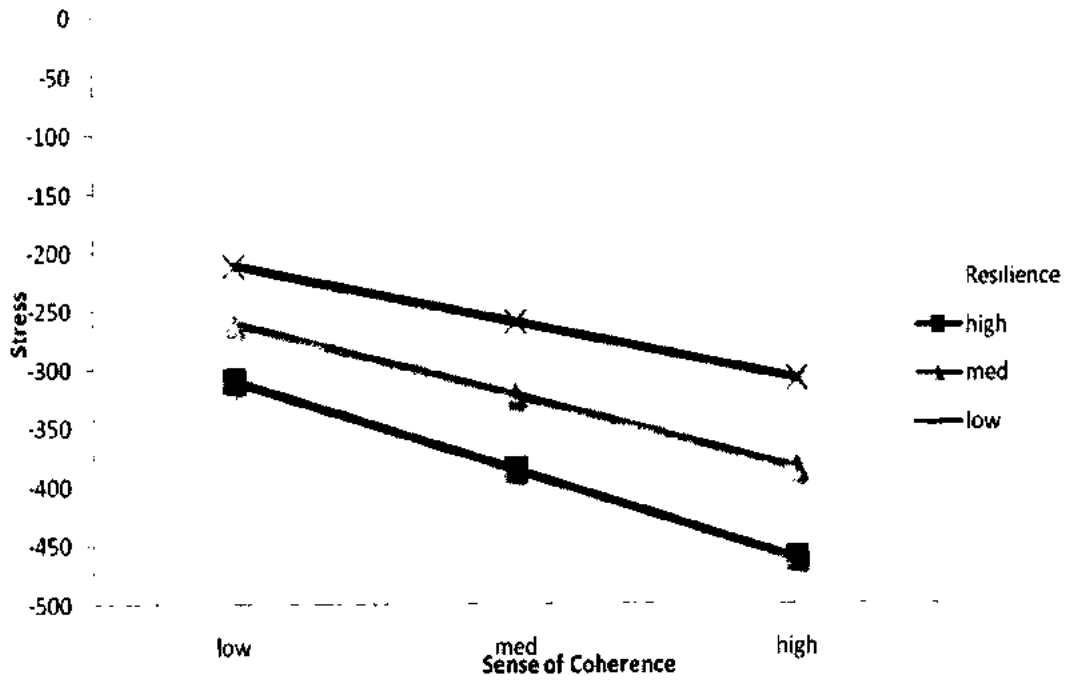

*Figure 4.*Mod-Graph showing moderating effect of resilience between sense of coherence and stress

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 8

Hierarchical regression showing moderating effect of resilience between sense of coherence and PTSD (N = 300)

	Outcome: PTSD		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	8.62***	5.94***	[4.08, 7.80]
Sense of coherence	-.07***	-.12***	[-.07, -.17]
Resilience	-.43***	-.29***	[-.19, -.39]
Sense of coherence x resilience		.01***	[.01, .01]
R^2	.45	.56	
F	122.95***	127.67***	
ΔR^2	.11		
ΔF	75.34***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 8 shows moderation of resilience between sense of coherence and PTSD in victims of suicide bombing. The R^2 value of .45 in Model 1 shows that 45% variance in PTSD is explained by predictors with F (2, 297) = 122.95, $p < .001$. The R^2 value of .56 in Model 2 shows that 56% variance in PTSD is explained by predictors with F (3, 296) = 127.67, $p < .001$ by an additional effect of 11%. Findings

depict that sense of coherence (β = -.49, $p < .001$), resilience (β = -.30, $p < .001$) and sense of coherence x resilience (β = .96, $p < .001$) has significant effect on PTSD. Therefore, the interactive effect of sense of coherence and resilience is confirmed through the findings.

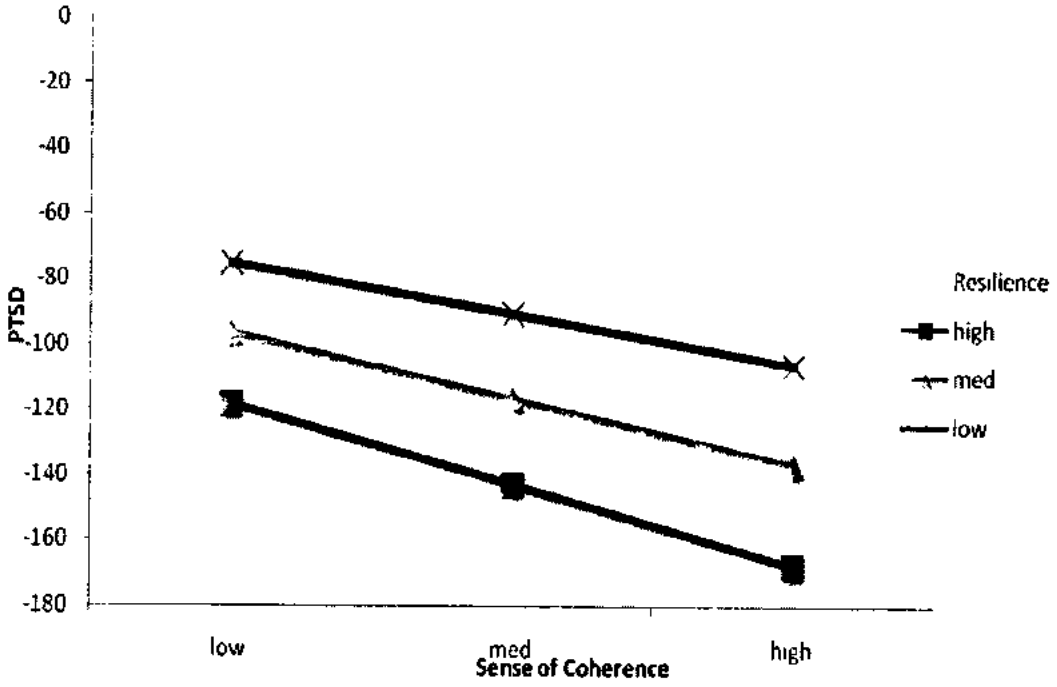

*Figure 5.*Mod-Graph showing moderating effect of resilience between sense of coherence and PTSD

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 9

Hierarchical regression showing moderating effect of trait resilience between sense of coherence and depression (N = 300)

	Outcome: Depression			
		Model 2		
			95%CI	
Predictors	Model 1 *B*		*B*	*LL, UL*
(constant)	16.52***		11.26***	[9.18, 19.15]
Sense of coherence	-.18***		-.20***	[-.14, -.26]
Trait resilience	-.22***		-.15***	[-.16, -.17]
Sense of coherence x trait resilience			.02***	[.03, .02]
R^2	.45		.69	
F	124.85***		225.58***	
ΔR^2		.23		
ΔF		232.47***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 9 shows moderation of trait resilience between sense of coherence and depression in victims of suicide bombing. The R^2 value of .45 in Model 1 shows that 45% variance in depression is explained by predictors with F (2, 297) = 124.85, $p <$ .001. The R^2 value of .69 in Model 2 shows that 69% variance in depression is

explained by predictors with F (3, 296) = 225.58, p < .001 by an additional effect of 23%. Findings depict that sense of coherence (β = -.62, p < .001), trait resilience (β = -.12, p < .001) and sense of coherence x trait resilience (β = 1.40, p < .001) has significant effect on depression. Therefore, the interactive effect of sense of coherence and trait resilience is confirmed through the findings.

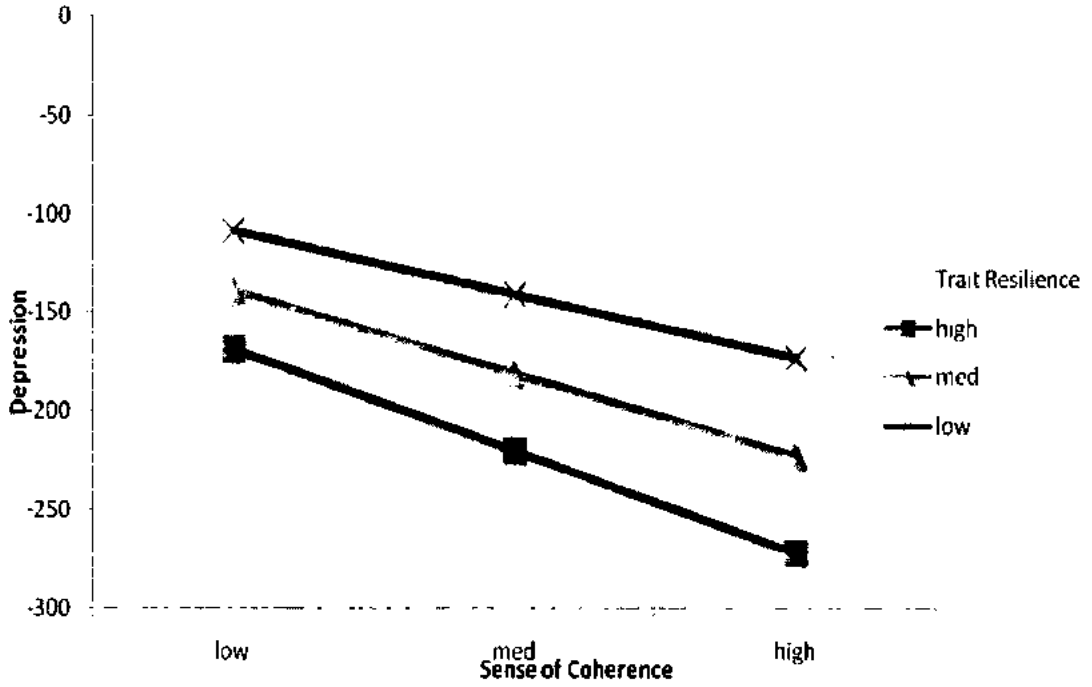

Figure 6. Mod-Graph showing moderating effect of trait resilience between sense of coherence and depression

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 10

Hierarchical regression showing moderating effect of trait resilience between sense of coherence and anxiety (N = 300)

	Outcome: Anxiety		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	8.20***	8.36***	[6.35, 10.37]
Sense of coherence	-.26***	-.18**	[-.02, -.14]
Trait resilience	-.33***	-.11*	[[-.04, -.22]
Sense of coherence x trait resilience		.02***	[.03, 01]
R^2	.44	.50	
F	116.41***	101.32***	
ΔR^2	.06		
ΔF	40.25***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 10 shows moderation of trait resilience between sense of coherence and anxiety in victims of suicide bombing. The R^2 value of .44 in Model 1 shows that 44% variance in anxiety is explained by predictors with F (2, 297) = 116.41, $p < .001$. The R^2 value of .50 in Model 2 shows that 50% variance in anxiety is explained by predictors with F (3, 296) = 101.32, $p < .001$ by an additional effect of 6%. Findings depict that sense of coherence (β = -.33, $p < .01$), trait resilience (β = -.14, $p < .05$)

and sense of coherence x trait resilience ($\beta = .88$, $p < .001$) has significant effect on anxiety. Therefore the interactive effect of sense of coherence and trait resilience is confirmed through the findings.

