DYSFUNCTIONAL SCHEMA MODES AND COMORBIDITY OF PSYCHIATRIC SYMPTOMS IN INDIVIDUALS WITH EPILEPSY: AN EXPLORATORY STUDY

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DECLARATION

I know that plagiarism is not allowed. It is wrong and unethical. Thus, the contribution of other authors have been acknowledged by citing their names and references both in the running text as well as in the reference list.

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CERTIFICATE

It is certified that Ph.D. dissertation titled, **"Dysfunctional Schema Modes and Comorbidity of Psychiatric Symptoms in Individual with Epilepsy: An Exploratory Study"** prepared by **Nadia Shafique** has been approved for submission to the Department of Psychology, International Islamic University Islamabad, Pakistan.

Prof. Dr. Muhammad Tahir Khalily
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LIST OF ABBREVIATIONS

AED	Antiepileptic Drugs
ASD	Anti-seizure Drugs
DASS	Depression Anxiety Stress Scales
DSM-5	Diagnostic Statistical Manual-5
EEG	Electroencephalogram
EMS	Early Maladaptive Schemas
ES	Epileptic Seizure
FLE	Frontal Lobe Epilepsy
GTCS	Generalized Tonic-Clonic Seizure
ILAE	International League Against Epilepsy
MMPI-2	Minnesota Multiphasic Personality Inventory-2
OLE	Occipital Lobe Epilepsy
PLE	Parietal Lobe Epilepsy
PNES	Psychogenic Non-Epileptic Seizures
PWE	People with Epilepsy
SCL-90	Symptom Checklist-90
SES	Socio-economic Status
SMI	Schema Mode Inventory
TLE	Temporal Lobe Epilepsy
WHO	World Health Organization

ACKNOWLEDGEMENTS

"And whatever of blessings and good things you have, it is from Allah" (Al-Nahl 13:53)

All praises belong to Allah Almighty with Whose blessings, I have accomplished this difficult task of research.

I owe to all those who have made a valuable contribution in successful completion of this dissertation. With a profound sense of gratitude, I am highly obliged to my respected supervisor, Prof. Dr. Muhammad Tahir Khalily for his continuance patience, guidance, valuable criticism and endless support throughout this endeavor. He is truly an inspiration for me, with his outstanding leadership qualities and immense knowledge in the field of Neuropsychology. I am really indebted to him for motivating and encouraging me during difficult times and for always keeping his door open for guidance and assistance. I also extend my warm regards to Dr. Seema Gul, Dr. Khekhashan Arouj, Dr. Uzma Masroor and Dr. Mamona Ismail Loona for their constructive feedback and suggestions which incented me to expand my study to Ph.D. level. My profound thanks to Higher Education Commission (HEC) of Pakistan which is really playing a significant role in promoting knowledge and quality education. My dream to attain a higher education could not have come true without the financial support of HEC who has awarded me with the Indigenous Scholarship and facilitated me to pursue higher education. My appreciation is beyond words for the HEC who has also awarded me six months Ph.D. fellowship for University College Dublin (UCD), Ireland under the International Research Support Initiative Programme. No doubt that was a spectacular learning experience and gave me international exposure.

I am extremely grateful to Prof. Dr. Louise Mchugh for equipping me with the advanced skills in the field of behavior therapy. I am also thankful to Dr. Anita Munnelly and all lab fellows of the University College Dublin, Ireland for making my visit successful.

I am also obliged to Prof. Dr. Mazhar Pasha, Head, Department of Pakistan Institute of Medical Sciences, Institutional Review Board and Ethical Committee of the Shifa International Hospital, Islamabad who permitted me to collect data from the Neurology department.

My utmost gratitude to my Father, Husband, and Siblings for their tremendous support especially taking care of my son and aiding me in pursuing my studies. I also extend my deepest gratitude to my uncle Dr. Kamran Asghar Shaikh and aunt Saima Kamran for their generosity and kindness, especially during my research work.

During this journey of research, I lost my grandfather, Prof. Dr. Asghar Ali Shaikh who always cared about my studies and kept me motivated through phone calls from Madina. His prayers, guidance, and assistance reinvigorated me to fulfill the dream of my late beloved mother.

Last but not the least, I would like to acknowledge the guidance of my dear Mother who is no longer with us but gifted me her moral values which enabled me to face future challenges.

Nadia

ABSTRACT

The current research purported to examine the association between dysfunctional schema modes and comorbidity of psychiatric symptoms in Individuals with Epilepsy. To meet the objectives, the research comprised of three studies. In study-1, the Symptom Checklist-90 (SCL-90; Derogatis, Lipman, & Covi, 1973) a multidimensional screening tool of nine primary symptoms including somatization (SOM), obsessive-compulsive (OCD), interpersonal sensitivity (INT), depression (DEP), anxiety (ANX), hostility (HOS), phobic (PHOB), paranoid ideation (PAR), and psychoticism (PSY) were translated and validated in Urdu in three phases. In phase 1, the scale was translated by using the forward and back translation method. While in phase II, the psychometric properties for SCL-90 were established on the purposive sample of N=367 university students with age (M= 21.46, SD=2.08) ranged from 18 to 30 years. The Cronbach alpha coefficients of all the subscales and overall scale were satisfactory ranged from .71 to .98. Moreover, the Confirmatory Factor analysis determined that each subscale of the SCL-90 had shown the acceptable goodness of fit index (GFI) ranging from .96 to .99 and all items were found inter-correlated. The concurrent validity of SCL-90 specified the significant correlation with the subscales of Urdu Version of Minnesota Multiple Personality Inventory (MMPI; Mirza, 1977), and Depression Anxiety Stress Scales (DASS; Zafar, 2014). In phase III, the comparison was made on the sample of 100 individuals with psychiatric disorders and 100 were healthy matched based on gender and age. Results showed that individual with psychiatric problems significantly scored high on all the subscales of SCL-90 as compared to the healthy individuals. The study-II aimed to find the association between the broad arrays of dysfunctional schema modes and psychiatric symptoms in individuals with epilepsy. Furthermore, the effect of various demographics and clinical variables on dysfunctional modes and psychiatric symptoms were examined. A total of 108 people with epilepsy (PWE) mean age (M=24.91, SD=7.42) ranged from 18 to 60 years recruited from the neurology ward of hospitals located in Islamabad and Rawalpindi through purposive sampling

technique. A brief history of illness and other demographics were taken through the semi-structured interview accompanied with the Schema Mode Inventory, and the SCL-90 from the respondents. Regression analyses showed that Detached Protector, punishing parent and Vulnerable child significantly predicted DEP, ANX, HOST, INT, PHOB, PAR, PSY, OCD, and SOM. Whereas Angry protector was the significant predictor of DEP, ANX, INT, and HOS. The Angry child was found to be the only predictor of OCD, and the Compliant surrender was the inverse predictor of HOS. Moreover, the Enraged child significantly predicted HOS and OCD whereas Bully and Attack predicted PHOB. A One-way variance analysis revealed significant differences between the lower, middle and upper socio-economic classes on Dysfunctional Modes. The lower class had significantly utilized the modes detached protector, bully, and attack, angry protector, angry child, enraged child, impulsive child, undisciplined child and punishing the parent. However, Hostility was found in the lower class as compared to upper or middle classes. Moreover, gender differences indicated that males had significantly higher means of Self-aggrandizer, Bully and Attack, Impulsive child and Undisciplined child. Additionally, duration of epilepsy had significantly moderated the relationship between dysfunctional child modes and hostility. The mode graph showed that hostility increases in the acute stage of epilepsy. In addition, during the semi-structured interview, the questions regarding attitude and self-disclosure were asked. 84 (77.8%) PWE developed a fear of having a seizure, whereas (67.6%) could not share their illness with others and did not inform about their disease at the workplace due to stigmatization. In Study-III, the comparison was made between two groups matched on the basis of Age, Gender, and Education. Both groups consisted of 60 individuals with and without epilepsy. T-test analysis revealed that PWE significantly had high scores on Enraged Child and low scores on Adaptive modes. The present study is significantly contributing to the Neuropsychology which is the most neglected part of the research field in Pakistan.

Chapter-I

INTRODUCTION

Living with a volatile chronic disease is nerve-racking for individuals with epilepsy (Murray, 1993). Epilepsy is the most pervasive neurological disease, affecting 65 to 70 million people worldwide (Ngugi et al., 2010, 2011; Thurman et al., 2011; World Health Organization (WHO), 2004). The unpredictable nature of seizures, characterized as a sudden burst of electric discharge in the brain may put the life at risks during everyday activities such as bathing, sports, driving, cooking, and so forth. (Schulze-Bonhage & Buller, 2008). Thus, a seizure-related disability, mortality, stigma, comorbidities, and costs yield abundant effects on the cognitions, physical and psychosocial functioning of individual's life (Quintas et al., 2012).

There is mounting evidence of the association between the epilepsies and comorbidities which include brain disorders, behavioral disorders, and psychiatric illnesses (Berg et al., 2010). It is believed that cognitive and psychiatric disturbances have the same underlying pathological basis. Fear, stress and chemical imbalances not only impaired the cognitions but also affect the behavior, as the seizure triggered in the temporal lobe which possesses the emotion system and conditioned our behavior (LeDoux, 1996; Pellman & Kim, 2015). According to Young (1990) people who are emotionally deprived and whose core needs are unmet more likely to utilize maladaptive coping strategies and develop psychopathology. The coping strategies or coping responses to the stressful events were termed as the schema mode. Therefore, the present study intended to examine the maladaptive coping responses called dysfunctional schema modes of the people with epilepsy and its association with psychological morbidity.

Description of the Epilepsy

Epilepsy is originated from Greeks sense as ‘to possess’ or ‘to take hold of’ resulted from satanic control, a consequence of sins and paranormal reasons. It was also considered that epilepsy is a communicable disease which increases the stigma and isolates the persons with epilepsy. (Temkin, 1971; Wilson, & Reynolds, 1990). Though the attempt had been made by Hippocrates, who made the distinction and characterized epilepsy a brain disorder in his famous pamphlet on “The sacred disease.” However, through the history, a struggle between scientific elucidations of epilepsy and popular superstitions has prevailed till to date (Wolf, 2010).

Epilepsy is manifested by recurrent seizures, which may vary from a brief pause of attention or muscle twitches to severe and prolonged spasms (Rutherford, 2001). Initially, Gastaut (1970) took the first attempt to classify the epilepsies. However, later on in the 1980s, the International League Against Epilepsy (ILAE) Commission consisting of a group of healthcare professionals was developed by assigning the responsibility of standardizing and interpretation the terms and criteria of epilepsy. According to the conceptual explanation made by International League against Epilepsy (ILAE), it is a neurological condition characterized by an enduring tendency to generate epileptic seizures which have neurobiological, cognitive, psychological and social consequences. An *epilepsy syndrome* defined by ILAE (1989) states that an epileptic disease consists of symptoms which usually occur together, and these are containing a type of seizure, etiology, anatomy, precipitating factors, the age at the time of onset, severity, chronicity, circadian cycling and sometimes prognosis (Wolf, 2006).

Prevalence and Incidence. The occurrence of epilepsy refers to the number of new cases of epilepsy in a specific population of 100,000 people during a one year. (Neligan, 2011). According to the WHO (2016) report, annual new cases of epilepsy are 40 to 70 per 100, 000 people in developed countries and 82 per 100, 000 population (28–240) in low-income and

middle-income countries (Ngugi et al., 2011). Almost three-fourths of people with epilepsy do not get the right treatment because of the poverty, social and political unsteadiness; widespread fallacies and lack of epilepsy specialists or inadequate health care facilities (Radhakrishnan, 2009). Infections and inadequate antenatal or perinatal care are the other risk factors for epilepsy which are the leading causes of these enormous differences (Newton & Gracia, 2012).

Prevalence (also referred to as point prevalence) gives the figure of existing persons with active epilepsy in a distinct population as a proportion of the total population over a period, expressed as active cases per 1000 people Jeke (l, Katz, Elmore, & Wild, 2007). The prevalence of active epilepsy in HIC is 5 to 8 per 1000 population whereas 10 per 1000 population in Low-Income-Country (LIC; Thurman et al., 2011). The overall worldwide prevalence of epilepsy is 10/1,000 people (Noronha et al., 2007).

Consequently, the life of People with epilepsy has been expected to be reduced up to 2 to 10 years due to the coexisting conditions with epilepsy (Gaitatzis, Johnson, Chadwick, Shorvon, & Sander, 2004). The Mortality defined in Epilepsy refers to as the Standardized Mortality Ratio (SMR), which is the ratio of perceived expiries of the studied population to that expected based on the sex- and age-specific mortality rates in the general population from which it came (Gaitatzis & Sander, 2004). Among the people with epilepsy, there are many risks factors which include injuries, especially during the seizure, cardiac arrest, suicide, and status epilepticus, are attributable to death (Thurman et al., 2016). Another primary cause is Sudden Unexpected Death in Epilepsy (SUDEP), implies the sudden death without having any identifiable cause such as drowning, injury or any other reason based on pathology and toxicology (Tomson, Nashef, & Ryvlin, 2008). SUDEP usually occurs during a seizure or after an epileptic event and affecting one case per 1,000 people which is a bit challenging and a threat to life. Hence, the indirect cause of SUDEP can be the recurrent seizure which may cause respiratory and cardiac failure (Ficker et al., 1998). Psychiatric comorbidities are also

the principal reason for premature mortality (Fazel, Wolf, Långström, Newton, & Lichtenstein, 2013).

In high-income countries (HIC), the death rate among people with epilepsy is two to five times higher in the overall population (Neligan, Bell, Shorvon, & Sander, 2010) as compared to low-income countries (LIC) where it is up to 37 times especially in young adults (Ding et al., 2013).