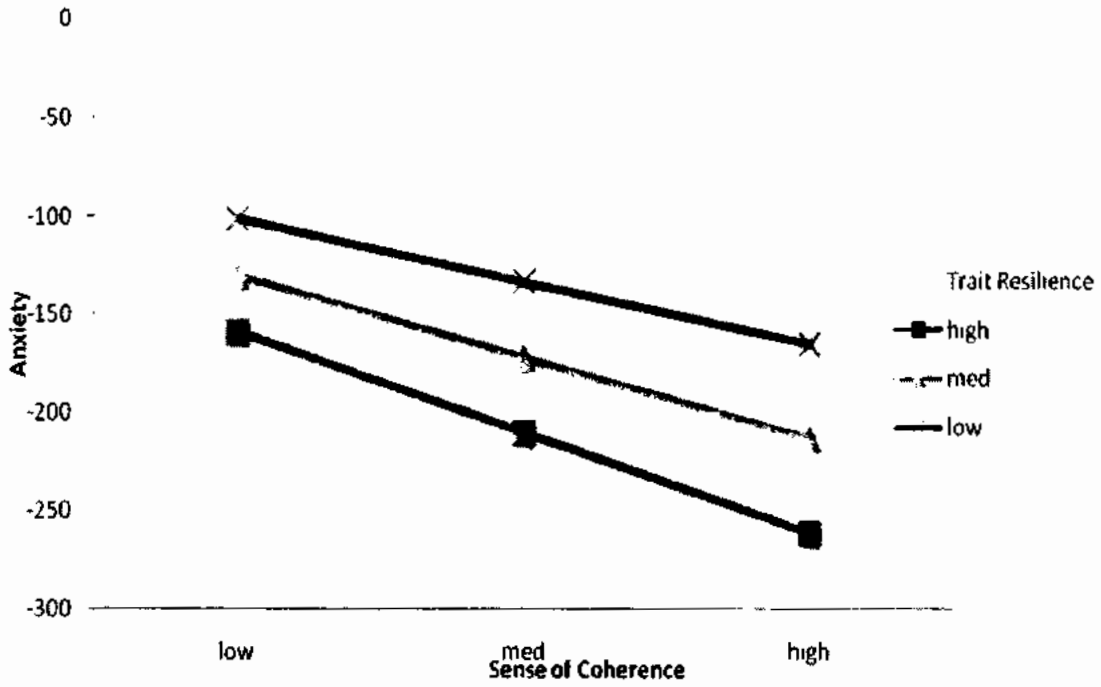

*Figure 7.*Mod-Graph showing moderating effect of trait resilience between sense of coherence and anxiety

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 11

Hierarchical regression showing moderating effect of trait resilience between sense of coherence and stress (N = 300)

	Outcome: Stress		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	12.22***	10.24***	[8.17, 12.31]
Sense of coherence	-.14***	-.15***	[-.09, -.20]
Trait resilience	-.50***	-.13*	[-.04. -.24]
Sense of coherence x trait resilience		.03***	[.04, .03]
R^2	.53	.68	
F	167.65***	213.46***	
ΔR^2	.15		
ΔF	143.53***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 11 shows moderation of trait resilience between sense of coherence and stress in victims of suicide bombing. The R^2 value of .53 in Model 1 shows that 53% variance in stress is explained by predictors with F (2, 297) = 167.65, $p < .001$. The R^2 value of .68 in Model 2 shows that 68% variance in stress is explained by predictors with F (3, 296) = 213.53, $p < .001$ by an additional effect of 15%. Findings depict that

sense of coherence (β = -.45, p < .001), trait resilience (β = -.09, p < .05) and sense of coherence x trait resilience (β = 1.16, p < .001) has significant effect on stress. Therefore the interactive effect of sense of coherence and trait resilience is confirmed through the findings.

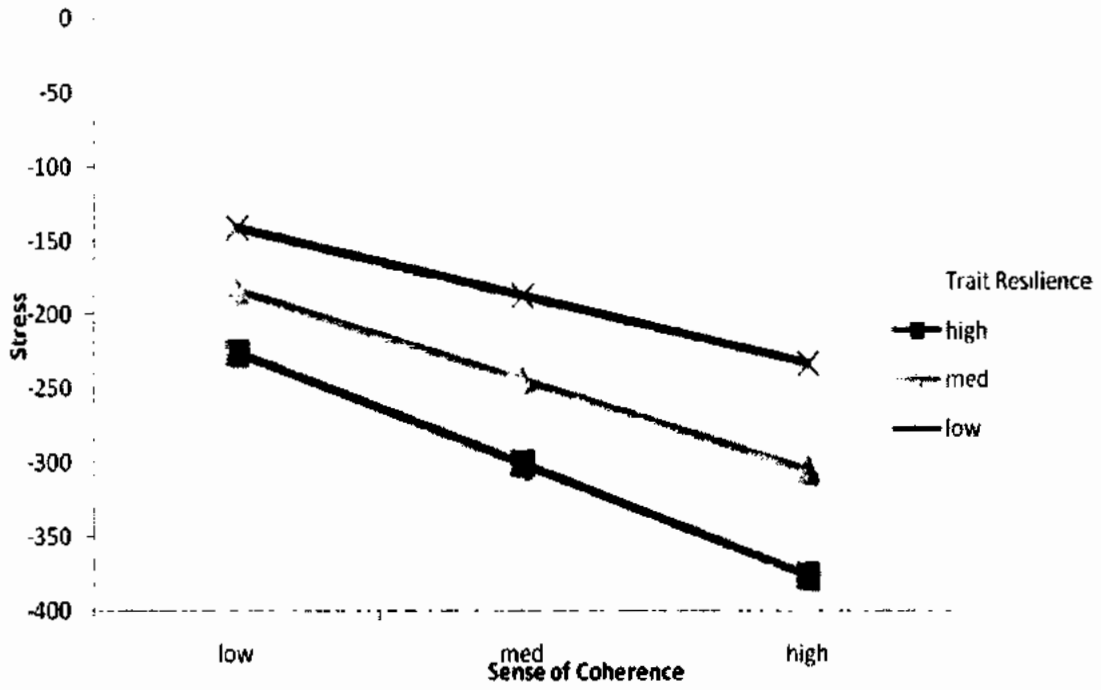

Figure 8. Mod-Graph showing moderating effect of trait resilience between sense of coherence and stress

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 12

Hierarchical regression showing moderating effect of trait resilience between sense of coherence and PTSD (N = 300)

	Outcome: PTSD		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	7.79***	7.45***	[5.43, 9.47]
Sense of coherence	-.08***	-.13**	[-.08, -.12]
Trait resilience	-.43***	-.37***	[-.25, -.48
Sense of coherence x trait resilience		-.01*	[.01, .02]
R^2	.45	.46	
F	125.78***	86.20***	
ΔR^2	.01		
ΔF	4.26*		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 12 shows moderation of trait resilience between sense of coherence and PTSD in victims of suicide bombing. The R^2 value of .45 in Model 1 shows that 45% variance in PTSD is explained by predictors with F (2, 297) = 125.78, $p < .001$. The R^2 value of .46 in Model 2 shows that 56% variance in PTSD is explained by predictors with F (3, 296) = 86.20, $p < .001$ by an additional effect of 1%. Findings depict that sense of coherence ($\beta = -.14$, $p < .001$), trait resilience ($\beta = -.37$, $p < .001$)

and sense of coherence x trait resilience ($\beta = .26$, $p < .001$) has significant effect on PTSD. Therefore the interactive effect of sense of coherence and trait resilience is confirmed through the findings.

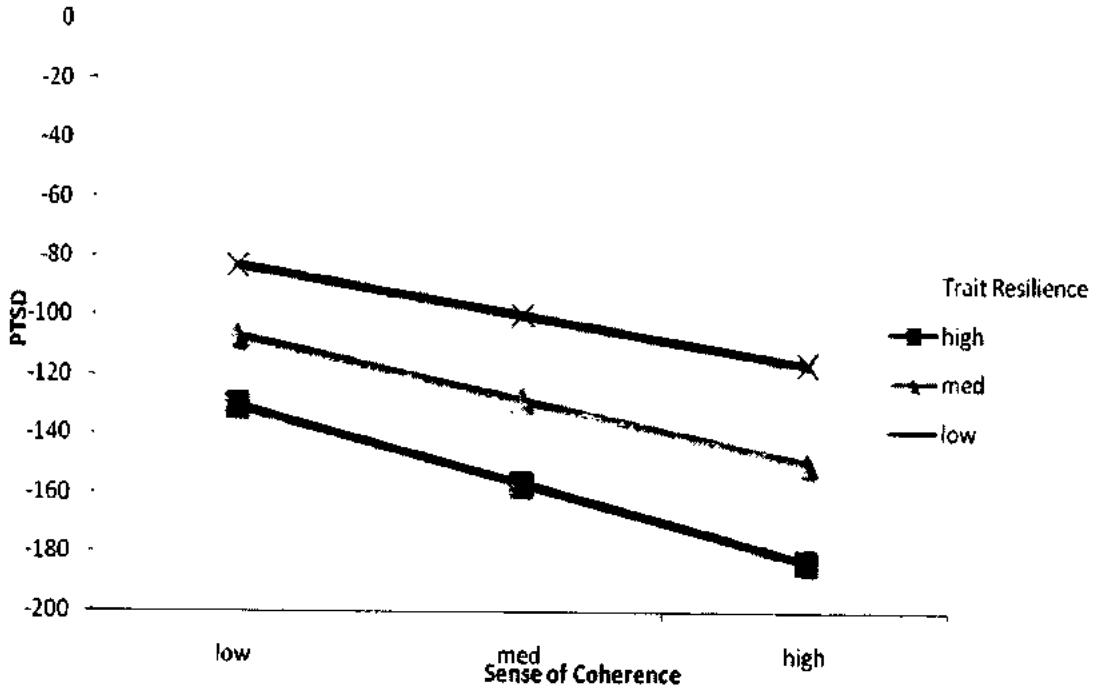

Figure 9. Mod-Graph showing moderating effect of trait resilience between sense of coherence and PTSD

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 13

Hierarchical regression showing moderating effect of state resilience between sense of coherence and depression (N = 300)

	Outcome: Depression		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	45.77***	42.528***	[38.53,45.52]
Sense of coherence	-.35***	-.27***	[-.54, -.18]
State Resilience	-.98***	-.50***	[-.27, -.73]
Sense of coherence x state resilience		-.06***	[.07, .04]
R^2	.64	.71	
F	268.56***	242.78***	
ΔR^2	.07		
ΔF	68.58***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 13 shows moderation of state resilience between sense of coherence and depression in victims of suicide bombing. The R^2 value of .64 in Model 1 shows that 64% variance in depression is explained by predictors with F (2, 297) = 268.56, $p <$ .001. The R^2 value of .71 in Model 2 shows that 71% variance in depression is explained by predictors with F (3, 296) = 242.78, $p < .001$ by an additional effect of 7%. Findings depict that sense of coherence ($\beta = -.17$, $p < .001$), state resilience (β = -

.18, $p < .001$) and sense of coherence x state resilience ($\beta = 80$, $p < .001$) has significant effect on depression. Therefore, the interactive effect of sense of coherence and state resilience is confirmed through the findings.