The Etiology of Epilepsy

The causes and origins of the disease and disorder are referred to as Etiology**.** Seizures are the symptoms of epilepsy, but itself cannot be considered as epilepsy. There are varieties of means which can contribute to the generation of seizure including; electrical burst, lesions, convulsant drugs, and rapid withdrawal from chronic alcohol exposure and benzodiazepines that affect neuronal activity (Teskey & Farrell, 2015). In the 19thcentury, sleep and stress were documented the most common provoking factors in developing seizure (Aird, 1983; Shorvon, 2011). The age range and geographical location are substantial factors to identify the cause. In studies, sleep has been found an acute trigger of epilepsy whereas others are, missing meals, exposure to a toxin, dehydration, hormonal change and non-compliance to medical intake (National Institute of Neurological Disorders and Stroke, (NINDs), 2015; Schulze-Bonhage & Haut, 2011;).

However, the ILAE has introduced the three categories of etiology which are genetic, structural-metabolic, and unknown aetiologies (Berg & Scheffer, 2011).

Genetic previously known as Idiopathic. In majority disorders, the involvement of genetics cannot be denied. Occasionally genetic epilepsies are resulted due to the default mutations and alterations in the genes that encode ion channels leading to abnormal excitability which stimulate a state of hypersynchrony (Teskey & Farrell, 2015). Further, inherited causative or susceptibility genes with Mendelian and Mitochondrial also contribute to the

expression of disease (Berg et al., 2010). Genetic epilepsies are typically polygenic and likely to constitute a majority of childhood epilepsies. There is also an augmented chance of developing epilepsy by offspring than the general population if the first-degree relative of someone has idiopathic epilepsy (Smithson & Walker, 2012). Thus, the interaction of genes and the environment are equally important (Shorvon, 2011).

Structural or Metabolic previously known as Symptomatic. The epilepsies are also termed as "Acquired" because of abnormalities or lesions in the brain such as stroke, trauma, perinatal hypoxia prenatal intracranial trauma and infection (Berg et al., 2010; Shorvon, 2011). In Adults, the brain tumors are accountable for epilepsy in one-third of patients age ranges from 30 to 50 years. Above age 50, the cerebrovascular disease is the common cause of acquired epilepsy. In developing countries, parasitic disorders and malaria are central causes of epilepsy (Ferrie, Smithson & Walker, 2012).

Unknown epilepsies previously referred Cryptogenic. It relates to that when the underlying cause of the disorder is neither determined genetically nor as a cause of structural or metabolic disorder then such disorder is called as Cryptogenic (Berg & Scheffer, 2011).

Prognosis

The prognosis of epilepsy mainly relies on numerous factors including the etiology, age of onset, sex, the location of seizure, Electroencephalogram patterns, the frequency of seizure and how well the Antiepileptic drugs (AEDs) control seizures (Sander, 2003). However, epilepsy in many cases cannot be ruled out entirely as it is the lifelong disease but manageable with proper diagnosis and early treatment. With the help of balanced and healthy life with AED, individuals with genetic epilepsies may achieve freedom of seizure as compared to the people of having symptomatic or cryptogenic epilepsies (Ferrie, Smithson, & Walker, 2012). Besides the above, two-thirds people with epilepsy will be able to stop medication without a relapse of their seizures. Further, even with AED, 20 to 30% people with temporal lobe

epilepsy (TLE) links with the worst prognosis, have uncontrolled epilepsy (Semah et al., 1998).

Diagnostic Criteria for Epilepsy

Not every seizure is an epileptic attack. The Psychogenic Non-epileptic seizures (PNES) often got the wrong diagnosis and as such have been treated for a long time with suspicion of epilepsy (Szaflarski, Ficker, Cahill, & Privitera, 2000). Thus, the diagnosis of an epileptic seizure (ES) is a little bit tricky but the significant difference is the alteration in electrophysical changes followed in ES, but psychogenic seizure has no identifiable cause except psychological factors (Sahaya, Dholakia, & Sahota, 2011).

A physician with the help of video record, detailed history of the patient, comments of eyewitnesses about the event and further scanning the data, accurately diagnose the causes of seizures (Petkar et al., 2012). According to the diagnostic criteria determined by International League Against Epilepsy, if two unprovoked seizures arise within 24 hours in a series or one unprovoked and a probability of further attacks similar to the general relapse risk after two unprovoked seizures (at least 60%) happening over the next ten years (Fisher et al., 2005). Multiple seizures occurring in a 24 hour period are considered a single event. Those who have had only febrile seizures (seizures in childhood as a result of a severe temperature) or only neonatal seizures are (seizures in the first 28 days following birth) excluded from this category (Commission on Classification and Terminology of the International League Against Epilepsy, 1993).

On the basis of multidimensional standards including the detailed description of the event, epilepsy with the frequency of seizure can be diagnosed. Moreover, Electroencephalogram (EEG) is considered “gold standard” for assessing epilepsy. Trained neurologists in EEG can detect the presence of epilepsy through analysis of waveforms linked with convulsions. In order to examine the neuroanatomic abnormalities and suspected epilepsy,

the Structural brain imaging is done through magnetic resonance imaging (MRI) or functional MRI (fMRI), computed tomography (CT) and the positron emission tomography (PET). Additionally, imaging is also useful to assess the reductions in blood flow or metabolism associated with the location of the seizure (Barr, 2015).

Primary Management of Epilepsy

Epilepsy is assumed to be manageable with proper treatment that enables a person to lead a healthy life. There are various medical and non-medical ways of treating epilepsy. The medical care involves the use of medicine and surgery.

Medical Treatment. The first line treatment for epilepsy is the use of Antiseizure drugs (ASD) and Antiepileptic drugs (AED) to control the seizures, its development, and propagation. (Teskey & Farrell, 2015). The selection of antiepileptic drugs depends on the type and frequency of seizures associated with the individual's age, sex, childbearing potential, and comorbidities. Mostly with the usage of AEDs medicine appropriately, 70% PWE attain seizure freedom. Occasionally seizures can be controlled with one drug at the optimal dosage. But if monotherapy does not work in controlling the seizures, the combination of medication called polytherapy can be used (Perucca & Tomson, 2011).

Adverse Effects of AEDs. Though the aim of epilepsy treatment is to eliminate seizures with no side effects but still the harmful effects of antiepileptic drugs cannot be ignored. These medicines may cause the deficits in cognition, sedation, liver toxicity or failure, anemia, weight gain, depletion of Vitamin D from the bones, congenital malformations, neurobehavioral deficits, impulsiveness, hyperactivity, childbearing problems (Chong & Lerman, 2016). These are also known as to instigate the mood and behavioral side effects such as anger outburst, major depression, suicidality, anxiety disorders, hostility, and aggression (Ferrie, Robinson, & Panayiotopoulos, 1996; Lindenmayer, & Kotsaftis, 2000; Thomas, Trimble, Schmitz, & Ring,1996).

Interestingly some ASDs work as the psychotropic medicine such as Valproic Acid is also used as mood stabilizer by modulating the action of inhibitory neurotransmitter GABA. Constraining to T-type calcium channels which lead to the reduction of excitatory neurotransmission, eventually responsible for positive effects on mood and behavior (Quintero et al., 2011; Dooley, Mieske, & Borosky, 2000).

General Guidelines for Taking AEDs. The dosage and selection of antiepileptics and anticonvulsants are the most crucial part to control the seizures and also to minimize the toxic effects. The medicine should be used for at least two to four years. During this period if the patient spends two years free from seizures then the medicine should be weaned off. Skipping of a single dose of medicine increase the probability of seizure as it is fundamental to maintain a level of the drug in the bloodstream (Chong & Lerman, 2016; Perucca & Tomson, 2011). In order to monitor the side effects of the drugs on the liver. The Routine blood tests are required to be carried out. Further, intake of folic acid and supplements of vitamin D is recommended (Ferrie, Kerr, Smithson, & Walker, 2012).

Surgical treatment of Epilepsy. In order to remove the focal point or the site of onset of the ictus, surgery in epilepsy is carried out. The prospective benefits outweigh the ill-effects and successful among 50 to 70% patients (Hart, 2012).

Epileptic Seizures (ES)

A seizure is a Latin word originated from "sacire" which means to take possession, (American Epilepsy Society, 2006) a temporary paroxysmal path physiological disturbance because of the abnormal excessive or synchronous occur in the cerebral cortex (Wolf, 2006). It is presumed that during an epileptic seizure, neurons fire as many as 500 times per second which is much faster as compared to the standard rate of 80 times per second (Sperry, 2009).

Mechanism Underlying the Seizure. There are specific identifiable causes of chemical changes that occur in the brain such as decreased oxygen level, metabolic imbalances,

and infection which aggravates irregular brain cell activity (Gordon & Kelley, 2014). According to neurobiological explanation, seizure instigation is the consequence of high-frequency propagation of bursting activity, which gives rise to action potentials by hypersynchronizing the neighboring neurons. The synchronized eruption of discharge also called spike discharge, occurs during a seizure, might begin in a distinct region of cortex and then spread to the adjoining regions. Typically, the epileptiform activity involves the constant neuronal depolarization due to the influx of extracellular Ca++ which excite the voltage-gated Na+ resulting in a burst of potential actions. Subsequently, the hyperpolarization followed by the repolarization mediated by the inhibitory action of GABA receptors or Cl- influx, is called the paroxysmal depolarizing shift. Hence, the disbalance of extracellular ion homeostasis, variation in energy metabolism, receptor function, and alter transmitter uptake are the causes of seizure (American Epilepsy Society, 2006; Pinto, Patrick, Huang, & Connors, 2005).

Premonitory Features of Seizure. Initially, Hippocrates described the concept of warnings and presumed that some patients could foresee seizures. Likewise, seizure predictions based on the subjective experiences of signs prior to the seizure, and precipitants which increase the likelihood of a consequent seizure. The Warnings or signs comprising of an epileptic aura may lead to a seizure in few seconds, and "prodromes" designates the subjective feelings before a seizure (Schulze-Bonhage & Haut, 2011). The prodromal phase includes initial symptoms such as a headache, irritability, insomnia, mood variation or hyperactivity which instigates a few hours or days before having the actual seizure.

Aura should not be confused with the prodromal phase, and the indications of the aura usually emerge in focal epilepsy. The patient often feels vague, strange epigastric sensations, unpleasant or weird and indescribable feelings leading to extreme fear. Aura generates in consciousness, and the patient recalls the aura very well, though he will not always be able to

recount it (WHO, 2002). In the circumstances allow the PWE to retreat from a dangerous situation, public places and to take counter-measure (Schulze-Bonhage & Haut, 2011).

Classification of Epileptic Seizure

According to the guidelines of National Institute for Health and Care Excellence (NICE; 2004), the seizure type, epilepsy syndrome, etiology, and co-morbidity needs to be adequately investigated, because failure to classify the epilepsy syndrome correctly, can lead to inappropriate treatment and persistence of seizures. For decades, seizures were used to call a grand mal or petit mall respectively for big and or little seizure. In the last years, seizures were classified into partial (which starts on one side of the brain) and generalized (commences on both sides of the brain synchronously). Partial seizures were further divided into simple partial or complex partial seizures. In simple partial seizures, usually, the person attains consciousness or awareness of the surroundings during the attack. While in complex partial seizures, there is the loss of consciousness during the epileptic event. Partial seizures further evolve into generalized seizures (as cited in Fisher, Shafer & D'Souza, 2016).

Revised Classification of Seizure by ILAE. The clinical manifestation of a seizure depends on where in the brain it starts, and how far and fast it spreads, the duration or frequency of the seizure, the time of day or night that the seizure occurs, and its relation to sleep. The age of onset, the presence of an aura and the symptoms after the postictal phase are also helpful in classifying the seizure. According to the revised classification of ILAE, in the year, the term focal seizure has replaced the term simple partial and complex partial (Berg et al., 2010; Fisher et al., 2016). The seizures have been divided into two broad categories: *Focal Seizures* and *Generalized Seizures* (Moshé, Perucca, Ryvlin, & Tomson, 2015). Moreover, if the onset of a seizure is unknown, it is called as Unknown onset. Conceptually, the term "generalized" refers only to the start of a seizure, and secondary generalized seizure is considered to start on one side of the brain and spreads over to both sides. Now the new word for "the secondary

generalized seizure" would be "focal to bilateral seizure." The significant advancement is the replacement of the term consciousness with the awareness (Fisher et al., 2016). In the following table, there is a summary of classification and symptoms of seizures given by ILAE, 2017.

Table 1: Summary of the Classification of Seizures

1. Focal Onset Seizures

- With motor features (with impairment of awareness or dyscognitive) refers to as jolting, jerking, or stiffening movements of a body part or automatic movements (chewing lips, rubbing hands, walking, or running).
- With non-motor features without impairment of awareness such as somatosensory symptoms such as hallucinations, tingling sensations, epigastric sensation, swallowed, steady humming sound, déjà vu, distortion of time sense and fear).

2. Generalized Onset Seizures

With motor seizures

Tonic-clonic seizures(called grand mal seizures, are characterized by abrupt loss of consciousness followed by tonic contraction of the muscles.)

Tonic seizures (are characterized by a sudden loss of muscle tone which can lead to a head drop, a limb drop, or a drop of the whole body (a.k.a. – a drop attack).

Myoclonic seizures are brief, irregular, shock-like jerks of the head, trunk, or limbs.

Clonic

With non-motor

- *Absence seizures* (the impairment of awareness along with mild clonic (twitching), atonic or tonic (stiffening) components, automatisms and autonomic symptoms or signs (chewing lips, rubbing,
- etc.)
- Atypical absence (can have clonic (twitching) and tonic (stiffening) of the body during the seizure sometimes).