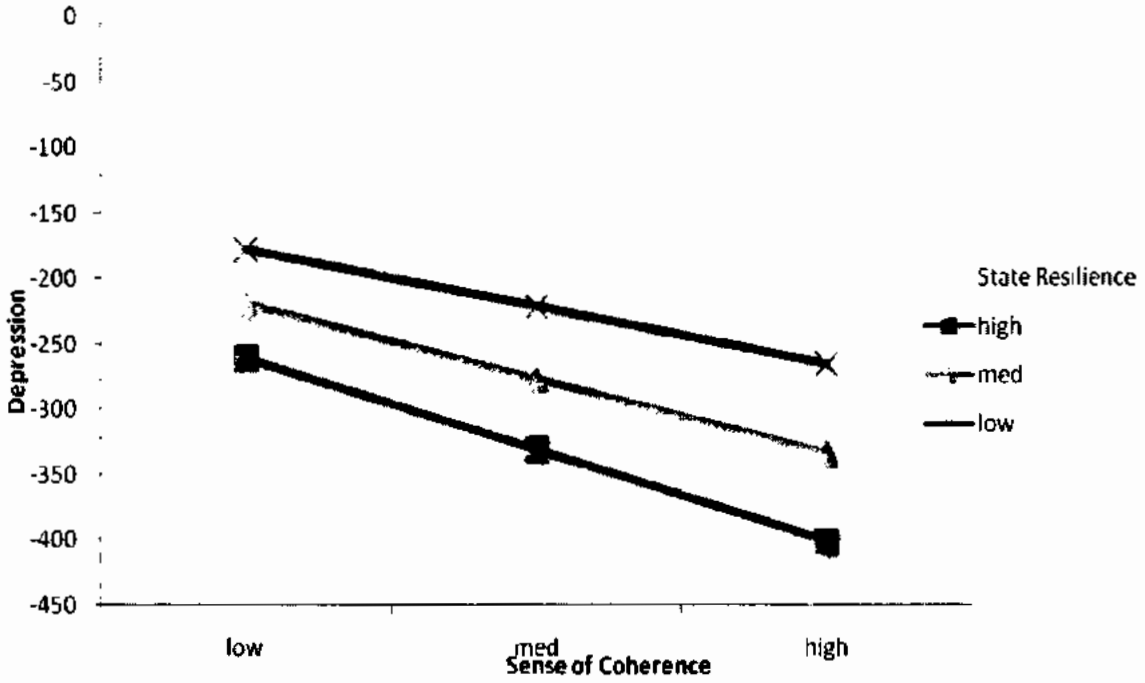

*Figure 10.*Mod-Graph showing moderating effect of state resilience between sense of coherence and depression

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 14

Hierarchical regression showing moderating effect of state resilience between sense of coherence and anxiety (N = 300)

	Outcome: Anxiety		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	51.72***	49.91***	[40.14,38.45]
Sense of coherence	-.37***	-.48***	[-.28, -.23]
State Resilience	-.91***	-.40***	[-.20, -.42]
Sense of coherence x state resilience		.04***	[.04, .03]
R^2	.72	.64	
F	269.51***	251.64***	
ΔR^2	.08		
ΔF	53.71***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 14 shows moderation of state resilience between sense of coherence and anxiety in victims of suicide bombing. The R^2 value of .72 in Model 1 shows that 72% variance in anxiety is explained by predictors with F (2, 297) = 269.51, $p < .001$. The R^2 value of .50 in Model 2 shows that 50% variance in anxiety is explained by predictors with F (3, 296) = 251.64, $p < .001$ by an additional effect of 8%. Findings

depict that sense of coherence (β = -.44, $p < .01$), state resilience (β = -.27, $p < .05$) and sense of coherence x state resilience (β = .91, $p < .001$) has significant effect on anxiety. Therefore the interactive effect of sense of coherence and state resilience is confirmed through the findings.

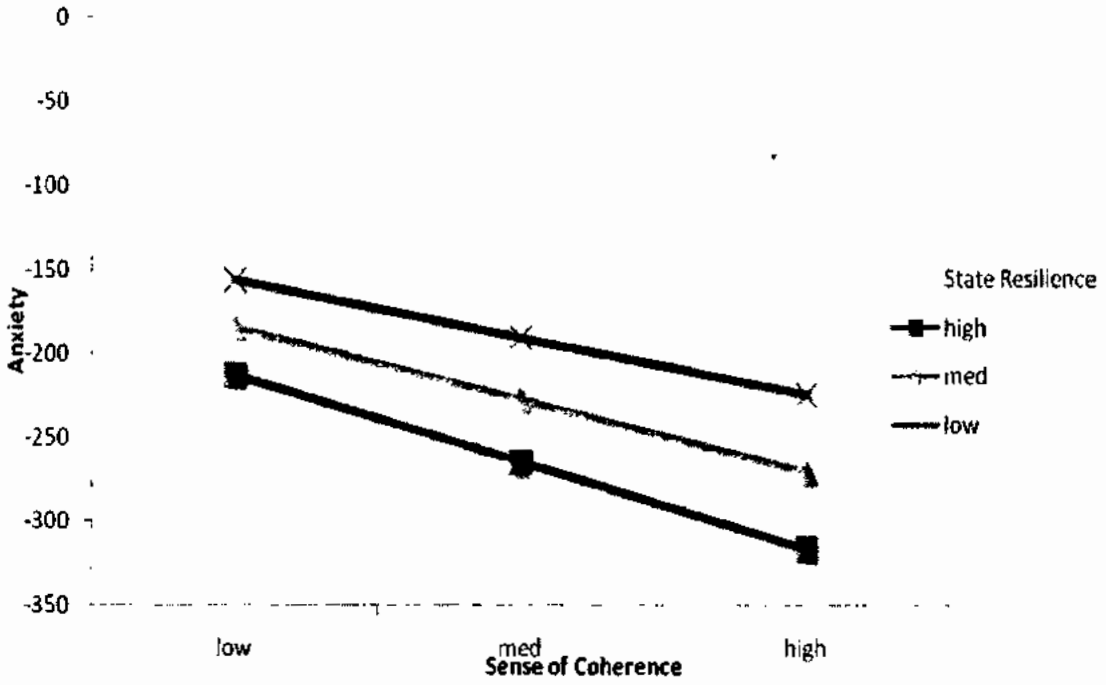

*Figure 11.*Mod-Graph showing moderating effect of state resilience between sense of coherence and anxiety

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 15

Hierarchical regression showing moderating effect of state resilience between sense of coherence and stress (N = 300)

	Outcome: Stress		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	10.94***	9.45***	[9.47,8.55]
Sense of coherence	-.11***	-.15***	[-.12, -.19]
State Resilience	-.50***	-.34***	[-.27, -.41]
Sense of coherence x state resilience		.05***	[.04, .07]
R^2	.32	.51	
F	154.09***	142.61***	
ΔR^2	.19		
ΔF	71.83***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 15 shows moderation of state resilience between sense of coherence and stress in victims of suicide bombing. The R^2 value of .32 in Model 1 shows that 32% variance in stress is explained by predictors with F (2, 297) = 154.09, $p < .001$. The R^2 value of .51 in Model 2 shows that 51% variance in stress is explained by predictors with F (3, 296) = 142.61, $p < .001$ by an additional effect of 15%. Findings depict that

sense of coherence (β = -.49, p < .001), state resilience (β = -.12, p < .05) and sense of coherence x state resilience (β = .79, p < .001) has significant effect on stress. Therefore, the interactive effect of sense of coherence and state resilience is confirmed through the findings.

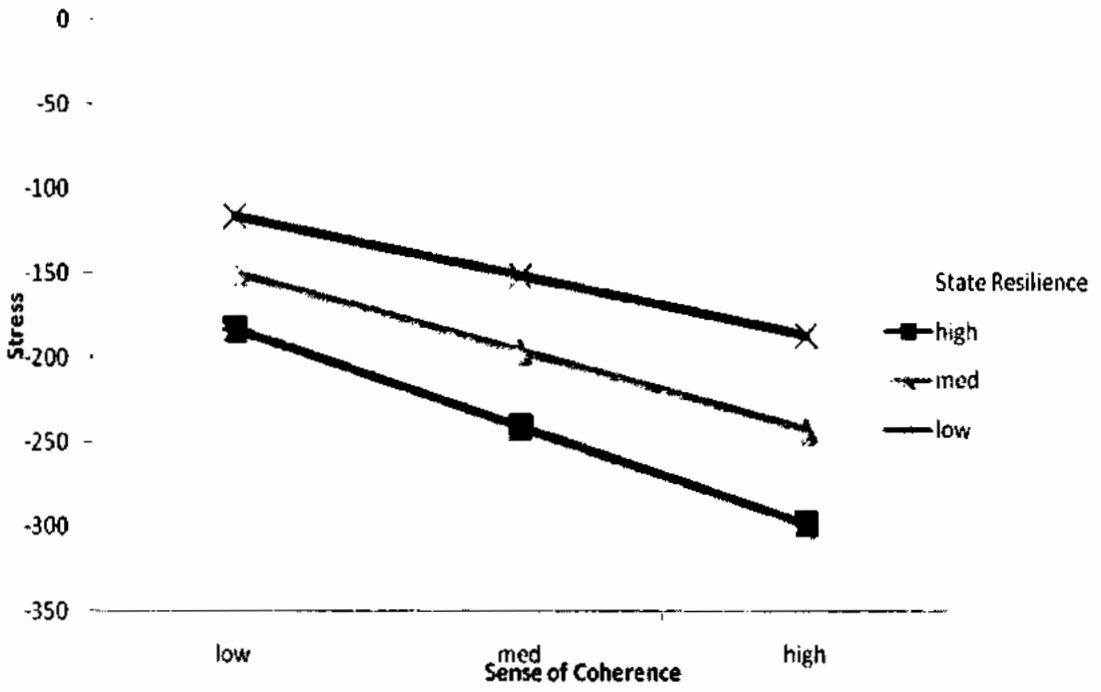

Figure 12. Mod-Graph showing moderating effect of state resilience between sense of coherence and stress

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Table 16

Hierarchical regression showing moderating effect of state resilience between sense of coherence and PTSD (N = 300)

	Outcome: PTSD		
		Model 2	
			95%CI
Predictors	Model 1 *B*	*B*	*LL, UL*
(constant)	15.79***	13.21***	[11.32,14.31]
Sense of coherence	-.20***	-.19***	[-.18, -.28]
State Resilience	-.56***	-.16*	[-.13. -.26]
Sense of coherence x state resilience		.05***	[.04, .07]
R^2	.49	.58	
F	162.21***	201.55***	
ΔR^2	.09		
ΔF	176.42***		

Note. *B* = Unstandardized regression coefficients; *CI* = Confidence intervals; *LL* = Lower limits; *UL* = Upper limits
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 16 shows moderation of state resilience between sense of coherence and PTSD in victims of suicide bombing. The R^2 value of .49 in Model 1 shows that 49% variance in PTSD is explained by predictors with F (2, 297) = 162.21, $p < .001$. The R^2 value of .58 in Model 2 shows that 58% variance in PTSD is explained by predictors with F (3, 296) = 176.42, $p < .001$ by an additional effect of 9%. Findings depict that sense of coherence ($\beta = -.17$, $p < .001$), state resilience ($\beta = -.39$, $p < .001$)

and sense of coherence x state resilience ($\beta = .28$, $p < .001$) has significant effect on PTSD. Therefore, the interactive effect of sense of coherence and state resilience is confirmed through the findings.

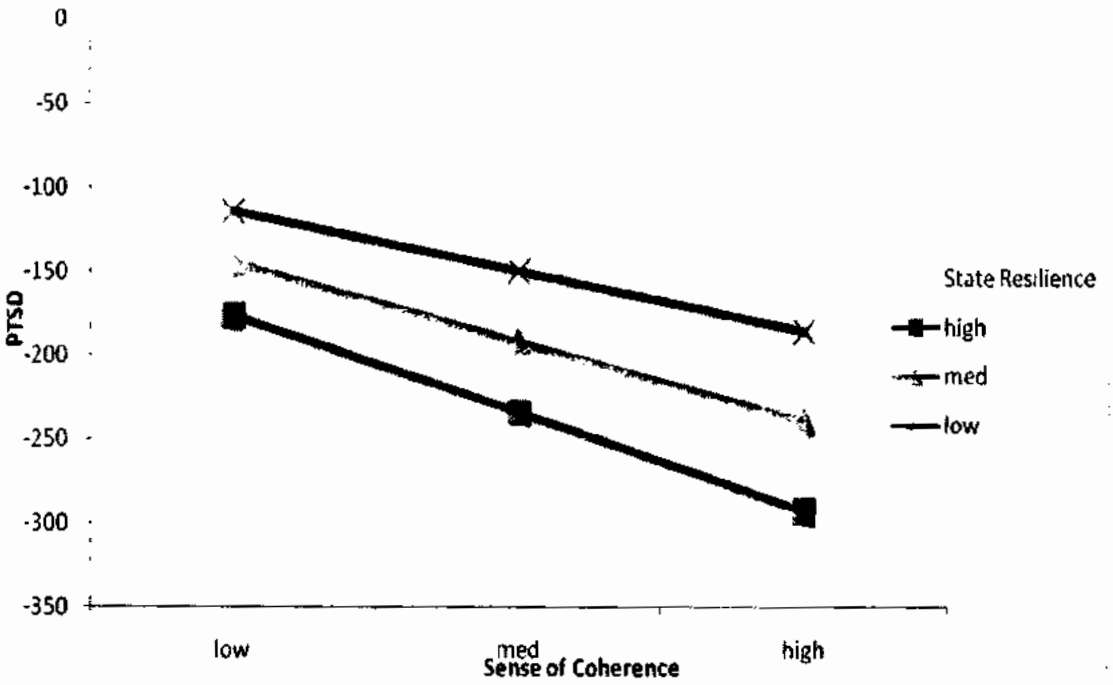

Figure 13. Mod-Graph showing moderating effect of state resilience between sense of coherence and PTSD

The inverse effect of two interactive variables including independent variable and moderator variable on the dependent variable with sufficient level is confirmed through the Mod-Graph.

Summary of Results

Table 17

Hierarchical regression showing moderating effect of resilience (including trait-state) between sense of coherence and outcomes

	Outcome: Depression			Outcome: Anxiety			Outcome: Stress			Outcome: PTSD		
			95%CI			95%CI			95%CI			95%CI
Predictors	Model 1 *B*	Model 2 *B*	*LL, UL*	Model 1 *B*	Model 2 *B*	*LL, UL*	Model 1 *B*	Model 2 *B*	*LL, UL*	Model 1 *B*	Model 2 *B*	*LL, UL*
(constant)	16 27***	22.80***	[17.07, 28 54]	16.26***	21.86***	[16.18, 27.53]	43 11***	43.08***	[38 93, 47.23]	8.62***	5.94***	[4 08, 7.80]
SOC	- 05**	-.17**	[-.28, -.07]	-.06***	-.16**	[-.27, - 05]	-.30***	-.46***	[-.16, -.18]	-.07***	-.12***	[-.07, -.17]
R	- 06***	-.13***	[-.19, -.07]	-.13***	-.25***	[-.37, -.13]	-.87***	-.36***	[-.14, -.59]	-.43***	-.29***	[-.19, -.39]
SOC X R		.01*	[.01, .02]		.02*	[.00, .04]		.03***	[.03, .02]		.01***	[.01, .01]
R^2	43	.44		.42	.43		.66	.70		45	56	
F	113.79***	78.76***		109 83***	75.31***		292.76***	238.23***		122.95***	127.67***	
ΔR^2		01			.01			.04			.11	
ΔF		5 36*			4.03*			44.13***			75.34***	
(constant)	16.52***	11.26***	[9.18, 19 15]	8.20***	8.36***	[6.35, 10 37]	12.22***	10.24***	[8.17, 12.31]	7.79***	7.45***	[5.43, 9.47]
SOC	-.18***	- 20***	[-.14, -.26]	- 26***	- 18**	[-.02, -.14]	-.14***	-.15***	[-.09, -.20]	-.08***	-.13**	[-.08, -.12]
TR	-.22***	- 15***	[- 16, -.17]	-.33***	-.11*	[-.04, -.22]	-.50***	-.13*	[-.04. -.24]	-.43***	-.37***	[-.25, -.48
SOC X TR		02***	[.03, 02]		.02***	[.03, 01]		.03***	[04, 03]		-.01*	[.01, .02]

R^2	.45	.69		.44	.50		.53	.68		.45	.46	
F	124.85***	225 58***		116.41***	101.32***		167.65***	213.46***		125.78***	86.20***	
ΔR^2		23			.06			.15			.01	
ΔF		232 47***			40.25***			143.53***			4.26*	
(constant)	45 77***	42.528***	[38.53,45.52]	51.72***	49 91***	[40 14,38.45]	10.94***	9.45***	[9.47,8.55]	15.79***	13 21***	[11.32,14.31]
SOC	-.35***	- 27***	[- 54, -.18]	-.37***	-.48***	[-.28, -.23]	-.11***	-.15***	[-.12, -.19]	-.20***	-.19***	[-.18, -.28]
SR	-.98***	- 50***	[- 27, -.73]	- 91***	-.40***	[-.20, -.42]	-.50***	-.34***	[-.27, -.41]	-.56***	-.16*	[- 13. -.26]
SOC X SR		- 06***	[07, .04]		.04***	[.04, .03]		.05***	[.04, .07]		.05***	[.04, .07]
R^2	.64	71		.72	.64		.32	.51		.49	.58	
F	268 56***	242.78***		269.51***	251.64***		154.09***	142.61***		162.21***	201.55***	
ΔR^2		07			.08			.19			.09	
ΔF		68.58***			53.71***			71.83***			176.42***	

Note. SOC = Sense of coherence; R = Resilience; TR = Trait resilience; SR = State resilience

DISCUSSION

Chapter-VI

3.3. Discussion

The present study sought to study the role of resilience as moderator between a sense of coherence and health-related consequences among survivors of suicide bombing. Contrary to the past research, which focused on resilience as core factors, playing its role as a buffer for post-traumatic consequences, the present study is grounded in the more elaborated role of trait specific and state specific resilience. Thus, the present study has investigated the moderating role of trait and state resilience between sense of coherence and its consequences among survivors of suicide bombing in Pakistan. To achieve these objectives, three hundred survivors of suicide bombing were targeted from different areas of Pakistan. Four self-report scales were administered on the participants for collecting information for the constructs under investigation: Sense of Coherence Scale (Antanovosky, 2005); Trait-State Resilience Inventory (Hiew, 2003); Depression Anxiety Stress Scale (Lovibond & Lovibond1995); and Impact of Events Scale (Horovitz et al., 1989).

After collecting the data through questionnaires, the obtained information was logged into SPSS-22 for analysis. Initially, descriptive statics of variables described important trends in the data. Afterwards, the normality was ensured through computing the values of skewness and kurtosis. The symmetrical bell-shaped normal distribution deviates from the normal in two ways including lack of symmetry and pointiness—also known as skewness and kurtosis respectively. In the skewed distribution, the scores cluster either on the right tail (positively skewed) or on the left tail (negatively skewed) of the curve (Cisar&Cisar, 2010). Similarly, the normal curve is neither leptokurtic (having more scores in the center) nor platykurtic (having more

scores on the tails) (Cisar&Cisar, 2010; Field, 2005). As recommended by statisticians, the skewness and kurtosis values for variables were less than 1, which is desirable to infer that data is normally distributed in terms of symmetry and pointiness (Miles & Shevlin, 2001).

Besides normality, the trustworthiness of the scales was also put on test by conducting reliability analysis. The alpha coefficients for the scales measuring different constructs were greater than .70 ensuring the consistency of results or scores for all variables (Kline, 1999). Reliability examinations were followed by validity analysis. To serve this purpose, construct validity was examined by computing the correlation matrix for the study variables. The correlation coefficients were in the theoretically anticipated directions. Sense of coherence and resilience had negatively associated with health consequences. As per past research, sense of coherence was inversely linked with psychological disorders like PTSD (Griffiths, 2008; Holmberg, Thelin, &Stiernstrom, 2004), and negatively correlated with depression (Richardson & Ratner, 2005; Fok, Chair, & Lopez, 2005), anxiety (Anwar, 2014) and stress (Rashid, 2015; Eriksson & Lindstrom, 2005) of the victims of suicide bombing. Similarly, resilience, trait-specific resilience and state-specific resilience was inversely correlated with PTSD (Riaz et al., 2015a), depression, anxiety and stress (Riaz, 2014) among the participants who survived from the suicide attacks but sustained severe injuries.

Both sense of coherence and resilience were found to be inversely correlated with negative mental health consequences. In health-disease, care-cure and prevention-intervention continuum, sense of coherence focuses on health, care and prevention, which ensures long-ranged strategic health gains (Antonovsky, 1979, 1987). Resilience and its domains were also found to be inversely correlated with

negative outcomes, which confirm its role as a buffer in the time of stressful experiences (Hiew, 2003). The normality, reliability, and validity examinations provided grounds to take evidence based decision for drawing inferences because these scales measuring constructs of the study. Thus, mainly moderation was computed through hierarchical regression analysis. The hypotheses were tested independently. The findings were the same as anticipated through existing body of empirical knowledge.

The first anticipation that resilience is likely to moderate the relationship between a sense of coherence and PTSD was supported in this empirical inquiry. The theory of sense of coherence is autobiographical in nature and stems itself from the experiences of Antonovasky (2007) who introduced this concept to explain the trauma-exposed victims' ability to recover from the adverse effects of trauma. Thus, a sense of coherence is a resilient factor, which offers assets for recovery from traumatic situations in life (Antonovsky, 1979). Just like the role of sense of coherence in countering effects of traumatic incidents, resilience offers trait and state specific capacities to work as shield against the damaging effects of trauma (Antonovsky, 1987). Numerous empirical inquiries have reported consistent findings in terms of the role of resilience in predicting PTSD inversely (Aslam, 2007; Lipkus et al., 1996).

The interactive effect of these two stress-buffering factors i.e. sense of coherence and resilience proved that along with sense of coherence, resilience buffers PTSD among survivors of suicide bombing. The existing research confirmed that resilience buffers the PTSD among survivors of man-made disaster, including survivors of suicide bombing (Bonanno et al., 2002; Fredrickson, Tugade, Waugh, & Larkin, 2003). In the present study, besides overall resilience, trait and state resilience

also moderated between sense of coherence and PTSD. This indicates that, after and above sense of coherence, the trauma recovery factors—either inbuilt in the personality of victims or emerged from the situational demands to respond trauma—are equally effective in helping survivors reducing their symptoms of PTSD.

According to Almedom, salutogenesis theory also proved that the sense of coherence and trait and state resilience are the core concepts for clinicians in treating the trauma victims. These two core concepts are more practical value in clinical settings as compared to any other human trait. Sense of coherence alone makes a difference in treating the survivors of suicide bombing with PTSD, but it makes a huge difference when the trait and state resilience is present. It concluded that survivors of missile attacks faced more severe psychological outcomes: stress, anxiety, depression, and PTSD; and. sense of coherence and resilience play a protective role in this regard.