Unknown Onset seizures (includes all seizures that defy classification due to incomplete data).

See Instruction Manual Instruction manual for the ILAE 2017 operational classification of seizure types (Fisher et al., 2017). *Epilepsia*, *58*: 531–542. doi:10.1111/epi.13671

Focal seizures

In Focal seizures, signs and symptoms of the epileptic event are depended on the localization of the seizure. They are usually brief as to get intense lasting less than a few minutes. Sometimes, the consciousness is fully conserved, and the discharge remains limited in focal seizure, this type of situation is often termed as "Aura" which may evolve to the loss

of awareness or dyscognitive. An aura is thought to be a reliable indicator of a focal seizure (Teskey & Farrell, 2015).

There are four lobes of the brain which are responsible for different functions such as sensorimotor, behavioral, affective, and cognitive experiences and attributes. Seizures can start in any of the four lobes such as Occipital, Parietal, Frontal and Temporal lobes. Thus, the focal seizures may have motor, sensory, autonomic, and psychic features (Shorvon, 2005). Usually, 60% of the partial seizures are originated in the temporal lobe whereas remaining is originated in the frontal lobe. The seizures originated in parietal or occipital lobe regions are relatively rare (Ferrie & Walker, 2012).

Temporal Lobe Seizures. The temporal lobe contains subcortical structures, the amygdala and hippocampus and their concomitant cortical regions. It comprises of a massive volume of brain tissue that has multiple functions such as, regulates the higher-order processing of auditory input, visual input, gustatory input, long-term storage of sensory input (memory), and emotional regulation (Kolb, 2015). Damaging to the temporal lobe can alter personality, increase in emotionality, causes depression, obsessionalism, religiosity, paranoia, and a reduced sense of humor because of the interconnected network of the neocortex, thalamus, hippocampal formation, and amygdala which forms the basis of emotional understanding (Kolb & Whishaw, 2015).

Temporal lobe epilepsy (TLE) is the most frequent form of the focal epilepsy syndromes which is happening in approximately 70 to 90 % (Williamson et al., 1993). If the seizure occurs in the temporal lobe, symptoms include déjà vu, butterflies, and fear, illusions, hallucinations (auditory, olfactory and gustatory) and intricate visual hallucinations such as having a strange taste or smell. There may be motor halt or altered called “Automatic behavior” followed typically by chewing or lip smacking, grimacing, undressing, swallowing

(oroalimentary automatisms), and then fiddling with the hands (limb automatisms) (Ferrie & Walker, 2012).

Frontal Lobe Seizures. The Frontal lobe places in front of the brain comprise 30% of the cerebral cortex (also known as the cerebrum), along with the parietal, occipital, and temporal lobes. The posterior portion of the frontal lobe known as motor and premotor cortex, initiate the movement (Metcalf, 2016). Frontal Lobe performs a vital role in higher order cognitive processes such as volition, planning, carrying out activities, personality expression, emotional processing, and working memory (Hanna-Pladdy, 2007). Deficits in these tasks might have an influence on the attainment of education, employment, and social functioning. Executive cognitive skills discrepancies in frontal lobe region have been allied with poor cognitive rehabilitation programs (Ehlhardt et al., 2008).

The frontal lobe epilepsy (FLE) is a second most common form of epilepsy, in which seizure often occur in sleep (Patrikelis, Angelakis, & Gatzonis, 2009). The FLE seizures include odd motor posturing or fencing postures such as stretching one arm and large gestural movements such as pushing away, rocking, running, scissoring, or cycling movements of the legs, moving eyes to one side and forced thinking. These movements are looking quite bizarre, but typically they are stereotypical and repetitive (Ferrie & Walker, 2012). In a study by Helmstaedter, Gleissner, Zentner, and Elger, (1998) found that poor motor skills, response inhibition, attention, working memory, planning, and psychomotor speed in patients of FLE.

Parietal Lobe Seizures. The parietal lobe is known as "association cortex." It constitutes the visual, auditory, and somatosensory information and gives direction to our daily performed behavior such as reaching and grasping for objects. The parietal lobe locates in the middle of the brain covers approximately one-fifth of the cerebral cortex and receives projections from the frontal, occipital, and temporal lobes. The parietal lobe is not only process information about the sense of touch, seeing, pain or spatial but also perform essential cognitive

functions such as attention, digital processing and working memory (Gonzalez & Flindall, 2015).

The signs of parietal lobe seizures may include the tingling sensations, feelings of numbness, hot flashes, marching sensation called Jacksonian seizure which starts from the face and moves to other parts of the body such as hand or arm. Having somatic illusions such as distortion of arms or legs, mouth, and feeling, there may be somebody part is missing or sensations of dizziness. There is also difficulty in doing maths or reading (Ferrie & Walker, 2012).

Occipital Lobe Seizures. The occipital lobe is also part of the cerebral cortex that lies beneath of the occipital lobe, the rearmost portion of the brain. Primarily it associates with visual functions, deficits in this area affect not only visual functions but also attention, memory and verbal abilities. (Siebelink, Bakker, Binnie, & Trenite, 1988). Occipital lobe seizures stimulate by a flash, video games, daylight, through TV, or a striking image that contains bright colors called flicker stimulation; these seizures also referred to as photo-sensitivity seizures. (Yalcin, Kaymaz, & Forta, 2000).

The Occipital lobe epilepsy (OLE) is a rare syndrome, prevailing in 1.2–2.6% of patients with focal epilepsy (Manford, Hart, Sander, & Shorvon, 1992). The manifestation of OLE seizure includes a mere visual hallucination and blurred vision due to color spots in one part of the visual field. Nonvisual symptoms include aversion of the eyes and head, eye blinking, automatisms, unilateral convulsions, postictal headaches, nausea and vomiting, pale face, vertigo, and decreased vigilance, among others (Guerrini et al., 1995).

Generalized Onset Seizures

Generalized seizures are believed to initiate within bilaterally scattered cortical or cortical-subcortical simultaneously without a specific locality (Moshe, Perucca, Ryvlin, & Tomson, 2015). Mainly, generalized seizures are grouped as a motor (previously called grand

mal) or non-motor seizures (loosely termed as petit mal) (Fisher et al., 2016). The standard features of generalized seizures are a complete loss of awareness, jerks and the absence of aura. The most common type of generalized is a tonic-clonic seizure (GTCS), and others include absence seizures, myoclonic and the tonic seizures (Shorvon, 2005).

Generalized Tonic-Clonic Seizure (GTCS). The generalized tonic-clonic seizure often termed as convulsions, usually having two phases,i.e., stiffening (tonic) and jerking (clonic). At some point, the convulsions can be intense due to the addition of another generalized seizure such as myoclonic jerks or absences (Fisher et al., 2016). During this type of spasm, the person will fall due to the stiffness of the muscles of the chest which blocked the breathing, and the patient may become cyanosed. After this tonic phase, clonic movements start in the upper limbs, the arms stretched, and the legs extended, and then jerks started to the patient. During this spasm, the patient might chew the side of the tongue as the jaw clenches and further in some cases pass urine or stool occasionally. Mostly, this clonic phase may be lost after several minutes. Subsequently, the patient feels much confusion, fatigue, sleepiness, headache, and lethargy and the patient may take a longer time to take over the full effects of the convulsion (Ferrie & Walker, 2012; WHO, 2002).

Absence seizures. Typical absence seizures, previously recognized as petit mal, always start in childhood or in adolescence. These seizures include motor arrest, staring, unconscious for a few seconds and the patient might have slight jerking movements of body or limbs. Sometimes, there can be only fluttering of the eyelids, swallowing, and flopping of the head. These attacks occur in the patient for a few seconds but many times a day which creates difficulty in diagnosing it at the early stage because of the immediate recovery and further by leaving no post-ictal effect. An absence seizure is also categorized as an atypical absence in which less loss of awareness is observed, but this seizure changed the muscle tone. Severe

epilepsy syndromes associated with learning difficulties are considered as the Lennon-Gastaut Syndrome (Ferrie & Walker, 2012; Shorvon, 2005).

Myoclonic Seizures. In myoclonic seizures, there is a brief shock, twitch or shake to the part of the body or the whole body. In idiopathic generalized epilepsies' jerks usually occur in the morning within a couple of hours after awakening (Ferrie & Walker, 2012).

Atonic and Tonic Seizures. The atonic and tonic seizures are often termed as "drop attacks" having rapid loss of body tone (atonic) or unexpected increase in body tone (tonic), follow-on by fall. After these seizures patient may regain swiftly without any injury. Moreover, these seizures customarily occur in more severe epilepsies with learning difficulties such as the Lennox–Gastaut syndrome (Ferrie & Walker, 2012; WHO, 2002).

Clonic Seizures. These seizures are also called generalized seizures and including repetitive rhythmic flexing and stretching of limbs (WHO, 2002).

Status Epilepticus

Usually, duration of an epileptic seizure is brief and lost after few minutes. The status epilepticus is a medical condition in which epileptic event persists for at least 30 minutes. During the epilepticus condition of 30 minutes sometimes there can be clusters of seizures occurred which is a big hurdle in patient's full recovery. These clusters of seizures are very dangerous which not only can damage the brain but also even lead the patient to death (Shorvon, 2005).

Temporal Link of Seizures with Psychopathology: A Neurobiological Perspective

It is evident from the studies that aggressive nature of the seizure causes various abnormalities in the brain which can impair the cognitions and behavior. Clinically it is important to determine the temporal relation of seizures on the behavior. Accordingly, the time-period of the expression of the ictus include Pre-ictal which is 24 hours' period preceding seizure onset, Ictal is the phase of during a seizure and Post-ictal is the 24 hours' time following

seizure offset, and the interval between the seizure is termed as “Interictal”(Teskey & Farrell, 2015).

Pre-ictal. The pre-ictal period refers to the rapid changes in neural activity and blood flow before the seizure can be noticed from minutes to hours. Fluctuations in the brain during the pre-ictal, represent through prodrome or aura which help the patients to envisage seizure and allow intervention (Baumgartner, Serles, Leurmezer, & Pataraia, 1998). The prodromal phase show changes occurred in the person’s personality, behavior and emotions which include irritability, poor concentration, and feeling sadness (Yudofsky & Hales, 2008). In a retrospective study of the 100 patients having epilepsy, it was found that 35% patients reported prodromal or premonitory symptoms such as feeling funny, headache, confusion, and depression which might be lasted from 30 minutes to several hours (Scaramelli et al., 2009). A study conducted on 27 patients who have consecutively rated their mood for a month. Severe mood changes and touchiness were found just before the three days of seizure (Blanchet & Frommer, 1986). Thus, the two most common symptoms,i.e.,cognitive and behavioral were experienced by the patients. The cognitive symptoms include bradypsychia (which is the latency in verbal and motor responses), clumsiness, short-term memory and attention disturbances. At the same time, irritability is also culminating in a seizure (Vijayaraghavan, Natarajan, & Krishnamoorthy, 2011).

Ictal. The ictus is the result of an electrical burst of neurons which leads to the grim death of the brain. It has been observed that during a seizure,a massive incursion of calcium leads to cell death that's why a status epilepticus has divested effect on the brain (Teskey & Farrell, 2015). Subsequently, Ictal have an ultimate impact on the cognitions causing altered consciousness, derealization, depersonalization and behavioral aberrations (Yudofsky & Hales, 2008). Anxiety, fear, mood disorders, and suicidality are the most frequent symptoms who have reported ictal psychiatric symptoms which are manifested in focal seizures. Fear is severely

associated with auras in people with partial seizures. Whereas feeling of remorse, anhedonia, and mood variations have originated in individuals with temporal lobe epilepsy (Gaitatzis, Trimble & Sander, 2004).

Another cognitive complication of epilepsy has usually succumbed the middle and old age people with Transient epileptic amnesia (TEA) during the focal seizures; which is the impairment of consciousness followed by a brief and recurrent episode of anterograde and retrograde amnesia. The symptoms of TEA may muddle with hysterical attacks, and only the presence of epileptic form abnormalities on electroencephalography, the concomitant onset of other appearances of seizures such as lip-smacking or olfactory hallucinations and response to anticonvulsant therapy can discriminate TEA from other disorders (Butler et al., 2007). Typically, ictal activity in the medial temporal structure may cause Anterograde amnesia, the impairment of new memories and Retrograde amnesia which shows difficulty in retaining past reflections (Vijayaraghavan, Natarajan, & Krishnamoorthy, 2011).

Post-ictal. The post-ictal period stays 72 hours followed by a seizure. Enormous deficits include cognitive, sensory, motor and behavioral depending upon the location of the event observed after the seizure (Teskey & Farrell, 2015). A very comprehensive study by Kanner, Soto, & Gross-Kanner, (2004) was done on the post-ictal psychiatric symptoms (PPS) at the Rush Epilepsy Center with 100 drug-resistant patients. Various symptoms which include depression, anxiety, phobia, panic attacks, obsessive-compulsive, psychosis, and somatic complaints were examined during the post-ictal period. The specially designed postictal measure was also kept for discrimination between interictal and postictal symptoms. Also, reported that 50% of the patients had developed psychiatric disorders and among them, depression, anxiety, and behavioral issues were more common.

Postictal psychosis is the most frequent with features of mania, hypomania, delusional and hallucinations (Yudofsky & Hales, 2008). It is 9% prevalent in PWE as compared to the

general population which is (1%) (Kanner & Palac, 2002). Psychosis was defined in International Classification of Disorders (ICD-10) which specifies the occurrence of visual or auditory hallucinations, delusions, or false fixed beliefs. Behavioral issues having conduct problems, regulation of emotions, mood elation or excitement are also marked as psychomotor retardation or stupor (WHO, 1992).