Besides predicting PTSD, the hypotheses anticipating that resilience and its domains will moderate between sense of coherence and its health-related consequences including depression, anxiety and stress were also supported in current inquiry. The construct of sense of coherence has remained effective for both clinical and non-clinical populations (Antonovsky, 2011). Empirical studies (Riaz, 2015; Shaheen, 2016) confirmed that sense of coherence consistently negatively predicted depression in diverse samples including clinical and non-clinical samples. In this regard, the case of resilience is also alike sense of coherence. Continuously, resilience proved itself as a superlative negative predictor of depression in non-clinical samples (Mujeeb, 2009) and at risk populations (Luthar, Cicchetti, & Becker, 2000), including survivors of man-made disasters in which the victims face even more severe consequences (Arata et al., 2000).

Both trait and state resilience also inversely predicted depression in several studies (Riaz, 2014). In addition to sense of coherence, the stance of the current empirical study was to investigate the buffering role of trait, state and overall resilience against depression among survivors of suicide bombing. The findings confirmed that when incorporated in between sense of coherence and depression relationship, dispositional (trait) as well as situational (state) resilience buffers against depression caused by exposure to suicide bombing. Generally, resilience also buffers against depression among victims of man-made disaster (Riaz et al., 2015). Robinson (2000) illustrated that inclusion of resilience in the prevention and intervention programs can be more beneficial.

Depression is the most common outcome of any kind of trauma. Those survivors who are high on sense of coherence, trait, and state resilience are less likely to become a victim of depression or show fewer symptoms. Health professionals use these traits in their clinical practice in treating trauma survivors. Most survivors of suicide bombing showed symptoms of anxiety as compared to those survivors who have high sense of coherence and trait and state resilience in the same case. In this situation, if the clinicians use their clinical abilities to build sense of coherence and trait and state resilience in the survivors of suicide bombing, they may help to reduce the sufferings of such survivors. Suicide bombing survivors are also more prone to stress. But the fact is that those survivors who were more resilient and high on sense of coherence were less chances of stress and clinical psychologists use these two traits as their therapeutic techniques to treat the stress in such cases.

The worst form of extremism and terrorism is suicide bombing. The direct victims of suicide bombing suffer from numerous causalities including loss of life. Those who survive, they just recover from physical injuries but psychological trauma

remains intact. It takes long time for survivors of suicide bombing to recover from traumatic effects. Trauma leads to two types of psychological reactions: risk factors and protective factors. Risk factors include symptoms of PTSD, depression, anxiety and stress; whereas protective factors defend against these risk factors, including sense of coherence and resilience of survivors.

Sense of coherence is an ability to focus on health instead of illness, and finding ways to recover from that illness. The same way, resilience is a factor which helps survivors of suicide bombing to recover from the adverse effects of trauma. These two protective factors among suicide bombing survivors i.e. sense of coherence and resilience serve as a buffer against the effect of risk factors including depression, anxiety, stress and PTSD. The same has proved in the present study. Resilience in interaction with sense of coherence buffered against the effects of risk factors. Recent advancements in the literature over resilience depict that it is a versatile concept, which has state and trait related constructs.

It is important to note that resilience in both aspects has played an important role as a protective factor resisting against the traumatic outcomes of suicide bombing. If properly utilized, the combined effect of sense of coherence and resilience on reducing the after effects of trauma is worth mentioning. The study proved that the symptoms of psychological disorders among the traumatic survivors can be reasonably reduced by instilling sense of coherence and resilience among trauma survivors.

Therefore, it is evident from the results that in suicide bombing survivor's sense of coherence and trait and state resilience play a key role in protecting the people from psychological collapse. This is also worth mentioning that trait and state

resilience are positively correlated to sense of coherence, and both are negatively correlated to PTSD, stress, depression, and anxiety.

The concepts of sense of coherence and resilience are new in the field of trauma, even though these concepts are in a better position to answer the question in spite of stressful situations, why some people stay well as compared to others(Lindstrom & Eriksson, 2005). The latest methodical appraisal concluded that sense of coherence and trait and state resilience are positively correlated and survivors with extraordinary sense of coherence appears even more resilient than survivors with low sense of coherence (Eriksson & Lindstrom 2006).

3.3.1. Conclusion

The study examined moderating effect of trait, state and overall resilience in the relationship between sense of coherence and psychological problems among survivors of suicide bombing. The study targeted survivors spread across different cities situated in two provinces of Pakistan. Findings of hierarchical regression depicted that resilience and its two domains including trait and state resilience moderated between sense of coherence and psychological disorders. Resilience moderated between sense of coherence and depression. Similarly, resilience moderated between sense of coherence and anxiety. Moreover, resilience moderated between sense of coherence and stress. Finally, resilience and its two domains moderated between sense of coherence and PTSD. Findings on the two domains of resilience depicted that trait resilience moderated between sense of coherence and depression. Similarly, trait resilience moderated between sense of coherence and anxiety. Moreover, trait resilience moderated between sense of coherence and stress. Finally, trait resilience and its two domains moderated between sense of coherence

and PTSD. State resilience moderated between sense of coherence and depression. Similarly, resilience state moderated between sense of coherence and anxiety. Moreover, state resilience moderated between sense of coherence and stress. Finally, state resilience and its two domains moderated between sense of coherence and PTSD. The findings were supported by the empirical data produced in indigenous and international contexts. The findings confirm associations between variables but do not establish cause-affect connections to administer some intervention and therefore suggesting a tentative stance for addressing the psychological problems of the victims of suicide bombing.

3.3.2. Limitations

The study has some limitations that can be addressed in future studies. Firstly, although all participants were direct victims of suicide bombing, but the alternating influence of the varying nature of numerous personal, social, cultural, and contextual factors cannot be bifurcated. Secondly, the self-reported data is collected through single source by using scales, which can be vulnerable for social desirability and single source bias. Thirdly, common method variance may be a plausible threat to the accuracy of inferences drawn through this research. With all these limitations, the study is still worthwhile to understand the interactive effect of sense of coherence and resilience on reducing psychological problems resulted from being hit by suicide bombing.

3.3.3. Implications

The study focused on the interactive effect of two protective factors or coping mechanisms in countering the after effects of suicide bombing on the survivors. Thus, resilience in relation to sense of coherence predicted psychological problems. The

most important insights shared by the present study is related to the moderating role of two domains of resilience including state resilience and trait resilience on the relationship between sense of coherence and psychological problems in general and PTSD in particular. Thus besides dispositional trait resilience, it can be developed like state resilience among survivors by using different psychological strategies using counseling programs and therapeutic interventions. The concept of sense of coherence itself stems from the traumatic incidents and provides ways to cope with stressors and ensure health—making psychological rehabilitation possible. The same is proved in the case of the survivors of suicide bombing in Pakistan. Thus, developing sense of coherence among these survivors can be very beneficial in originating or enhancing their ability to reduce psychological disorders and more specifically PTSD.

REFERENCES

4. References

American Psychiatric Association.(1994). *Diagnostic and statistical manual of mental disorders*. Washington, DC: American Psychiatric Press.

American Psychiatric Association. (2001). Washington DC: American Psychiatric Association Publishing, Inc.

Andersen, S.L., &Teicher, M. H. (2008).Stress, sensitive periods and maturational events inadolescents' depression.*Trends in Neurosciences, 31,*183-191. doi:10.1016/j.tins.2008.01.004.

Antonovsky, A (1994) "The Structure and Properties of the sense of Coherence scale," in H.I. McCubbin et al.(pp 21-39)

Antonovsky, A. (1979). *Health, stress and coping.*San Francisco: Jossey Bass.

Antonovsky, A. (1987). *Unravelling the mystery of health: How people manage stress and stay well.*San Francisco, CA: Jossey-Bass.

Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science Medical, 36*(6), 725-733.

Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science Medical, 36*(6), 725-733.

Antonovsky, A. (1998). The sense of coherence: An historical and future perspective. In H. McCubbin, E. Thompson, A. Thompson, & J. E. Fromer (Eds.), *Stress, coping and health in families: sense of coherence and resiliency* (pp. 3-20). Thousand Oaks, CA:.Sage.

Antonovsky, A. (2005). The sense of Coherence.An historical and future perspective.*Israel Journal of Medical Science, 32,* 170-178.

Antonovsky, A. A. (2012). Call for a new question salutogenesis and a proposed answer the sense of coherence. *Journal of Preventative Psychiatry, 2*(1), 1-11.

Antonovsky, H., &Sagy, S. (1985).The development of a sense of coherence and its impact on responses to stress situations.*Journal of Social Psychology, 126*(2), 213- 225.

Anwar, S. (2014).*Sense of coherence and health outcomes among students from Punjab, Sindh, KPK and Baluchistan* (Unpublished M.Sc. research report).Department of Psychology, University of Haripur, Pakistan.

Arata, C., Picou, J., Johnson, G., & McNally, T. (2000).Coping with technological disaster: An application of the conservation of resources model to the Exxon Valdez oil spill.Journal of Traumatic Stress, 13, 23- 39. Doi: 10.1023/a: 1007764729337

Asarnow, J. R., Jaycox, L. H., & Thompson, M. C. (2001). Depression in youth: Psychosocial interventions. *Journal of Clinical Child Psychology, 30,* 33–47.

Asghar, N. (2014). *Antecedents and consequences of sense of coherence among students of Pakistan and KSA: Moderating role of personality types.*(Unpublished M.Sc. research report).Department of Psychology, University of Sargodha, Pakistan.

Aslam, N. (2007). Psychological disorders and resilience among earthquake affected individuals (Unpublished M.Phil. Dissertation).National Institute of Psychology, Quaid-I-Azam University, Islamabad, Pakistan.

Barlow, D. H., & Durand, M. V. (2005). *Abnormal psychology: An integrative approach.* London, Thomson- Wadsworth.

Barrett, J. E. (1979). *The relationship of life events to the onset of neurotic disorders.* New York: Raven.

Baum, A., & Fleming, I. (1993).Implications of psychological research on stress and technological accidents.*American Psychologist, 48*(6), 665-672.

Beck, A. T. (1972).*Depression: Causes and treatment.* Philadelphia: University of Pennsylvania.

Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. J. Clayton & J. E.

Beck, A. T. (1995). Cognitive therapy: A 30-year retrospective. *American Psychologist, 46*, 368-375.

Beck, A.T.,(1991). *The Personality belief questioner.*Unpublished manuscript, University of Pennsylvania.

Beck, A. T., Rush, A. J., & Shaw, B. F. (1979).*Cognitive therapy of depression.* New York: Wiley.

Bernard, L, C., &Krupat, E. (1994).*Health psychology: Bio psychosocial factors in health and illness.* New York: Harcourt Brace College Publisher.

Bernstein, G. A., &Borchardt, C. M. (1999). Anxiety disorders of childhood and adolescence: A critical review. *Journal of the American Academy of Child and Adolescent Psychiatry, 30,* 519-532.

Bibring, E. (1953). *The mechanism of depression.Affective disorders,* New York, Internat.Univ. Press.

Bonanno, G. A. (2004). Loss, Trauma, and human resilience. Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59,* 20-28.

Bonanno, G. A., Wortman, C. B., Lehman, D. R., Tweed, R. G., Haring, M., Sonnega, J., ...Neese, R. M. (2002). Resilience to loss and chronic grief: A prospective study from pre-loss to 18 months post-loss. *Journal of Personality and Social Psychology, 83,* 1150-1164. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12416919

Boury, M., Treadwell, T., & Kumar, V. K. (2001). Integrating psychodrama cognitive therapy: An exploratory study. *International Journal of Action Methods, 54,* 13-28.

Brown, T. A., Chorpita, B. F., & Barlow, D. H. (1998).Structural relationship among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal.*Journal of Abnormal Psychology, 107* (2), 179-192.

Byrne, D. G., Davenport, S. C., &Mazanov, J. (2007). Profiles of adolescent stress: The development of the Adolescent Stress Questionnaire (ASQ). *Journal of Adolescence. 30,*393-416. doi:10.1016/j.adolescence.2006.04.004.

Carson, R. C., & Butcher, J. N. (1992).*Abnormal Psychology and modern life*. New York: Harper Collins.

Castellanos, D., & Hunter, T. (1999). Anxiety disorders in children and adolescents. *Southern Medical Journal, 92,* 946-954.

Chen, X., Rubin, K. H., & Li, B. (1995). Depressed mood in Chinese children: Relation with school performance and family environment. *Journal of Consulting and Clinical Psychology, 63,* 938-947.

Cisar, P., &Cisar, S. M. (2010).Skewness and kurtosis in function of selection of network traffic distribution.*Acta PolytechnicaHungarica, 7*(2), 95-106.

Coakes SJ,& Steed LG (2003). *SPSS Analysis without anguish, version 11.0 for windows* (Version 11.0 ed.): John Wiley & Sons Australia.

Cohen, S., Janickki- Deverts, D., & Miller, G. E.(2007). Psychological stress and disease.*Journal of the American Medical Association, 298*(14), 1685-1687.

Cole, D. A., Peeke, L. G., Martin, J. M., Truglio, R., &Seroczynski, A. D. (1998). A longitudinal look at the relation between depression and anxiety in children and adolescents.*Journal of Consulting and Clinical Psychology, 66,* 451−460.

Comer, R. J. (2004).*Abnormal Psychology.*New York: Worth Publisher.

Compas, B. E., Oppedisano, G., Connor, J. K., Gerhardt, C. A., Hinden, B. R., Achenbach, T. M., et al. (1997). Gender differences in depressive symptoms in adolescence: Comparison of national samples of clinically referred and non-referred youths. *Journal of Consulting and Clinical Psychology, 65,* 617-626.

Compton, W. M. (1991). New methods in cross- cultural psychiatry: Psychiatric illness in Taiwan and the United States. *American Journal of Psychiatry,148*(12), 1697-1704.

Coppen, A., Shaw, D. M., Malleson, A., Eccleston, E., & Gundy, G. (1965).Tryptamine metabolism in depression.*British Journal of Psychiatry, 3*, 993-998.

Costa,P.T.,Jr.&Mccrae,R.R.(1995).Domainsandfacets:hierarchicalpersonalityassessmentusingtherevisedNEOpersonalityinventory.*J.Pers.Assess.,64,*21-50.

Costello, E. J., Mustillo, S., Erkanli, A., Keeler, G., &Angold, A. (2003).Prevalence and development of psychiatric disorders in childhood and adolescence.*Archives of General Psychiatry, 60,* 837–844.

Costello, E. J., Pine, D. S., Hammen, C., March, J. S., Plotsky, P. M., Weissman, M. M., Biederman, J., Goldsmith, H. H., Kaufman, J., Lewinsohn, P. M., Hellender, M., Hoagwood, K., Koretz, D. S., Nelson, C. A., &Leckman, J. F. (2002). Development and natural history of mood disorders.*Biological Psychology, 52*(6), 529–542.

Cyranowski, J. M., Frank, E., Young, E., & Shear, M. K. (2000). Adolescent onset of the gender difference in lifetime rates of major depression: A theoretical model. *Archives of General Psychiatry, 57,* 21-27

Dahlin, L., Cederblad, M., Antonovsky, A., and Hagnell, O. (1990) Childhood vulnerability and adult invincibility.*Acta PsychiatrScand* 82, 228-232. 30.

Dangoor N,& Florian V. (1994). Women with chronic physical disabilities: correlates of their long-term psychosocial adaptation. *International Journal of Rehabilitation*. 1994 Jun; 17(2):159-68.

David. C. (1995).*Morality, normality and society.* New York: Oxford University Press.

Dohrenwend, B. S., &Dohrenwend, B. P. (1981).*Stressful life events and their contexts*. New York: Watson.

Dunmore, E., Clark, D. M., & Ehlers, A. (2001).A prospective investigation of the role of cognitive factors in persistent posttraumatic stress disorder (PTSD) after physical or sexual assault.*Behaviour Research & Therapy, 39,* 1063–1084

Edwards, Ronald R., & Holden, R, R., (2001). Coping, meaning in life, and suicidal manifestations: Examining gender differences. *Journals of clinical psychology*, Volume 57, Issue 12, Dec 2001, 1517–1534.

Ellis, A.(2002). The Role of irrational beliefs in perfectionism. In G. L. Flett, & P. L., Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 217-229). Washington, DC: American Psychological Association.

Ellis, A., & Bernard, M. E. (1985).*Clinical application of rational emotive therapy.*New York: Plenum Publishing Corporation.

Endler, C. P., Haug, T. M., &Spranger, H. (2008).Sense of Coherence and physical health.A "Copenhagen interpretation" of Antonovsky's SOC concept. *The Scientific World Journal, 8*, 451–453.

Engel, B. T. (1985). Stress is a noun! No, a verb! an adjective. In T. M. Field, P. M. McCabe, & N. Schneider man (Eds.), *Stress and a Coping* (pp. 3-12). Hillsdale, NJ: Erlbaum.

Erickson, E. H. (1968). Identity: Youth and crisis. New York: Norton.

Erikson, M., & Lindstrom, B. (2006). Antonovsky's sense of coherence scale and relation with health: a systematic review. *Journal of Epidemiology and Community Health. 60*(5), 376-381.

Eriksson, M., & Lindstrom, B. (2005). Validity of Antonovsky's sense of coherence scale: a systematic review. *Journal of Epidemiology Community Health, 59*(6), 460-466.

Eriksson, M., &Lindström, B. (2007). Antonovsky's sense of coherence scale and its relation with quality of life: A systematic review. *Journal of Epidemiology and Community Health, 61,* 938–944.

Ewan, R. (1992). *An Introduction to Theories of Personality* (4thed.). UK: Psychology Press.

Eysenck, M. W. (1992). *Anxiety: The cognitive perspective*. Hove, England: Erlbaum

Feldt, T. (1997). The role of sense of coherence in well-being at work: Analysis of main and moderator effects. *Work & Stress*, 134-147. doi.org/10.1080/02678379708256830.

Fergusson, D. M., & Mullen, P. E. (1999).*Child sexual abuse: An evidence based perspective*. California: Sage Publications.

Field, A. P. (2005). *Discovering statistics using SPSS.* London: Sage

Flannery & Flannery., (1990). Sense of coherence, life stress, and psychological distress: a prospective methodological inquiry. *Journal Clinical Psychology.* 1990 Jul; 46 (4): 415-20.

Fok, S. K., Chair, S. Y., & Lopez, V. (2005).Sense of coherence, coping and quality of life following a critical illness.*Journal of Advanced Nursing, 49*(2), 173-181.

Franken, R. E. (1994). *Human motivation.*Belmnot. CA: Brooks/ Cole Publishing Company.

Frankl, V. (1964).*Man' search for meaning.* New York: Wiley

Fredrickson, B. L. (2005). Positive affect and the complex dynamics of human flourishing.*American Psychologist, 60*(7), 678-686.

Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crisis? A prospective study of resilience and emotion following the terrorist attacks on the United States on September 11th, 2001.*Journal of Personality and Social Psychology, 84,* 365-376.

Friedman, H. S. (1991). *Self-healing personality: Why some people achieve health and others succumb to disease.* New York: Henry Holt.

GasteigerKlicpera, B., &Klicpera, C. (2001).Victimization by peers as a developmental risk factor.*Z Kinder JugendpsychiatrPsychotheri, 29,* 99-111.

Gibson,& Parker. (2003). Inner resources as predictors of psychological well-being in middle-income African American breast cancer survivors.*Cancer Control.* 2003 Sep-Oct; 10(5 Suppl):52-9.

Gladstone, G. L., Parker, G. B., &Malhi, G. S. (2006). Do bullied children become anxious and depressed adults? A cross-sectional investigation of the correlates of bullying and anxious depression. Journal of Nervous and Mental Disorders, 194, 201-208.

Griffiths, C. A. (2008). Sense of coherence and mental health rehabilitation.*Clinical Rehabilitation Journal, 23,* 72-78.

Hammen, C., & Rudolph, K. D. (2003).Childhood mood disorders.In E. J. Mash & R. A. Barkley (Eds.), *Childhood psychopathology* (pp. 233- 78). New York: Guilford.

Hankin, C. M., Clements, C.M., Zhu, L., Hogan, M.E., & Whitehouse, W. G.(1998). Optimistic cognitive styles and invulnerability to depression. The science of optimism and hope: Research essays in honor of Martin E.P. Seligman. Gillham, J. E. (Ed.). Radner, PA: Templeton Foundation Press.

Haque, A., (2004). Psychology from Islamic Perspective: Contributions of Early Muslim Scholars and Challenges to Contemporary Muslim Psychologists. *Journal of Religion and Health*, Vol. 43, No. 4 (winter, 2004), pp. 357-377.

Harrington, R. (2001). Adolescent Depression: same or different? *Archives of General Psychiatry, 58,* 21-22.

Harrington, R., Rutter, M., Weissman, M., Fudge, H., Groothues, C., Bredebkamp, D., Pickels, A., Rende, R., &Wickramaratne, P. (1997). Psychiatric disorders in the relatives of depressed probands: I. comparison of prepubertal, adolescent and early adult onset cases. *Journal of Affective Disorders, 42,* 9-22.

Hiew, C. & Matchett, K. (1999). Resilience measurement using a Resilience Scale (SRC). In R. Roth & F. Farley (Eds.), *The Spiritual Side of Psychology at Century's End.* Austria: Pabst Science Publishers Published in 2002).

Hiew, C. (2001). Stress and health: The letting go response. In R. Roth & S. Neil (Eds.), *A matter of Life: Psychological Theory, Research and Practice.* Lengerich: Pabst Science Publishers.

Hiew, C. (2004). *Resilience, self-regulation and letting go.* Paper presented at the 2004 International Congress of Psychology, Beijing.

Hiew, C. C. (1998). Longevity and healthy aging: The self-repair response. *Japanese Health Psychology, 6,* 1-16.

Hiew, C. C. (2003). Meridian therapy in the 21st century: Waseem Alladin interviews Chok C. Hiew. *Counselling Psychology Quarterly, 16*(4), 297-303.

Hiew, C. C., Mori, T. Shimizu, M. &Tominaga, M. (2000). Measurement of resilience development: Preliminary results with a State-Trait Resilience Inventory. *Journal of Learning and Curriculum Development, 1,* 117.

Hinkle, L. E. (). The concept of "stress" in the biological and social sciences.*Science Med.Ma,1,* 31-48.

Hintze, J. (2002). Intervention for fears and anxiety problems. In M. Shim, H. M. Walker, & G. Stoner (Eds.), *Intervention for academic and behavior problems: Preventive and remedial approaches*. 939-960. Bethesda: National Association of school psychologist.

Holmberg, S., Thelin, A., &Stiernstrom, E. L. (2004).Relationship of sense of coherence to other psychosocial indices.*European Journal of Psychosocial Assessment, 20*, 227-236.