According to Logsdail and Toonet (1988), the first episode of psychosis just appeared after a seizure or within seven days of the event may stay for a day or up to three months. In some cases, the psychosis continues to prevail due to the disappearance of the epileptic form of activity and this phenomenon is called paradoxical or forced normalization (Kanner & Palac, 2002). The *forced normalization* is giving the connection between epilepsy and psychiatry. In 1953, Landolt studied 107 patients, and out of them, 47 were found with the manifestation of psychotic episodes because of the cessation of seizures. Accordingly, the electrical stabilization of EEG has discharged or suppression of seizures through paradoxical normalization leading to psychiatric disorders (Landolt, 1953; Krishnamoorthy, Trimble, Sander, & Kanner, 2002). Further, the term "alternative psychosis" also refers to the antagonist relationship between epilepsy and attack shows that the termination of seizure in epilepsy ends up with the behavioral disorders (Wolf & Trimble, 1985).

Despite the ictal control, the possibility of epilepsy cannot be ruled out and remain active in the cortical region. Behavioral and cognitive dysfunctions are emerged due to the disinhibition of limbic system in temporal lobe region which is essential for the emotion regulation. Moreover, the use of AEDs causes mutability in neuromodulators or excessive inhibition of neurochemical such as GABA has produced psychosis (Trimble & Meador, 2016). This phenomenon has been better described by Stevens' (1986) by describing that not all the spikes are for ictal and kindling processes resulted in hindering the neurotransmitters.

Kindling is the path of the physiological process which shows that the vulnerable limbic areas have induced seizure due to repetitive subthreshold electrical or chemical (Neppe, 1985). The pharmacological kindling is the contributing factor of behavioral disturbances, whereas electrical kindling is the contributing factor in limbic areas such as the amygdala, olfactory bulb, produce motor responses (Mula & Monaco, 2009).

Subsequently, the predisposition of psychosis, dysphoric states, somatization, and other psychiatric disarrays are depending upon the several factors including past psychological issues, premorbid personality, vulnerability, and lifestyle (Wolf, 1990). Psychosis is likely to occur in patients with Partial Epilepsy as compared to Generalized Epilepsy. Family history and Intellectual functioning are also the contributing factors in psychosis patients (Adachi et al., 2002).

Interictal. Clinically the period between the seizures termed Interictal has been investigated for many years and considered to be a cause of permanent changes in personality, and behavior. With repeated seizures, profound variations in the brain emerge in the form of psychiatric illnesses, and behavioral disruptions even in the period of equilibrium (Teskey & Farrell, 2015). Additionally, the posterior orbit frontal cortex and anterior cingulate gyrus, two critical paralimbic areas, are located within the frontal lobe. Anterior cingulate seizure foci can develop interictal psychoses, hostility, sociopathic behavior, sexual deviancy, petulance, obsessive-compulsive disorder, and poor impulse control (Bear, Levin, Blumer, Chetham, & Ryder, 1982; Devinsky et al., 1995). Consequently, Interictal changes affected 99% patients' lives by instigating mood disarrays such as depression, anxiety, irritability, aggression, hypomania, and subtle variations in emotions due to the role of the amygdala (Devinsky & D'Esposito, 2004). In a survey conducted on 172 959 people, revealed that individuals with epilepsy are more likely to experience psychopathology than the lay population which may impair the executive and social functions (Ottman et al., 2011). Nonetheless, the

symptomology of the pre-ictal, ictal, postictal and interictal have the shared pathogenic basis and are thoroughly interlinked (Kanner, 2009).

Interictal or Epileptic Personality. The personality disorders are more common during the interictal period referred to "the epileptic personality," having fiery impulsivity, affective viscosity (the tendency to prolong interactions with others), and egocentricity (Barr, 2003).Due to the significant involvement of Temporal Lobe Epilepsy, Waxman and Geshwind (1975) devised the term Interictal Behaviour syndrome, a set of disrupted behaviors such as altered religious thoughts, sexual worries, hypergraphia, and circumstantiality refers to difficulty in getting to the point. Bear and Fedio (1977) extended the work of Gershwind and categorised the personality traits such as emotionality matters, anger, aggression, hostility, mania, depression, guilt, humorlessness, altered sexual interest, religiosity, philosophical interest, sense of personal destiny, hypermoralism, dependence, paranoia, obsessionalism, circumstantialities, and viscosity which is the tendency to lengthen interpersonal meetings and often associated with indirect and finicky speech. These personality traits seen in TLE, have psychopathologic characteristics such as perseverance, repetitiveness, and compulsiveness which are the sign of obsessive-compulsive disorders (OCD) (Torta & Keller, 1999).

In a study conducted by Aycicegi-Dinn, Dinn, and Caldwell-Harris (2008) investigated the role of temporal lobe with personality characteristics and psychiatric symptoms collectively known as the interictal behavioral syndrome or Geschwind's syndrome. They examined the clinical profiles of the students with their self-reported symptoms accompanying with temporolimbic seizures. All participants completed the Limbic System Checklist of a 33-question requirement and self-administered symptom inventory. Cognitive deficits and disorganized communication were found highly associated with the temporal lobe epilepsy.The importance of the frontal lobes of personality is equally important like temporal lobe. During the surgical treatment of epilepsy in the frontal lobe, significant personality changes, judgment,

and reasoning were found. Similarly, the limbic disorders were more related to emotion, motivation and instinct desires. Hence, emotional problems, labile affect, and aggression were the crucial issues. Therefore, they were developed after epileptic seizures and tended to be subtle (Gloor, 1991; Krishnamoorthy, Trimble, & Blumer, 2007).

Psychiatric Comorbidity in Epilepsy

Psychiatric comorbidities are highly associated with epilepsy, affecting 35% of PWE (LaFrance, Kanner, & Hermann, 2008; Tellez-Zenteno, Patten, Jette, Williams, & Wiebe, 2007) due to the adverse effects of drugs, the trauma of seizure, and stigmatization (Schwartz & Marsh, 2000). Further, stabilization of seizures produce excessive inhibition and lead to psychiatric disturbances (Engel, 1991). Keeping in view the biological and psychological connection of epilepsy and its impact on the PWE, the current study aimed to assess the several possible psychiatric symptoms by using the Symptom Checklist (SCL-90) which includes Somatization (SOM), Obsessive-Compulsive (OCD), Interpersonal Sensitivity (INS), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic (PHOB), Paranoid Ideation (PAR), and Psychoticism (PSY) among the people with epilepsy in Pakistan.

Comorbidity denotes the occurrence of two or more coexisting disorders added to a primary diagnosis (Mosby's Medical Dictionary, 2009). The term ‘comorbidity’ was familiarized in medicine by Feinstein (1970) to signify those cases in which different supplementary clinical entity occurred during the clinical course of a patient who has an index of the disease. This term has been popularly used for thorough understanding of dual diagnosis or to ascertain the possibility of other psychiatric disorders. In order to manage epilepsy and to lessen the sufferings of the People with epilepsy, the ascertainment of the psychiatric comorbidities in epilepsy is vital. Many researches revealed that people with epilepsy significantly scored high on the subscales on the SCL-90 (Butterbaugh et al., 2005; Gilliam, Hecimovic, & Sheline, 2003).

Correspondingly, Tellez-Zenteno et al. (2007) explored the mental health problems in a population with and without epilepsy. A sample of 257 people with epilepsy were interviewed by using World Mental Health Composite International Diagnostic tool and found that the occurrence of depression was 17.4%, anxiety (22.8 %), mood disorders (24.4%), agoraphobia (5.6%), panic disorder (3.6%), and suicidal ideation (25%). Thus, the high prevalence of psychiatric comorbidity was found in PWE as compared to the general population. Similarly, the burden of comorbidities has the significant effect on the quality of life, increase in health care needs the pronounced rate of mortality and financial cost (Wiebe, Eliasziw, Bellhouse, & Fallahay, 1999).

Depression and Anxiety Disorders in Epilepsy. Depression shows the signs of guilt, hopelessness, shame, loss of interest in joyful activities (LaFrance et al., 2008) and is considered as the most prevalent comorbid disorder in PWE (Gaitatzis et al., 2004; Kanner, 2005) with high rates of suicidal incidents as compared to the general population (Jones et al., 2003). According to the neurobiological perspective, epilepsy is presumed to have a shared pathogenic mechanism with depression or psychiatric ailment.

In summary, epilepsy creates disbalance in the transmission of serotonergic and noradrenergic (Nemeroff & Owens, 2002). Robertson indicated that 11.5% deaths occurred due to the depression. In a study conducted by Hecimovic et al. (2012) elucidated that depression has been found a significant predictor of suicide in a population with epilepsy. Almost 12% patients with the depression wished for suicide, and low scored on the quality of life. Suicide is the most significant cause of increased mortality in people with epilepsy. In a survey conducted during the period of 1981 to 1997, it has been found that the highest ratio of deaths in Denmark was due to suicide among 20,000 people. In addition, the primary reason for suicide was the comorbidity of psychiatric disorder which increased the three times higher risk of suicidal ideation (Christensen, Vestergaard, Mortensen, Sidenius, & Agerbo, 2007). A

similar ratio was found in Iceland (Rafnsson, Olafsson, Hauser, & Gudmundsson, 2001) and Sweden (Nilsson, Tomson, Farahmand, Diwan, & Persson, 1997). Thus, depression and anxiety are the two chief factors which significantly develop Interpersonal sensitivity among the PWE. Further, the patients who have poor control of their illness, more likely to suffer the sense of inadequacy, helplessness, excessive worries and poor relationships (Asadi-Pooya, Schilling, Glosser, Tracy, & Sperling 2007).

Fear of sudden seizures cannot be ruled out even after the years of seizure recovery. Most of the fear is recognized in the form of aura which is widely associated with a complex partial seizure. The onset of ictal fear is paroxysmal usually short and can be last 1 to 2 minutes by producing intense feelings of horror and uncomfortableness (Devinsky & Vazquez, 1993). According to neurobiological explanation, fear generates in the amygdala activate the autonomic nervous system. Whereas the condition of fear occurred in the hippocampus can be re-experienced and transform into unwarranted worriedness or anxious feelings. Anxiety disorders include panic attack, social anxiety, agoraphobia, and obsessive-compulsive are the most prevalent psychiatric comorbidity which is also termed as "forgotten comorbidity" (Kanner, 2011). In a population-based survey in England, it was found that for the social phobia or agoraphobia and other anxiety disorders have the robust elevated scores whereas overall anxiety disorders accounted one-third among the PWE (Rai, 2012). Thus, anxiety disorders and depression have same neurobiological correlates which are significantly affecting the quality of life of PWE (Brandt & Mula, 2016).

Obsessive-compulsive. It refers the persistent thoughts and feelings that are resulted in interruptions, repetitive, unusual and compulsive acts. These behaviors obsessed the individuals' attention and released the pent-up need of these mental necessities. Some of the OCD topographies are washing hands, again and again, ordering the things, symmetry or regularity, meticulousness, and religiosity occur more often in persons with focal epilepsy.

According to the review, OCD traits are prevalent in the Temporal lobe epilepsy (Kaplan, 2011). Similar findings by Monaco et al. (2005) indicated that OCD was more like a trait which was represented in TLE evaluation by using the Structured Clinical Interview based on DSM-IV, Minnesota Multiphasic Personality Inventory-2 (MMPI-2), and the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS). A total sample of 82 patients was collected out of them 62 were TLE, and remaining were found with idiopathic generalized epilepsy (IGE). Nearly 15% patients with TLE having OCD features and concluded that the obsessionality is a trait.

Hostility: It is the form of aggression, which depict the shape of physical or verbal abuse and as such limit the social interaction of an individual (Anderson & Bushman, 2002). Trimble (2013) signified that the amygdala dysfunction is directed to aggression or intermittent explosive disorder. Nevertheless, the psychological factors such as unemployment, low income, marriage, seizures, and AEDs have significantly predicted the hostility. In a case-control study, it was revealed that patients with epilepsy had elevated scores on the subscales of the Aggression Questionnaire, the Revised Stigma Scale, the Korean version of the Neurological Disorders Depression Inventory for Epilepsy, and the Generalized Anxiety Disorder-7 as compared to the healthy group. The outburst of anger was found to be more common in patients than the controls. Stigma is also the critical factor for interictal aggression and may lead to other psychological disorders (Seo, Kim, & Park, 2015).

Psychosocial Factors as Predictors of Psychiatric Symptoms

Substantial numbers of studies have documented that the pervasiveness of psychiatric morbidity in epilepsy is due to having neurobiological factors and have its impact on the psychological well-being of an Individual with epilepsy. However, the psychosocial variables include the acceptance, knowledge, and awareness of epilepsy, fear or trauma of seizure, low academic achievement, poor psychological adjustment in school or other social settings due to

low self-esteem, self-efficacy (Mitten, 2009), and the lack of social support, (De Souza & Salgado, 2006). Educational difficulties are more prevalent among the individuals with epilepsy because of the feelings that they are not capable of meeting the educational demands, not able to compete and fulfilled the expectations of parents and teachers. Thus, stressful interrelationships with parents, teacher, and peer resulted in low self-esteem and heightened anxiety among them (Thompson, 2000). Fisher et al. (2000) reported that there were very few PWE who reached high school or graduated.

Hermann, Seidenberg, and Bell, (2000) clarified that the social determinants which include age, income, gender, education, and employment are the decisive factors for health and disease. Low income or socioeconomic status has hampered the access to treatment, better living styles, healthy diet and resulting in mental health issues. Thus, poor academic record or no provision of education, higher rates of unemployment and disparities in social settings have subsidized to psychological distress among the lower class of PWE (Szaflarski, 2014). Elwes, Marshall, Beattie, and Newman, (1991) concluded in a study that PWE had a high unemployment rate as compared to a general population. Researchers reported the possibilities of low employment rates or not having suitable employment likely because of poor attainment of education, fear of injury at the workplace, disparities, skills deficits and apparent stigma causing low self-efficacy (Devinsky et al., 1994; Clarke, Upton, & Castellanos, 2006). Likewise, Leaffer, Hesdorffer, and Begley, (2014) found substantial evidence of increased stigma with low SES more likely to impact the life of PWE.

Perceived Stigma. Goffman described that the stigma as an attribute of dishonoring and victimizing (Goffman, 1963). Further stigma has been elaborated in terms of "felt" or "enacted," whereas enacted stigma yields the discriminatory act or sanctions imposed by others such as restriction on driving or operating heavy machinery and others disgracing behavior in the social milieu. The ostracism of individuals with epilepsy anticipates the hostility or adverse

reactions which prohibit them from disclosing about their illness (Scambler & Hopkins, 1986). Correspondingly, Thomas and Nair (2011) stated that people with epilepsy can lead a healthy life if they do not get a seizure in front of others or able to conceal their illness. Once the sheath of their illness breaks they become stigmatized which is more likely a trait. Further, stigma has the potential effect on the whole family and has a worse social impact on the quality of life. In a survey conducted in Georgia revealed that 75% parents did not allow their children to marry with PWE. Surprisingly, despite living in developed countries, and having high expenditure for the excellent health system, people with epilepsy experienced an increased level of stigma (Brigo et al., 2015). Thus, these psychosocial factors have significantly impaired the social and occupational functioning of an individual and became a source of Social Disability due to psychiatric comorbidities (Ormel et al., 1993).

In a review article of epilepsy and psychological functioning, McCagh, Fisk, and Baker (2009) concluded that clinical factors are not the sole perpetrators of psychological maladjustment. Noticeably, the psychosocial factors include the such as low socioeconomic status, incomplete education, unemployment, poor family relationships, stereotypes, myths, low self-esteem, and self-efficacy hampered the functioning. Thus, there is the necessity of psychotherapeutic treatment for individuals with epilepsy.

Psychotherapeutic Interventions

Despondently, 30% people have refractory, pharmacoresistant, or intractable epilepsy because of having poor control over the seizures despite ASDs, which may halt the psychosocial functioning in individual's life (Perucca, & Kwan, 2005). In this case, in order to diminish psychological impositions, evasion from the disease, and hyperarousal symptoms, non-pharmacological treatment is used. Thus, psychotherapeutic intervention can be supportive in improving the quality of life which includes cognitive behavioral therapy, the acceptance and commitment therapy and neurofeedback therapy (Ferrie et al., 2012).

Effects of AEDs as mentioned above on behavior and mood are also worst. Therefore, for the adjustment of individuals with epilepsy, the dire need for counseling and awareness about the disease is required. Scambler (1993) has introduced five dimensions process of reconciliation which includes accommodation, rationalization, the concept of self, sociability, and fulfillment. During the process of adjustment, PWE has to confront their fear of seizure positively and has to avoid the negative impact of having epilepsy on their self-worth. In this regard, the clinicians can play a significant role in accommodating the patient through proper communication of the disease, the use of rational drug therapy combined with psychotherapeutic intervention (Hermann & Whitman, 1991; Scambler, 1993).

The goal of psychotherapeutic therapies has developed efficiently resilience, reduction in the seizures and improved the quality of life for the people with epilepsy by using multiple models.

Cognitive Behavior Therapy. The basic foundation of Cognitive behavior is that emotions and behavior are the product of thoughts and ideas. In order to enhance the subjective and emotional well-being of the patient, in CBT the therapist prepare and train the individual to confront with their maladaptive thought patterns by replacing them with the positive thoughts. This approach is widely used to treat psychiatric disorders such as depression, anxiety, stress, obsessive-compulsive disorder, eating disorder, low self-esteem, anger, etc. It is helpful in developing insight among PWE by giving them knowledge about epilepsy, boost their self-esteem, regulating mood, stress and change the lifestyle. The protocols of CBT such as self-affirmation statements and relaxation logs, enable the individual in taking personal control over their convulsions (May & Pfafflin, 2002; Reiter & Andrews, 2000). Moreover, a workbook “Taking Control of Your Epilepsy” is a remarkable development which entails the guidelines of conducting 12 regular sessions by using the behavioral and cognitive reframing techniques, positive communication skills, and goal setting exercises (Andrews, Reiter, &

Janis, 1987). Correspondingly, group-based CBT has been found a highly effective for treating depression and anxiety among the PWE (Macrodimitris et al., 2011).

The Acceptance and Commitment Therapy (ACT). This therapy has been evolved from the third wave of behavioral and cognitive therapy for treating psychiatric illnesses such as anxiety or depression (Swain, Hancock, Hainsworth, & Bowman, 2013); epilepsy (Lundgren, Dahl, Melin, & Kies, 2006), and chronic diseases (Prevedini, Presti, Rabitti, Miselli, & Moderato, 2011). The purpose of the ACT is to develop psychological flexibility while incorporating the painful thoughts, emotions, and sensations associated with epilepsy (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). The ACT deals with the worrying, problematic and anxiety patterns which were occurred due to seizures with particular treatment strategies. In epilepsy, first of all, it is essential to evaluate the internal and external precipitating factors with the onset of a seizure. Secondly, in order to prevent the seizure occurrence, the client is engaged in valued activities by altering the effects of problematic cognitions and behavior (Lundgren, 2011). There is the promising efficacy of ACT in reducing seizures and cultivating the psychological well-being after subsequent sessions of the ACT among drug-resistant patients with epilepsy (Lundgren, Dahl, Yardi, & Melin, 2008).

The ACT is integrated with mindfulness which encompasses meditation styles such as mindful breathing is useful for regulating emotional problems and experiences of seizure in PWE. The brief description of this approach is to acquire self-observation of mental and bodily activity such as breathing, thoughts, emotions and external provocations like sounds, smells. There are also six core processes which include acceptance, contact with the present moment, values, cognitive defusion, committed action, and self as context. The therapeutic goal of the ACT is to evolve the clients connect with the present moments in such a way that he may start accepting the things without being judgmental and devise the appropriate goals or behavior repertoire. This primary aim of this process is to conceptualize the therapist to be aware of the

client's experiential avoidance such as painful thoughts, memories, and emotions. (Lundgren, 2011; Dewhurst, Novakova, & Reuber, 2015).

Neurofeedback (NF) for Epilepsy. Grounded on the principle of operant conditioning, neurofeedback is a method of behavioral training to gain control over the brain waves. It has been considered a fair adjunctive treatment for pharmaco-resistant epilepsy (Heinrich, Gevensleben, & Strehl, 2007). A meta-analysis indicated that majority of the patients got 50% seizure reduction after NF treatment (Sterman, 2000). Further, electroconvulsive therapy has been developed as an effective treatment not only for seizure reduction but also ameliorating for severe psychiatric disorders, behavioral complaints such as aggression, hyperactivity associated with epilepsy (Trimble & Meador, 2016).

The behaviorists have viewed the seizure as an event containing both biological predisposition and environmental factors. Biological factors included the stimulation of restricted cortical areas and activated functional anatomic circuits which lead to ictogenesis whereas environmental factors are non-specific facilitation, comprise of stress, fever, or epileptic reflex triggers such as intermittent lights, and stripe patterns. The inhibition of the seizure at the stage of prodromal phase or aura can be achieved through electrical stimulations, and non-specific techniques which contain relaxation, and neurofeedback (Wolf, 2005; Dahl, 1992).

Predominant Role of Limbic system in States and Traits

Mental health and Psychological well-being can only be evaluated through the behavior, temperament, or personality. According to Cloninger (2004), human personality is regulated through the interaction of specific emotional and cognitive processes with the environment. Consequently, these processes are dynamic which enable the individual to adapt the situation and to determine the temperament or character of an individual. On the basis of above, personality is, therefore, considered a powerful tool for judging the role of

neurobiological and psychosocial impacts of mental illness (Cloninger & Kedia, 2011). Personality encompasses certain traits and dispositions which are relatively stable and influence the behavior. Earlier, the term character and temperament was used, whereas the Allport's had introduced the word "personality" by defining it as a "dynamic organization, inside the person, of psychophysical systems that built the person's characteristic patterns of behavior, thoughts, and feelings"(Allport, 1961, p.11). This definition entails a bit description; the dynamic organization means the power of adjustment and accommodating to every new situation. The psychophysical systems refer to the interaction of mind and body which influences the cognitions and behavior of the person build through experiences (Maltby, Day, & Macaskill, 2010).

Acknowledging the role of epilepsy in brain and behavior, the present study aimed to integrate the cognitive processes of PWE and their coping styles resulted due to seizures activity. In addition, also to address the role of maladaptive coping responses and its association with the psychiatric disorders. Several researchers have tried to describe aberrant behavior and psychopathology. In last few decades, states and traits have been recognized as the most critical factors in the development of psychiatric issues such as anger, depression and so on (Hamaker, Nesselroade, & Molen, 2007). Traits are the stable patterns of behavior or temperament such as the basic emotions, feeling, and thinking styles which may be due to conditioning and involvement of genetics. Moreover, traits or dispositions nourish during childhood and steady across the lifespan (Goldsmith et al., 1987). The state is a transitory emotional reaction which triggers from the internal and external factors (Spielberger & Sydeman, 1994). States, based on individual differences are temporarily and affected mainly by personal goals and values (Kedia & Cloninger, 2013). Similarly, Latent state theory argues that interaction of persons and situation give a better understanding of psychological measurement (Steyer, Schmitt, & Eid, 1999).

No doubt, epilepsy have a substantial effect on behavior and personality due to the potential damages of seizures in the limbic system and a cortical structure such as the amygdala and hippocampus. The traumatic or fearful memories are laid down permanently in the amygdala and unconsciously expresses through physical responses. During stress, the remembrances are recurred and resistant to be extinction. Notably, the environmental stimuli evoke the unconscious reflections which cannot be erased and develop into habituated responses. The hippocampus and neocortex are involved in processing memory consciously with reasoning and judgment. These are also responsible for overpowering the distressing situational factors based on cognitive appraisals (LeDoux, 1996). The lesions in orbitofrontal cortex predominantly distress personality traits and social interactions. Other associated factors are side-effects of AEDs, anomalies in ion channel or dysregulation in receptor function, synaptic connectivity, neural networks, thalamocortical synchronicity, neurotransmitter activity, and neuroendocrine function lead to behavioral disturbances (Devinsky & D'Esposito, 2004).

Therefore, the people with epilepsy are more prone to having temperamental vulnerabilities due to the psychobiological and social factors related to epilepsy. Further Swinkles, Duijsens, and Spinhoven, (2003) indicated that maladaptive personality traits showed a prominent level of psychopathology. The data were collected from the 203 individuals with epilepsy and a control group of 332 subjects from the general population by using the questionnaire on Personality Traits. The results showed that people with epilepsy had higher maladaptive traits and high scores on psychiatric disorders lie on Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and International Classification of Diseases (ICD-10) PDs as compared to control group. The occurrence of avoidant, obsessive-compulsive and dependent personality type is more common in people with epilepsy as compared to non-epileptic population (Harden et al., 2009).

Through the stress-diathesis model, also denoted as the neurotic paradigm, explained that neurotic or maladaptive patterns have a biological and psychological basis which increased the risk of psychopathology, especially when the individual is confronted with psychosocial stressors (Schwartz & Marsh, 2000). The traits are stable patterns and can be viewed in terms of vagueness, diffuse presentations, interpersonal hitches, inflexibility and escaping (McGinn & Young, 1996). In another term, the traits create the emotional states by interacting with various factors which are processed through psychologically, behaviorally and emotionally (Kanto, Endler, Heslegrave, & Kocovski, 2001).

Thus maladaptive traits make the person susceptible to forming dysfunctional states which can be illustrated through Young schema's mode model. So far none of the research has been done on the exploration of schema modes and its connection with psychopathology among the individuals with epilepsy. Therefore, the aim of current study is to fill this gap by exploring the relationship between dysfunctional states based on the schema modes and psychological disturbance in people with epilepsy.

Formation of Maladaptive Schemas

The schema is a structure or a cognitive framework that serves as a guide for interpreting information and solving problems. Those schemas were developed on the basis of toxic childhood experiences which are the core of personality disorders, milder characterological problem, and mental illness. Due to the continuous exposure of environment, maladaptive schemas which are the self-perpetuating reminiscences, sentiments, bodily sensations and cognitions, accumulated throughout the life (Farrell & Shaw, 2012). Consequently, these thoughts emerged as Early maladaptive schemas (EMS) which are entrenched patterns of distorted thinking, developed due to the unmet core needs such as lack of nurturance, acceptance, autonomy, and negative experiences. These experiences represent the toxic frustration of requirements during childhood which can, later on, contribute to

psychological disorders. Moreover, the traumatic event, overindulgence, and over-protectiveness of parents prevent children's independence and internalization of their pessimistic role for any significant figure. Further, the early childhood milieu and biological underpinnings play a leading role in fostering the personality (Young, 1990).

The Conceptual Model of Schema Modes in Psychopathology

On account of the above propositions, Young (1990) developed a model to treat psychological sickness, and personality accentuation. The model was based on traditional cognitive therapy, contain four main constructs which are early maladaptive schemas, domains, schema processes and schema modes (Jenkins, 2009). According to the model, EMS, based on children's life experiences, reflected through behavior, feelings and in interpersonal relationships describe the inherent and irrefutable characteristics, of the whole life (McGinn & Young, 1999). There are eighteen early maladaptive schemata grouped into five domains which include the *Disconnection and Rejection* means insecure attachment; *Impaired Autonomy and Performance* refers dependency and unable to take the initiative; *Impaired Limits* indicates inability to meet target goals; *Other-Directedness* shows sacrifice for others, and *Overvigilance and Inhibition* is suppression of feelings and emotions due to the internalization of rules.