Horowitz, M., Wilner, M., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine, 41,* 209-218.

Johnson J, Gooding PA, Wood AM & Tarrier N (2010).*Resilience as positive coping appraisals: Testing the schematic appraisals model of suicide (SAMS),*Behaviour Research and Therapy, 48 (3), pp. 179-186.

Kalimo R., Vuori J. (1991). Work factors and health: the predictive role of pre-employment experiences. *Journal of Occupational Psychology*, 64, 97–115.

Kaplan, H.I., &Sadock, B. J. (1981).Modern synopsis *of comprehensive textbook of psychiatry III.* Baltimore: Williams & Wilkins.

Kashani, J. H., Hoeper, H. & Corcoran, A. E. (1987). A community study of depression in children and adolescents. *American Journal of Psychiatry, 147,* 313-318.

Kaufmann, G. M., &Beehr, T. A. (1989). Occupational stressors, individual strains, and social support among police officers. *Human Relations*, 42, 185-197.

Kendall, P. C., &Hollon, s. D. (1979). Cognitive-behavioral interventions: *Theory, research, and procedures.* New York: San Francisco, London.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., &Walters, E. E. (2005).Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Study replication.*Archives of General Psychiatry, 62*, 593−602.

Kim-Cohen, J., Caspi, A., Moffit, T. E., Harrington, M., Milne, B. J., & Poulton, R. (2003). Prior juvenile diagnoses in adults with mental disorders: Developmental follow-back of a prospective- longitudinal cohort. *Archives of General Psychiatry, 60*(7), 709–717.

Kinnunen, U. &Mauno, S. (2000). A mediational model of sense of coherence in the work context: a one-year follow-up study. *JournalofOrganizational Behavior, 21*, 461-476.

Kline, P. (1999). *The handbook of psychological testing.* London: Routledge.

Kobasa, S. C., Maddi, S. R., & Kahn, S. (1982). Hardiness and health: A prospective study. *Journal of Personality and Social Psychology, 42,* 168-177.

Larsson, G., &Kallenberg, K.O. (1996). Sense of coherence, socioeconomic conditions and health: Interrelationships in a nation wide Swedish sample. *European Journal of Public Health, 6*, 175–180.

Lazarus, R. S. & Folkman, S. (1984).*Stress, appraisal and coping.* New York: Springer.

Lazarus, R. S. (1991). *Emotion and adaptation.* New York: Oxford University Press.

Lazarus, R. S. (1966). *Psychological stress and the coping process.* New York: McGraw-Hill.

Lazarus, R. S., & Erikson, C. W.(1952). Effects of failure stress upon skilled performance.*Journal of Experimental Psychology, 43,* 100-105.

Leppänen, A-M., 1999. Life in control? *Investigation of Aaron Antonovsky's theory of sense of coherence and the feasibility of the concept in empirical data,* University of Helsinki, Department of Social Policy, Helsinki. PMCid:2144359

Lewinsohn, P. M., Clark, G. N., Hope, H., & Andrews.J. (1990).Cognitive behavioral treatment for depressed adolescents.*Behavior Therapist,* 21, 385-401.

Lewinsohn, P. M., Youngren, M. A., &Grosscup, S. J. (1979).*Reinforcement and depression.* In R.A. Depue (Ed.), The psychobiology of depressive disorder: Implications for the effects of stress. New York: Academic Press.

Lewinson, P. M., Rohde, P., & Seeley, J. R. (1998). Major Depressive Disorder in older adolescents: prevalence, risk factors, and clinical implications. *Clinical Psychology Review, 18,* 765-794.

Lipkus, I., Dalbert, C., & Siegler, I. (1996). The importance of distinguishing the belief in just world for self-versus others: Implications for psychological well-being. Personality and Social Psychology Bulletin, 22, 666-677.

Lovibond, S. H., & Lovibond, P. F. (1995).*Manual for depression anxiety stress scales.* Sydney: Psychology Foundation.

Lowry, M. E. (1984). *Major depression: Prevention & treatment*. St Louis: Warren H. Green, Inc.

Lumsden, D. P. (1981). Is the concept of " stress" of any use, any more? In D. Randall, Toronto (Eds.), *In contributions to primary prevention in mental health: working papers*. Toronto Natl. Off.Can. Mental Health Association.

Lundberg J.M. (1996). *Pharmacology of cotransmission in the autonomic nervous system*: integrative aspects on amines, neuropeptides, adenosine triphosphate, amino acids and nitric oxide. Pharmacol. Rev.; 48:113–178.

Luthar, S. S., Cicchetti, D., & Becker, B. (2003).*The construct of resilience: A critical evaluation and guidelines for future work.* Child Development, 71 (3), 543–562.

Manson, S. M., & Good, B.J. (1993). Cultural consideration in the diagnosis of DSM IV mood disorders: Cultural proposals and supporting paper for DSM IV, Submitted to the DSM Task Force by the Steering Committee, NIMH-Sponsored Group on culture and diagnosis.

Marcotte, M., Laurier, F., Pierre, P., & Myra, P. (2002). Gender differences in depressive symptoms during adolescence: the role of gender typed characteristics, Self esteem, body image, stressful life events and pubertal status, *Journal of Emotional and Behavioral Disoredrs, 10,* 29.

Marks, I. (1977).Clinical phenomenon in the search of laboratory models. In D. Master, & Martin, E. P. Seligman (Eds.), *Psychopathology: Experimental models*, (pp. 174- 213). San Francisco: W. H. Freeman and Company.

McCraty, R. M. (2006). Emotional Stress, Positive Emotions, and Psycho physiological Coherence. In B. Arnetz, R. Ekman (eds.), *Stress in health and disease.* Wiley, VCH: Weinheim.

McGee, R., & Stanton, W. R. (1990). Parent reports of disability among 13-year olds with DSM-III disorders. *Journal of Child psychology and Psychiatry and Allied Disciplines, 31,* 793–801.

Mendels, J. (1970). *Concept of depression.* New York: Willey.

Midanik L. T., Soghikian K., Ransom L. J., Polen M. R. (1992) Alcohol problems and sense of coherence among older adults. *Social Science and Medicine*, 34, 43–48.

Miles, J., & Shevlin, M. (2001). *Applying regression & correlation: a guide for students and researchers*.London, Sage Publications.

Moksnes, U. K., Byrne, D. G., Mazanov, J., &Espnes, G. A. (2010). Adolescent stress: Evaluation of the factor structure of the Adolescent Stress Questionnaire (ASQ-N). *Scandinavian Journal of Psychology, 51*, 203-209. doi:10.1111/j.1467-9450.2009.00803.x

Moore, W. H., Shellman, S. M. (2002). *Fear of Persecution: A Global study of Forced Migration.* Department of Political Science: Florida State University.

Mujeeb, A. (2009). Resilience as predictor of internalizing psychological problems among internally displaced persons (Unpublished M.Sc. Research Report).National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan.

Muthén B,& Kaplan D. (1985). A comparison of some methodologies for the factor-analysis of non-normal Likert variables. *British Journal of Mathematical and Statistical Psychology, 38*, 171–180.

Neiger, B.L. (1991, March). Credentialing.Oral presentation at the Annual Student Conference of the Health Education Association of Utah. Salt Lake City, UT.

Nelson, R. W., & Israel, A. C. (2003).*Behavior Disorders of Childhood.* Pearson Education, Inc.

Nemiah, J. (1985). Neurotic depression.In H. I. Kaplan, & B. J. Sadock (Eds.), *Comprehensive textbook of psychiatry.* Baltimore: Williams & Wilkins.

Nyamathi, A. (1991). Relationship of resources to emotional distress, somatic complaints, and high-risk behaviors in drug recovery and homeless minority women.*Res Nurs Health,* 14(4):269-277.

Ohman, A. (2000). Fear and Anxiety: Evolutionary , cognitive, and clinical perspectives. In M. Lewis, & J. M. Haviland-s. Jones (Eds.), *Handbook of emotions* (pp.573-593). New York: The Gildford Press.

Ozer E.J., Best S.R., Lipsey T.L., Weiss D.S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin, 129*, 52–73.

Patereson, T. E. (1993). *Out of Order*. New York: Vintage.

Power, M. J., &Dalgleish, T. (1997).Cognition and emotion: From order to disorder. Hove, England: Psychology Press.

Puig-Antich, J., Lukens, E., Davies, M., Goetz, D., Brennan-Quattrock, J., &Todak, G. (1985). Psychosocial functioning in prepubertal major depressive disorders: Interpersonal relationships during the depressive episode. *Archives of General Psychiatry, 23*, 8–15.

Rachman, S. (1978).*Fear and Courage*. W. H. Freman: San Francisco.

Rahman, N. K., Dawood, S., & Saleem, S. (2000). *Perception of self image by Pakistani adolescence.*Unpublished Manuscript.Center for Clinical Psychology, University of the Punjab, Lahore, Pakistan.

Rapmund, V., & Moore, C. (2002). Women's stories of depression: a constructivist approach. *South African Journal of Psychology, 30*, 20-30.

Rashid, M. (2015).*Sense of coherence and health outcomes among Muslims, Christians and Sikhs* (Unpublished M.Sc research report).Department of Psychology, University of Haripur, Pakistan.

Reber, A. S. (1985).*The Penguin dictionary of Psychology*. London: Panguin.

Reber, A. S. (ED.).(1995). *Penguin Dictionary of Psychology* (2nd Ed.). New York: Penguin Books.

Regehr, C., Hemsworth, D., & Hill, J. (2001). Individual predictors of traumatic response: A structural equation model. *Canadian Journal of Psychiatry, 46,* 74–79.

Regehr, C., Hill, J. A., &Glancy, G. (2000). Individual Predictors of Traumatic Reactions in Firefighters.*Journal of Nervous & Mental Disease, 188*(6).333-339.

Rehm, L.P. (1977). A self - control model of depression.*Behavior Therapy, 8,* 787-804.

Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6,* 271–280.

Riaz H, Riaz MN, Batool, N. (2012) Positive psychological capital as predictor of internalizing psychological problems among flood victims. *Journal of Indian Academy of Applied Psychology, 1*(40), 102-112.

Richardson, C. G., & Ratner, P. A. (2005).Sense of coherence as a moderator of the effects of stressful life events on health.*Journal of Epidemiology and Community Health, 59,* 979-984.

Robertson, J. F., & Simons, R. L. (1989). Family factors, self-esteem, and adolescent depression. *Journal of Marriage and the Family, 51*, 125-138

Robinson, J. L. (2000). Are there implications for prevention research from studies of resilience? Child Development, 71(3), 570-572.

Romeo, R. D. (2010). Adolescence: A central event in shaping stress reactivity. *Developmental Psychobiology, 52,* 244-253. doi:10.1002/dev.20437

Rost, K., & Smith, J. (2001).Retooling multiple levels to improve primary care depression treatment.*Journal of General Internal Medicine, 16*(9), 644-645. DOI: 10.1046/j.15251497.2001.016009641.x

Rothbaum, B. O. , Foa, E. B., Murdock, T., Riggs, D., & Walsh, W. (1992). A prospective examination of post-traumatic stress disorder in rape victims.*Journal of Traumatic Stress, 5*, 455-475.

Rothmann, S, Jackson, L. T. B. & Kruger, M. M. (2003). Burnout and job stress in a local government: The moderating effect of sense of coherence. *South African Journal of Industrial Psychology, 29*(4), 52-60.