Further, these EMS are regulated by three coping responses or Horowitz (1997) called them "Defensive Control Processes" which are related to schema surrender, schema avoidance, and schema over-compensation. Schema surrender is the acceptance of things which may lead to dysfunctional behavior. Schema Avoidance involves shifting attention from the painful thoughts. The Schema overcompensation refers to enhance the sense of grandiosity or behave opposite to the overwhelm deficiencies or inadequacies. Thus these schemas are dimensional in the sense that they have different levels of severity and pervasiveness. When maladaptive schemas are prompted due to the unmet core needs,then the emotional states activate which

termed as “Schema Modes.” A schema mode is described as the current cognitive, emotional, and behavioral response to the situation. Maladaptive behaviorist thought has to be driven by these schemas which state that the more deep-rooted the schemas have,the more significant number of situations that activate it which the more intense and long-lasting adverse effect (Young, 1990).

Since schemas and coping styles are “client traits,” and modes or coping responses are “client states,” therefore, an individual based on the activation of different sets of schemas or coping styles may shift between modes. Each person holds several modes within him/herself so that the modes can represent the various aspects of one's personality. Modes are activated when specific schemas or coping responses burgeon into overwhelming emotions or rigid coping styles. Often upon triggered by life situations, a client is oversensitive (“emotional buttons”) and operate unconsciously. Thus, healthy individuals can access to several modes at a certain moment in time and have adaptive, mild and flexible modes. While the patients with personality disorders often display a profound and abrupt shift of modes termed as “modes switching or flipping.” While, in other cases of psychopathology, only one Predominant maladaptive mode shuts off the other modes and stays for a long time (Young, Klosko, & Weishaar, 2003). There are ten schema modes grouped into four broad categories, dysfunctional child, coping and parent modes. The fourth is adaptive modes include healthy adult and happy child modes. The addition of other modes has been put forward for further analyses of personality disorders (Lobbestael, Arntz, & Sieswerda, 2005; Lobbestael, van Vreeswijk & Ortiz, 2008; Young et al. 2003). Primarily, the present study tried to explain the possibility of psychiatric disorders in the individuals with epilepsy with reference to the Young model of psychopathology.

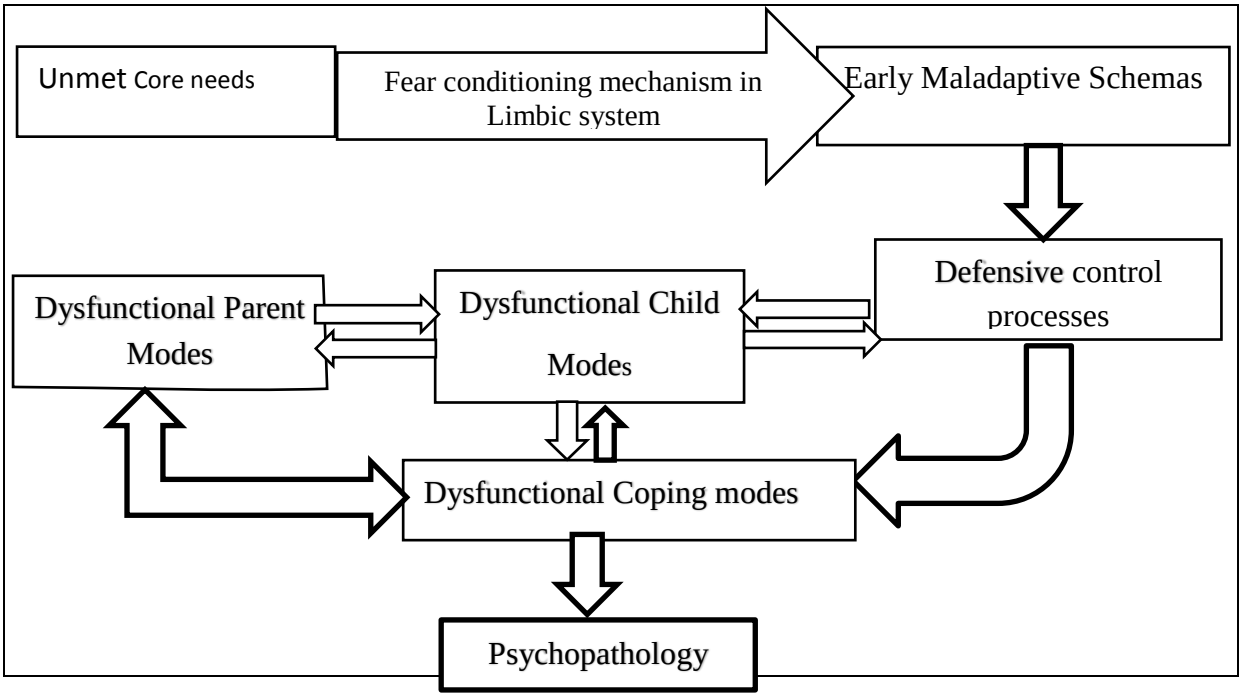


Figure 1: Schematic depiction of the formation of Psychopathology based on Young Schema Model

Dysfunctional Child Modes. The child modes describe the essential or inborn required emotions which may give rise to the healthy and non-healthy personality depending on the environmental influences. It includes the vulnerable, angry/enraged, impulsive/undisciplined and happy child (Young et al. 2003). During the *Vulnerable Child Mode*, the individual experiences the anxiousness, apprehensions, and helplessness. There are specific schemas which put the child in vulnerable modes, such as a feeling of being neglected abandonment. Being criticized or punitive is developed mistrust, negativity, emotional deprivation, and defectiveness. The other is associated with social isolation, dependency, vulnerability to harm or illness, and enmeshment. *The Angry Child Mode* also refers as enraged indicates the unfulfilled core needs. Also mention the violence, outbursts, and hostility are due to the

perceived discriminating attitude during childhood and triggering of the specific schemas which are rejection, abuse, emotional deprivation, and subjugation. *The Impulsive or Undisciplined Child* behaves imprudently for seeking the comfort and pleasure without considering of boundaries and concerns of others. Due to lack of self-control, and entitlement the person in this mode may perceive as spoiled, careless, lazy, often follows natural inclinations thoughtlessly. Moreover, the Happy Child mode felt good and accomplished (Young et al., 2003).

Dysfunctional Parenting mode. Dysfunctional parenting mode is the internalizations of significant others and follows the actions and words of the parents later in life. It includes the punitive parent mode and demanding parent mode; the prior mode reflects the cruel, vicious, critical child-rearing and commonly associated schemas are subjugation (excessive controlling), punitiveness, defectiveness (rejection), and mistrust/abuse. The demanding parent mode reflects the pressures and lofty expectations to achieve and maintain the targets. The person in this mode has unrelenting/ standards, spend much time to be perfect and use self-sacrifice schemas (Young et al., 2003).

Dysfunctional Maladaptive Coping Modes. The maladaptive coping modes epitomize the individual's effort to adopt the living with unmet emotional needs in a challenging or stressful environment and overuse of unhealthy coping styles. During the childhood, these coping modes seem to be healthy and adaptive, but later on, it becomes maladaptive in the adult world (Young et al., 2003). A coping style is a product of coping responses that a person typically utilizes to guard against pain, anxiety or fear and usually operate unconsciously like defense mechanisms such as surrender, avoidance or freeze, and overcompensation or flight (Farrell, Reiss, & Shaw, 2014). Also, the overcompensating coping style in which a person reacts opposite to the schemas that are triggered includes bully-attack mode. During bully and mode, person experiences a high level of rage, become violent and attack people either verbally

or physically and excessively engage in criminal activities (Edwards, 2013). The self-aggrandizer mode demonstrates the increase grandiosity, highly competitive, status-conscious, abusive and always expect to be treated as special (Lobbestael et al., 2008)

The avoidant coping style involves the physical, psychological, and social escaping and withdrawal. Avoidant Modes include the Detached Protector, the Detached Self-Soother, and the angry protector. The detached protector depicts the social isolation and psychological withdrawal. In order to keep themselves from the feelings of being helpless, individuals may shut off their emotions. Other symptoms are emptiness, depersonalization, having psychosomatic complaints, and use of substance abuse (Lobbestael et al., 2008). The detached self-soother refers to the activities which keep away the individual from the feelings and sentiments such as gambling, workaholism, dangerous sports, and drug abuse. Individuals also occupy in some individual compulsive interests such as playing computer games, overeating, watching television and so on. Angry protector mode allows individuals to display a wall of anger to protect themselves from those who are considered as dangerous for them (Lobbestael et al., 2008). The surrender mode represented by "Compliant surrender" indicates that individuals try to avoid the conflicts and become obedient, passive, allowing others to abuse, neglect and control them (Young et al., 2003).

Adaptive and Healthy Modes. Functional behaviors characterize the adaptive and healthy modes. The healthy adult mode refers to the nurtured, balanced, composed mode. This mode enables the adult to cope up with protecting himself from anger, bullying, and dysfunctional modes (Young et al., 2003). The healthy child modes enjoy the moments of life by indulging in social and skillful activities (Farrell et al., 2014).

Empirical relationship between Schemas and Psychological Morbidity

The use of predominant modes consistently gives an indication of poor psychological functioning. Khalily, Wota, and Hallahan (2011) established the significant association between the psychiatric disorders and the schema modes by diagnosing psychiatric disorders on Axis I and Axis II in the fifty patients. The child modes, maladaptive coping and parent domains were positively correlated on the subscales of MMPI including depression, psychopathic deviate, masculine-feminine, paranoia, Psychasthenia, mania, schizophrenia and social introversion. Moreover, adaptive modes were negatively correlated with the hypochondriases, depression, psychopathic deviate, Psychasthenia and social introversion. Moreover, the Detached Protector, Punitive Parent, Abused/Abandoned Child, Angry and Impulsive Child modes were significantly associated with Personality disorders (Arntz, Klokman, & Sieswerda, 2005; Lobbestael et al., 2008). Another study highlighted the utilization of schema modes between the patients having frontal and temporal epilepsy. The schema mode inventory and Stroop test were administered in four cases of frontal lobe lesions and temporal lobe lesions. The study emphasized that patients with frontal and temporal lobe lesions had difficulty in learning, memorizing, ability in decision-making, and regulation of emotions. In addition, the patients with frontal lobe lesion had utilized vulnerable child, Undisciplined child, Compliant Surrender, Detached Protector, Detached Self-Soother, and Bully and Attack coping modes. Further, the patients having impairment in Temporal Lobe were facing difficulty in the expression of emotions and were used to Compliant Surrender, Detached Protector and Detached Self-soother (Zaman & Khalily, 2016).

In a study conducted on the 200 university students of Palestine revealed that the avoidance, surrender, and compensation coping styles have significantly contributed to the development of Psychiatric symptoms and the personality accentuates. The symptoms of depression, anxiety, hostility, and paranoid ideation are correlated with the early maladaptive

schemas which include Pessimism, the insufficient control, emotional inhibitions, vulnerability to harm and the emotional deprivation. Moreover, the personality accentuates on Axis II assessed by using the Clinical Personality Accentuation Inventory were found highly correlated with Young Schema Inventory (Alfasfos, 2009). Jenkins (2009) study interpreted the significant link between dysfunctional schema modes and the core beliefs or EMS which resulted in mood disorders.

Likewise, Welburn, Coristine, Dagg, Pontefract, and Jordan, (2002) collected data from the 203 psychiatric outdoor patients and diagnosed with mood and anxiety disorders by using the Schema Questionnaire and Brief Symptom Inventory. Patients who used schema vulnerability to harm consistently were experienced with anxiety, and those who got mistrust were found to portray symptoms of paranoid ideation. The thoughts of helplessness, inadequacy, and abandonment/rejection significantly lead to depression. Shah and Waller (2000) examined the maladaptive schemas between the 60 patients diagnosed with major depression and 67 healthy individuals. The clinical group significantly perceived shame, guilt, rejection, self-sacrifice, and low self-control as compared to the nonclinical group. Further, Vulnerability to harm was found a significant mediator between the poor parenting style and depression. Thus, the role of parenting in developing childhood schemas is equally essential. Kennedy (2006) also studied the mediating role of EMSs between the parenting styles having anxiety and depression. The Social isolation and Vulnerability to harm schemas mediated the relationship between punitive parenting and mood disorders. Moreover, it was also positing that EMSs caused interpersonal stress which resulted in maladaptive coping strategies. Harris and Curtin (2002) also asserted that childhood experiences and negative parenting contributed to the formation of EMSs leading to psychopathology.

Eberhart, Auerbach, Bigda-Peyton, and Abela (2011) analyzed the stress generated the model and its contribution to the successive depressive symptomology on 118 female students

over the six weeks. Interpersonal stress played a crucial role in enhancing the depressive symptoms and entirely mediated the relationship of dysfunctional schemas which include disconnection and rejection (i.e., mistrust, social isolation, and defectiveness), impaired autonomy or failure and subjugation. Yoo, Park, and Jun, (2014) expanded the Young et al. (2003) model and accepted that interpersonal relationships and sense of belongingness had influenced the behavior and cognition of the individuals. Thus, the domain disconnection and rejection has created psychological problems. In order to measure the disconnection and rejection of the 304 undergraduates and to administer the interpersonal orientation, they used Social Orientedness Scale and 25 items of Young schema questionnaire. Structure equation model indicated that peer connectedness has affected by the schemas abandonment, shame, and defectiveness which will ultimately produce psychological disability. Likewise, Soygut, Karaosmanoglu, and Cakir, (2009) utilized the Symptom Checklist-90 R and Schema questionnaire on 1071 university fellows and found the high correlation between the EMS and the subscales of depression, anxiety, interpersonal sensitivity and the global severity index which are the leading factor of aggression among adults (Warburton & MacIlwain, 2005).

Further study revealed that the emotional triggers had weakened the mental state of the individual and increased anger or impulsivity. The influence of anger-recollection was assessed through autobiographical recall of an anger-inducing event. Schema mode inventory was applied before and after the anger interview among (n=147) patients and (n=35) were non-patients. The findings showed that anger eliciting stimulus disrupted the healthy veneer of the patients resulting in emotional instability. Moreover, means of the non-patients' sample was high on healthy and adaptive modes as compared to the patients with a personality disorder (Lobbestael, & Arntz, 2012). Johnston, Dorahy, Courtney, Bayles, and O'Kane, (2009) elucidated that the four schema modes i.e. Detached Protector (DP), Punitive Parenting (PP), Angry and Impulsive child (AIC) and Abandoned and Abused child (AAC) have significantly

predicted the levels of dissociation such as amnesiacs, depersonalization and intrusive thoughts in patients with Bipolar Personality disorder. Subsequently, the bully and attack, detached protector, and vulnerable child have significantly correlated with social isolation, defectiveness, abuse, and emotional inhibition and were found to be the decisive predictors of Obsessive Compulsive disorder (Thiel et al., 2014).

Haaland et al., (2011) had applied exposure and response prevention treatment on the diagnosed cases of OCD. Further, the Yale-Brown Obsessive-Compulsive Scale, the Beck Depression Inventory, and Young Schema Questionnaire were given just before and after the treatment. The post rating showed that variance was significantly dropped for self-sacrifice, failure, and abandonment after the treatment. A systematic review on the efficacy of schema-focused therapy (SFT) which is introduced by Young (1990) for those patients who could not get benefit from the traditional cognitive behavioral therapy and proven to lessen the challenging behaviors or psychological difficulties specifically personality disorders was used. Thus, it was revealed that reduction in 18 early schemas and activated modes had yielded the betterment of psychological health (Taylor, Bee, & Haddock, 2016).

Since people with epilepsy have a higher prevalence rate of psychological disorders, therefore, the current study would be valuable in highlighting the reasons for maladaptive cognitive patterns of individuals with epilepsy.

Epilepsy in Pakistan

In Pakistan, epilepsy is still perceived as contagious and a consequence of magic or possession of evil spirits (jinn) (c.f. Aziz & Akhter, 2004). In a survey by Khatria, Iannacconea, Ilyasb, Abdullahb, and Saleemc (2003) suggested that overall prevalence of epilepsy in Pakistan is anticipated to be 9.99 per 1000 population. The highest occurrence has been seen in people younger than 30 years of age in the rural population. Whereas, knowledge of epilepsy

and its management is deficient which is only 27.5% epileptic persons in urban areas and 1.9% in the countryside receive the treatment. Moreover, only one neurologist is burdened to treat 46200 sufferers of epilepsy. According to the statement of the local neurologist, the crude estimate showed that in Pakistan 2 million inhabitants with epilepsy were reported and the burden of epilepsy is increasing day by day due to the lack of awareness and getting treatment from the faith healers (Over two million suffer from epilepsy in Pakistan, March 26, 2015). Few Attempts have been made to providing care for epilepsy in Pakistan, and there is only one National Epilepsy Centre in Karachi who is providing free patient services. Moreover, only one Pakistan Epilepsy Foundation, located in Karachi is trying to endorse awareness among the people regarding treatment and management of epilepsy which is up to 11% (Sheerani, 2005). Tahir et al., (2012) while sharing their experience said that they had established a small surgery setup with International Collaboration which is not enough to treat 45, 000 patients

The psychological distress is found to be high among the PWE in Pakistan due to the impoverishment of advocacy regarding epilepsy. Further, perceived stigma, discrimination and have no legal rights under the act of Disability added to the distress (Saher, 2012). According to the study on the psychiatric evaluation, 60% patients with epilepsy agonized with depression at the time of interview. Irshad and Bano (2006) described that two third people with epilepsy are facing emotional difficulties, feelings of insecurity, depression, impulsive, aggressive and poor self-concept as compared to the healthy controls group. Regarding the knowledge of epilepsy, a study highlighted the little insight of the dentists in treating the patients with epilepsy is associated with risks. The majority of the dental professionals were not aware of the teratogenicity of AEDs and ictal manifestation which build the barrier for the PWE to access the dental health care (Khan, Ahad, Khan, Mufti, & Khan, 2015). However, it is noted that while reviewing the few articles written by Pakistani authors who had been consistently

using the word “epileptics” instead of using “People with Epilepsy “signifies the stigma and lack of awareness.

Rationale of the Study

Nearly 85% people do not get treatment for epilepsy in developing countries (Meinardi et al., 2001; Ngugi et al., 2010). Altogether, very few researches conducted in Pakistan which compelled the investigator to study the factors affecting the psychological morbidity in People with Epilepsy. Therefore, the current two-fold study is aimed to explore the occurrence of dysfunctional schemas modes and their association with psychiatric symptoms. Further, the role of sociodemographic and clinical characteristics in portraying the psychological disturbance among individuals with epilepsy will be examined.

Epilepsy is believed to be private grief because of the stigma and trauma associated with the seizures which drastically affect the psychosocial life of people with epilepsy (Jacoby, Gorry, Gamble, & Baker, 2004). Researchers revealed that the individual with epilepsy are significantly stigmatized, face problems in marrying and career building (Ramasundrum, Hussain, & Tan, 2000). In a study conducted on marital statistics, it was found that epilepsy is the reason for divorce among PWE (Wada et al., 2004). Further, epilepsy is considered increasing rates of psychopathology which reduce social interactions, social capital and low quality of life (QoL) among the people with epilepsy in both developed and developing countries (Dilorio et al., 2003).

According to the neurobiologically, the threatening or aggressive nature of seizures which exacerbate the stress by altering the autonomic nervous system can produce significant pathogenic and psychogenic instabilities (Kanner & Balabanov, 2002). Additionally, triggering of seizure in the amygdala, limbic system, frontal cortex, basal ganglia which are responsible for the emotional regulation also provide the basis for psychopathology. Further,

antagonism mechanism of Antiepileptic drugs plays a vital role in psychopathology. Moreover, the importance of age of onset, the frequency of seizure, duration of illness and non-adherence to medicines are the reliable predictor of psychiatric disorders. Besides the above, the contribution of psychosocial factors includes low socioeconomic status, illiteracy, fear of seizures, stigmatization, Chronicity, and lifelong treatment are crucial to the pervasiveness of psychiatric disorders in epilepsy (Torta & Keller, 1999).

Despite recognition of the array of psychological issues with epilepsy, the focus is still only in the medical management of seizures. The present study is purported to introduce the biopsychosocial model for the vulnerable population of epilepsy in Pakistan or developing countries where psychological distress is equally contributing to epilepsy. Thus, there is a dire need to incorporate the stress or fear of seizures and to enhance the coping strategies.

Till to date, neither any known research has been accentuated the maladaptive schemas modes nor how these contribute to psychiatric disorders among individuals with epilepsy has been made. It is evident that early maladaptive schemas are trait-like entities with enduring features of personality where "schema modes" are the state-like is changeable manifestations of schemas. These are the thoughts about dysfunctional which resulted in psychological distress (Young, 1990). Thus it is well documented suffering from the epileptic seizures which negatively influences personality due to the discrimination and adverse reaction or stereotypical behavior of the society. In addition, seizure arising in limbic portions of the temporal lobe could cause behavioral changes, and these personality traits stood for a distinct form of epilepsy in them. Moreover, temporal lobes hold the amygdala and other limbic areas that modulate emotion, memory, and assign emotional valence to environmental stimuli (Geschwind, 1979).

Accordingly, it can be comprehended that maladaptive traits are more developed due to the psychological trauma of seizure, stigma, and changes in brain activities which ultimately

affect the behavior. So, the management of individuals with epilepsy, dysfunctional schema modes, and comorbid psychiatric disorders should be dealt systematically and more efficiently. Consequently, the present study is distinctive in its nature as it will identify the dysfunctional schema modes of individuals with epilepsy and its affiliation with comorbidity of psychiatric symptoms.

Conceptual Framework for the Proposed Study

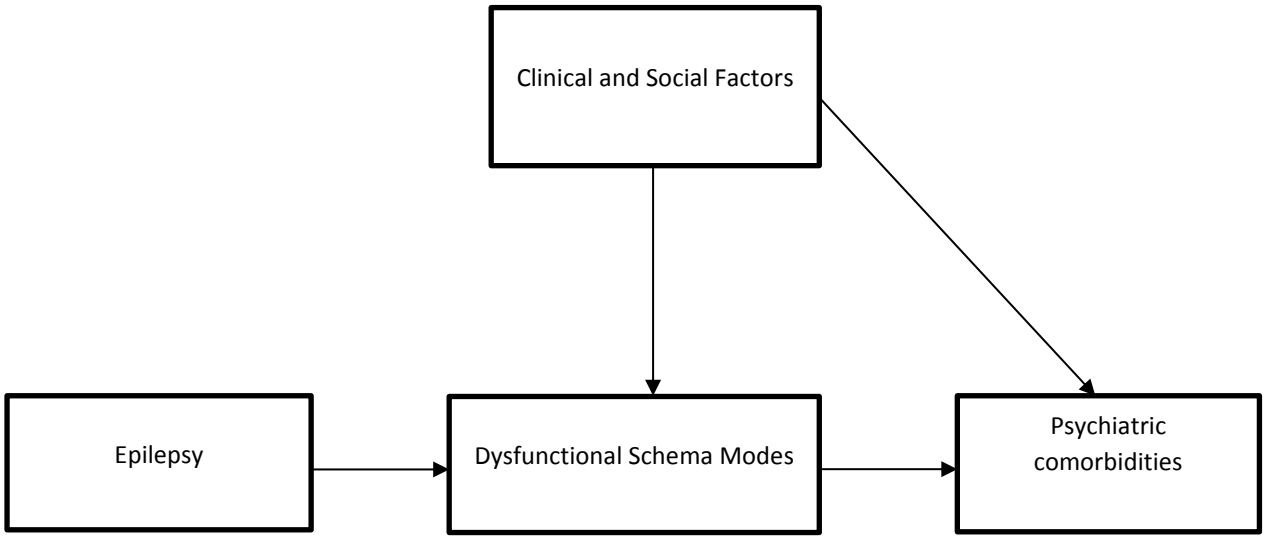


Figure2: Illustrative Model of the Main Study

Chapter-II

AIMS, STUDY VARIABLES, AND RESEARCH DESIGN

As discussed in previous chapters that present study is aimed to explore the occurrences of dysfunctional schema modes and their association with comorbidity of psychiatric symptoms in Individuals with epilepsy. Followings are the few objectives of the present study.

Objectives

1. To Translate and Validate the Symptom Checklist-90 in Urdu.
2. To find the occurrences of dysfunctional schema modes and its association with comorbidity of psychiatric symptoms among individuals with epilepsy.
3. To determine the relationship of dysfunctional schema modes and comorbidity of psychiatric symptoms with the chronicity of epilepsy.
4. To study the role of various demographics such as gender, socioeconomic status and education, on the dysfunctional schema modes and its association with psychiatric comorbidity.
5. To investigate the utility of schema modes among the individuals with and without epilepsy.

Definition of Study Variables

Active Epilepsy. Epilepsy is a neurological disorder characterized as having a history of two unprovoked seizures. Active epilepsy indicates the presence of seizures or epilepsy and the person has been taking anti-seizure drugs for the past one year (Fisher et al.,2005).

Dysfunctional Schema Modes. Dysfunctional schema modes are referred to the specific maladaptive schemas or copying responses which activate into troubling emotions, avoidance responses or self-defeating behaviors that hinder an individual functioning. There

are 14 schema modes grouped into four broad categories: Child modes, Dysfunctional Coping modes, Dysfunctional parent modes, and the healthy modes. In the present study, the dysfunctional schema modes are measured by using the Short version of Young's Schema Mode Inventory comprising of 124 items rated on a five-point Likert scale (2008). The following is the detail of the domains of schema modes given by Young et al. (2007).

Child Modes often called as innate modes are said to develop when the emotional, safety, belongingness and nurturance needs are unmet in childhood and expressed as the intense feelings of helplessness, hostility, rage, and fear (Farrel, Reiss, & Shaw, 2014). These Child Modes further grouped into five types which include V*ulnerable Child (VC)* refers to the feelings of isolation, hopelessness, frightened, victimized or anxious; *Angry Child (AC)* shows extreme annoyance, frustration, and infuriated; *Enraged Child (EC) expresses* severe sense of resentment and wrath that results in hurting or damaging people or objects; *Impulsive Child (IC)* seems the spoiled andacts on wishes and follows natural inclinations immediately without thinking of consequences; *and Undisciplined Child (UC) o*ften behave impulsive, violent, irritated and having difficulty to finish routine or tedious tasks.