Şalcıoğlu, E., Başoğlu, M. &Livanou, M. (2003).Long-term psychological outcome for non-treatment-seeking earthquake survivors in Turkey. *Journal of Nervous and Mental Disease*, 191, 154–160.

Santor, D. A., &Kusumakar, V. (2001). Open trail of interpersonal therapy in adolescents with moderate to severe major depression: Effectiveness of novice IPT therapists. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*, 236-240.

Santrock, J. W. (1998). *Adolescence* (7th Ed.). Boston: McGraw Hill.

Sarason, B.R., Sarason, I.G., and Pierce, G.R. (1990). Social Support: An Interactional View, 127-139. New York: John Wiley & Sons.

Sarwar, T. (2005). *Resilience, emotional stability and self-regulatory action in different stages of adulthood* (Unpublished M.Phil dissertation), National Institute of Psychology, Qauaid-i-Azam University, Islamabad, Pakistan.

Schwartz, A., & Schwartz, R. (1993).*Depression: Theories & treatments*. New York: Columbia University Press.

Scott, W. A., Scott, R., & McCabe, M. (1991). Family relationship and children personality: A cross -cultural, cross source comparison. *British Journal of Social Psychology, 30,* 1-20.

Seligman, M. E. P. (1975). *Helplessness: On depression, development and death.* San Francisco: Freeman.

Seligman, M. E. P., Walker, E. F. & Rosenhan, D. L. (2001). *Abnormal psychology.*NewYork: W.W. Norton & Company, Inc.

Selye, H. (1952). *The Story of the Adaptation Syndrome*. Montreal: Acta Inc.

Selye, H. (1976). *The stress of life.* New York: McGraw-Hill.

Shaheen, H. (2016). *Effect of Sense of Coherence on Health-Related Outcomes among Depressed Adults* (Unpublished M.Sc research report).Department of Psychology, University of Lahore, Pakistan.

Sheldon, k., Elliot, A, J. and Kim, Y. (2000). What Is Satisfying About Satisfying Events? Testing 10 Candidate Psychological Needs.*Journal of Personality and Social Psychology* 2001. Vol. 80, No. 2, 325-339. DOI: 10.1037//O022-3514.80.2.325.

Simeon, D., Gorelik, O., Schmeidler, J., Sirof. B., &Knutelska, M. (2001).The role of childhood interpersonal trauma in depersonalization disorder.*The American Journal of Psychiatry, 158*(7), 1027-1033.

Söderberg, S., Lundman, B., & Norberg, A. (1997). Living with fibromyalgia: Sense of coherence, perception of well-being, and stress in daily life. *Research in Nursing and Health*, 20, 495-503.

Sokolov, S., & Kutcher, S. (2001). Adolescent depression: Neuroendocrine aspects. In I. M. Goodyer (ED.), *the depressed child and adolescent* (2nd Ed.). Cambridge, UK: Cambridge University Press.

Sorenson, S. B., Rutter, C. M., &Aneshensel, C. S. (1991). Depression in the community: An investigation into age of onset. *Journal of Consulting and Clinical Psychology, 59*, 541-546. doi:10.1037/0022-006X.59.4.541

Spielberger, C. D., Ritterband, L. M., Sydeman, S. J., Reheiser, E.C., & Unger, K. (1995). Assessment of emotional states and personality traits: Measuring psychological vital signs. In J. N. Butcher (Eds.), *Clinical personality measurement: Practical approaches*. New York: Oxford.

Suominen S., Blomberg H., Helenius H., Koskenvuo M. (1999). Sense of coherence and health: does the association depend on resistance resources? A study of 315 adults in Finland.*Psychology and health,* 14, 937-948.

Tennen, H., & Affleck, G. (1990). Blaming others for threatening events. Psychology Bulletin, 108, 209-232. doi:10.1037/0033-2909.108.2.20

Trivedi JK. (2001). Cognitive deficits in psychiatric disorders: Current status. Indian Journal of Psychiatry. Retrieved on Dec, 2008 from from: http://www.indianjpsychiatry.org/text.asp?2006/48/1/10/31613

Turner, S. M., Beidal, D. C., & Costello, A. (1987). Psychopathology in the offspring of anxiety disorders patients. *Journal of Consulting and Clinical Psychology, 55*, 229-235.

Uliaszek, A. A., Zinbarg, R. E., Mineka, S., Craske, M. G., Sutton, J. M., Griffith, J. W., Rose, R., Waters, A., & Hammen, C. (2010). The role of neuroticism and extraversion in stress-anxiety and stress-depression relationship. Anxiety, Stress & Coping: An International Journal. 23(4), 363-381. Doi: 10.1080/10615800903377264

Ullman, S. E., &Filipas, H. H. (2001).Predictors of PTSD symptom severity and social reactions in sexual assault victims.*Journal of Traumatic Stress, 14,* 369-389

Ursano, R., Boydstun, J., & Wheatley, R. (1981). Psychiatric illness in U.S. Air Force Vietnam prisoners of war: a five year follow-up. *American Journal of Psychiatry, 138*, 301-314.

Vahtera, E. M., Rosenberg, P. H., Niemi, T.T., Kuitunen, A. H. (1996). Haemostatic changes caused by i.e. regional anaesthesia with lignocaine. *British Journal of Anaesthesia,* 76, 6, 1 June 1996, 822–828, https://doi.org/10.1093/bja/76.6.822.

Vander, C., Rothmann, S. (2009). Occupational stress, sense of coherence, coping, burnout and work engagement of registered nurses in South Africa.*SA Journal of Industrial Psychology,* Vol 35, No 1 (2009), 10 pages. Doi: 10.4102/sajip.v35i1.423.

Volanen, M . S., Lahelma, E., Silventoinen,K., &Suominen, S. (2004). Factors contributing to sense of coherence among men and women.*European Journal of Public Health, 14, 332*-330.

Walsh, C.A., MacMillan, H.L., Trocme N., Jamieson, E. & Boyle, M. H. (2008). Measurement of victimization in adolescence: development and validation of the childhood experiences of violence questionnaire. *Child Abuse and Neglect* .Doi:10.1016/j.chiabu.2008.05.003.

Warburton, J., & De la Cruz, M. (1996).*A right to happiness: Approaches to the prevention and psychosocial recovery of child victims of commercial sexual exploitation.* Geneva: ICCB.

Warburton.J., & De la Cruz, M. (1996).*A right to happiness: Approaches to the prevention and psychosocial recovery of child victims of commercial sexual exploitation.* Geneva: ICCB.

Wetzel, J. W. (1984). *Clinical Handbook of Depression.* New York: Gardner Press.

Widiger, T. A., & Clark, L. A. (2000).Toward DSM-V and the classification of psychopathology.*Psychological Bulletin, 126*, 946-963.

Ying , P. A., Leeb, J-L. Tsai. (2007). Attachment, sense of coherence, and mental health among Chinese American college students: Variation by migration status. *International Journal of Intercultural Relations, 31*, 531–544.

APPENDIXES

Annexure-A

INTRODUCTION AND INFORMED CONSENT

I am a PhD Scholar at the Department of Psychology, IIU Islamabad. In this department, studies are conducted on psychological and mental health issues. The present study is related to the effect of sense of coherence on the mental health of disaster survivors. I appreciate your participation in this study. The entire collected information will remain confidential and will be solely used for research purpose.

Jawwad Muhammad Shujaat

I have complete information about this research and I am willingly providing the information for research purpose.

_____

Signature

Annexure-B

DEMOGRAPHIC INFORMATION SHEET

Name (Optional): _____

Gender: Male / Female

Age (in years): _____

History of Prior Mental Illness: _____

History of Prior Physical Illness: _____

Being direct victims of suicide bombing: _____

Annexure-D

SENSE OF COHERENCE SCALE

The statements given below are related to the comprehensibility, meaningfulness and manageability in your life. Please share your opinion about all statements. Out of five options (1, 2, 3, 4, 5, 6, 7) you have to select only one option which best represent your opinion about each statement.

Sr.	Statements	Responses
1	Do you have feeling that you don't really care about what goes on around you?	1 2 3 4 5 6 7 Very seldom Very often
2	Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?	1 2 3 4 5 6 7 Never happened Always happened
3	Has it happened that people whom you counted on disappointed you?	1 2 3 4 5 6 7 Never happened Always happened
4	Until now your life has had	1 2 3 4 5 6 7 No clear goal Very clear goal
5	Do you have the feeling that you're being treated fairly?	1 2 3 4 5 6 7 Very seldom Very often
6	Do you have the feeling that you are in an unfamiliar situation and don't know what to do?	1 2 3 4 5 6 7 Very seldom very often
7	Doing the thing you do every day is	1 2 3 4 5 6 7 Source of Pleasure Source of pain
8	Do you have very mixed-up feelings and ideas?	1 2 3 4 5 6 7 Very seldom very often
9	Does it happen that you have feelings inside you would rather not feel?	1 2 3 4 5 6 7 Very seldom very often
10	Many people—even those with a strong character sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?	1 2 3 4 5 6 7 Very seldom Very often
11	When something happened, have you generally found that?	1 2 3 4 5 6 7 Very seldom very often
12	How often do you have the feeling that there's little meaning in the things you do in your daily life?	1 2 3 4 5 6 7 Very seldom very often
13	How often do you have feelings that you're not sure you can keep under control?	1 2 3 4 5 6 7 Very seldom very often

Annexure-E

DEPRESSION ANXIETY STRESS SCALE

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found myself getting upset by quite trivial things	0 1 2 3
2	I was aware of dryness of my mouth	0 1 2 3
3	I couldn't seem to experience any positive feeling at all	0 1 2 3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0 1 2 3
5	I just couldn't seem to get going	0 1 2 3
6	I tended to over-react to situations	0 1 2 3
7	I had a feeling of shakiness (eg, legs going to give way)	0 1 2 3
8	I found it difficult to relax	0 1 2 3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0 1 2 3
10	I felt that I had nothing to look forward to	0 1 2 3
11	I found myself getting upset rather easily	0 1 2 3
12	I felt that I was using a lot of nervous energy	0 1 2 3
13	I felt sad and depressed	0 1 2 3
14	I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting)	0 1 2 3
15	I had a feeling of faintness	0 1 2 3
16	I felt that I had lost interest in just about everything	0 1 2 3
17	I felt I wasn't worth much as a person	0 1 2 3
18	I felt that I was rather touchy	0 1 2 3
19	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0 1 2 3
20	I felt scared without any good reason	0 1 2 3

21	I felt that life wasn't worthwhile	0	1	2	3

Annexure-F

IMPACT OF EVENT SCALE

Below is a list of comments made by people after stressful life events. Using the following scale, please indicate (with a) how frequently each of these comments were true for you DURING THE PAST SEVEN DAYS.

Statements	Not at all	Rarely	Sometimes	Often
I thought about it when I didn't mean to	0	1	2	3
I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3
I tried to remove it from memory	0	1	2	3
I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my mind	0	1	2	3
I had waves of strong feelings about it	0	1	2	3
I had dreams about it	0	1	2	3
I stayed away from reminders of it	0	1	2	3
I felt as if it hadn't happened or wasn't real	0	1	2	3
I tried not to talk about it	0	1	2	3
Pictures about it popped into my mind	0	1	2	3
Other things kept making me think about it	0	1	2	3

I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3
I tried not to think about it	0	1	2	3
Any reminder brought back feelings about it	0	1	2	3
My feelings about it were kind of numb	0	1	2	3