Dysfunctional Parent Modes is the second category reveal that how the child and an adolescent internalize the negative aspects of the identity figures such as parents, teachers, etc. (Farrel, Reiss, & Shaw, 2014). The Dysfunctional Parent modes include *Punitive Parent* (PP) which refers as always indulge in criticizing others or themselves, having suicidal fantasies, self-destructive behavior, self-loathing, self-mutilation, and self-denial; *Demanding Parent* (DP) strive for high status, try to meet ambitious standards, seek perfection and avoid wasting time

Maladaptive Coping Modes is the third category which operates unconsciously like a defense mechanism. It is defined as an excessive practice of unhealthy coping styles, incorporate avoidance, denying the reality, overcompensation, and abandon (Farrel, Reiss, &

Shaw, 2014). The Maladaptive Coping Modes comprises of six styles; *Compliant Surrender (CS)* acts in a passive, submissive, reassurance-seeking, or self-critical way towards others due to fear of rejection; *Detached Protector (DP)* cut off or disengage from all joys of life and stay in isolation and having emptiness, depersonalization, dullness, substance abuse, overindulging, self-harm, psychosomatic complaints, and barrenness; *Detached Self-soother (DS)* involve in pleasurable or soothing activities include workaholism, gambling, dangerous sports, or drugs abuse, playing computer games, overeating and watching television; *Self-Aggrandiser (SA)* show lack of empathy, extremely self-absorbed, competitive, grandiose, abusive, and status-seeking way in order to have whatever they want; *Bully and Attack (BA)* portrays antisocial and criminal acts, may harm anyone with proper strategic way either emotionally, physically, sexually, and verbally; *Angry Protector (AP)* concealments of the anger feeling and a stream of bitterness and resentment from others.

Healthy and Adaptive Modes is the fourth category, which embraces the Healthy Adult (HA) mode and the Happy Child (HC) mode. The Healthy adult mode represents the appropriate skills and functional behaviors of an adult such as working, parenting, nurturing, taking responsibility, and committing. The happy child mode entails playful or enjoyable activities and feeling of contentment because core emotional needs are sufficient.

Comorbidity of Psychiatric Symptoms. Comorbidity of psychiatric symptoms refers the presence of coexisting psychiatric disorders and symptoms in People with Epilepsy (PWE). The symptom checklist 90 (SCL-90) is used to measure the cluster of nine indicators which include Somatization (SOM), Obsessive-Compulsive (OCD), Interpersonal Sensitivity (INS), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic (PHOB), Paranoid Ideation (PAR), Psychoticism (PSY), and Global Severity Index (GSI). According to the DSM-IV-TR and DSM-5 (American Psychiatric Association, 2013), following is the description of subscales of SCL-90:

Somatization refers to the beliefs, feelings or thoughts related to the poor health or body dysfunction in the absence of anybody ailment.

Obsessive-Compulsive includes the recurrent or persistent thoughts, urges causing anxiety and the individual attempts to ignore or avoid such pre-occupations with repetitive behaviors.

Interpersonal Sensitivity denotes the feelings of personal inadequacy and inferiority, uneasiness and evident discomfort during interpersonal interactions.

Depression *has* a sense of gloominess, dejection, irritable mood accompanied by somatic and cognitive changes that hinder the individual's daily life functioning.

Anxiety characterized by excessive fear, worries and related behavioral disturbances such as Panic attacks, sleep disturbance, irritability, and muscle tension.

Hostility reflects thoughts, feelings, or actions that are characteristics of the negative affect state of anger.

Phobia is defined as marked fear or anxiety about using automobiles, ships planes, buses,etc. and being in open or closed places, standing on cue or being in a crowd or outside the home alone.

Paranoid Ideation a pervasive distrust, disordered thinking, unjustified doubts, suspiciousness, and bearing grudges for others without sufficient basis.

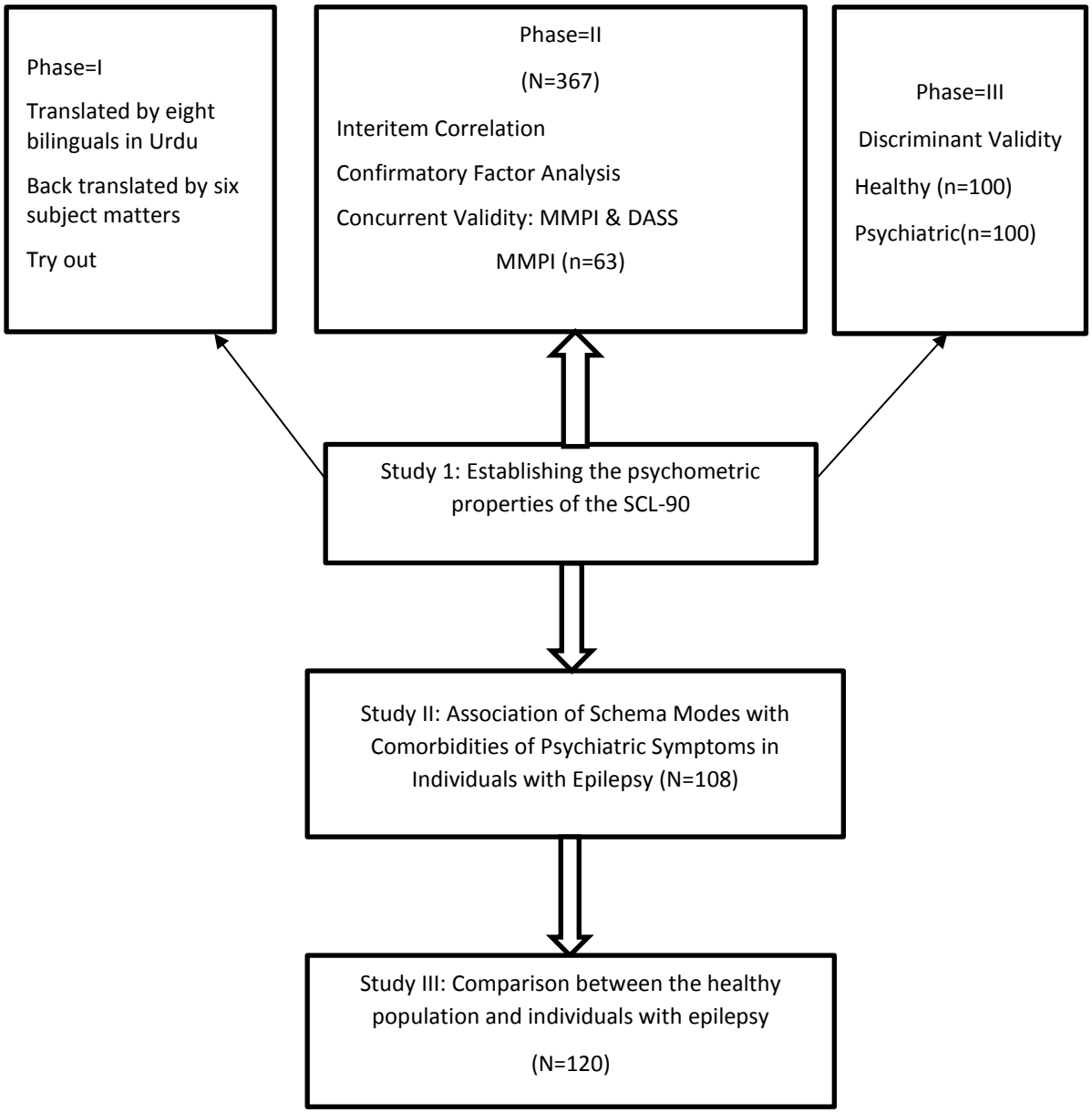
Psychoticism is the presence of hallucinations such as hearing voices and delusional beliefs which cause significant distress and impairment in social or occupational functioning.

Research Design

The present research is a cross-sectional design encompassed three studies. The study I consisted of three phases, In phase 1, the translation and adaptation of the Symptom Checklist-

90 in Urdu language was done through the back and forward translation technique. In phase 2, the psychometric properties of the SCL-90 were determined by analyzing reliability and validity through Confirmatory Factor Analysis. Moreover, the convergent and divergent validity was established with Minnesota Multiphasic Personality Inventory (MMPI; Mirza, 1977) and Depression Anxiety (DASS-42; Zafar, 2014). In phase 3, the discriminant validity was figured out by administering the SCL-90 on healthy and non-healthy individuals. The main aim of the study II was to explore the association of dysfunctional schema modes (child modes, parenting, and comorbidity of psychiatric symptoms in People with Epilepsy). Further, the relationship of demographic variables such as duration of epilepsy, socio-economic status, education and gender with dysfunctional schema modes and psychiatric symptoms were examined. Study-III was a comparison between People with Epilepsy and healthy controls on the utilization of dysfunctional schema modes.

Flow Chart of Research Design



Chapter-III

STUDY-1: ESTABLISHMENT OF THE PSYCHOMETRIC PROPERTIES OF SYMPTOM CHECKLIST-90 IN URDU

Psychiatric disorders are rapidly increasing and supposed to reach the alarming stage. However, there is a scarcity of native or adaptive tools in Urdu specifically for the screening purpose. The SCL-90 (SCL-90; Derogatis, Lipman, & Covi,1973) has been used for decades to assess the psychological distress, and for consultation services by providing a baseline for the best therapeutic outcome. As the National Language of Pakistan is Urdu, therefore in study 1, the translation and validation of SCL-90 was done to get the better understanding of psychological disorders. For this purpose, the study was conducted in three phases. In Phase 1, the original English version of the SCL-90 was translated into Urdu. In Phase 2, the psychometric properties (such as internal consistency and factorial validity) were scrutinized. In Phase 3, the concurrent was evaluated by using the Urdu version of Minnesota Multiple Personality Inventory (MMPI; Mirza, 1977) and Depression Anxiety Stress Scales (DASS; Zafar, 2014). The Discriminant validity was examined by comparing the scores of healthy individuals and psychiatric patients.

Objectives of the study

The following objectives were formulated: -

1. To translate the SCL-90 in Urdu for making it comprehensive for the indigenous population
2. To examine the construct validity of SCL-90 through Confirmatory Factor Analysis.
3. To assess the concurrent validity of Minnesota Multiple Personality Inventory and Depression Anxiety Stress Subscales.

4. To evaluate the discriminatory power of SCL-90 on the healthy and psychiatric population.

Phase 1:Translation of SCL-90 in the Urdu Language

For the present study, the translation was done in five steps. First, the scale was translated from a source (English) to target language (Urdu). Second, the evaluation of items was done to resolve discrepancies and third; the scale was again back-translated by using the Brislin (1976) method. Fourth, review of the back-translation was completed under the supervision of experts for further coherence and equivalence (Hambleton & Patsula, 1998). Further, in the fifth step, the tryout was conducted.

Step 1: Forward Translation. The translation of Symptom Checklist-90 was done by using six bilinguals. There were two Ph.D. scholars, one Psychiatrist, one Professor from the Education Department, and two lecturers selected from the Department of Urdu. All bilinguals were proficient in Urdu and English and were requested to translate the items from the source language (English) to target language (Urdu) and to achieve conceptual equivalence between both versions. Moreover, they were asked to translate the items word-by-word without altering the meaning of the target language (Urdu).

Step 2: Expert Panel for reviewing the forward translation. A committee of five Subject Matter Experts in the field of Clinical Psychology comprising of three Assistant Professors, one Lecturer of Psychology, and a researcher herself. All members evaluated each item thoroughly by focusing on the style, grammar, and wording in Urdu by choosing those elements which conveyed the meaning closest to the original items. Thus, after slight adaptation of a few items and a detailed discussion about the appropriateness and equivalence of each item in the original SCL and its translation in Urdu version, SCL-90 was collated.

Step 3: Back Translation. After the committee approach, the translated Urdu version of the SCL-90 was translated back into The English language for further verification. The four

lecturers in English, one lecturer in Urdu and one Ph.D. Scholar in Clinical Psychology, were requested to translate Urdu SCL-90 into English as accurately as possible. These bilinguals were not familiar with the original SCL-90.

Step 4: Committee Approach. In the fourth step, a committee of two Assistant Professors and two Ph.D. scholars were requested to critically evaluate the contents of the instrument both in Urdu and English. After mutual consensus among all the experts, the accuracy of the translation was achieved and the Urdu version SCL-90 was finalized.

Step 5: Try out. The Urdu translated version of SCL-90 administered on a sample of 20 individuals with age *(M*=22.5, *SD*= 3.3*).* Results showed no vagueness in the scale, and it was comprehensible, coherent and ready for further validation.

Phase II: Determination of reliability and validity of SCL-90

The Psychometric properties, Cronbach alpha coefficient, the interitem correlation was evaluated. In order to examine the nine constructs the confirmatory factor analysis was used on Analysis of a Moment Structures (AMOS). To establish the convergent validity Urdu version of MMPI and DASS-42 were used

Sample. A total sample (*N*=367, *M*=21.4, *S.D*=2.01) with age ranged from 18 to 30 years were recruited through purposive sampling technique. The university students comprised of 65% female and 35% male were approached from different departments including Maths, Psychology and Management Sciences after getting permission from the authorities.

Measures

Symptom Checklist-90 (SCL-90) (Derogatis et al., 1973). For assessing the rate of occurrence of symptoms of distress in the last seven days, the SCL-90 was used. Each item valued on a five-point Likert scale (0–4) from “not at all” to “extremely” which usually takes 12-15 minutes to complete. The SCL-90 entails the nine-primary constructs and the

composition of all the items on the scale reflects the psychological distress and represented as Global Severity Index (GSI). Based on the criteria given in Diagnostic Manual-5 (American Psychological Association, 2013) and International Classification of Mental and Behavioral Disorders (WHO, 1993). Following is the description of the subscales:-

Table 2

Summary of the Psychiatric Symptoms

Subscales	**Description**
SOM	Persistent thoughts, feelings or behaviors related to the health or body dysfunction
OCD	The Preoccupations of intrusive thoughts regarding appearance or things which force to act again and again such as door lock, washing hands,
INT	Interpersonal sensitivity refers to the feelings of personal inadequacy and inferiority, uneasiness and marked discomfort during interpersonal interactions.
DEP	The sense of gloominess, dejection, irritable mood accompanied by physical and cognitive changes that hinder the individual's daily life functioning.
ANX	Having excessive worrying and fear and related behavioral disturbances such as Panic attacks.
HOS	It reflects thoughts, feelings, or actions that are characteristics of the negative affect state of anger.
PHOB	Marked fear or anxiety about using automobiles, ships planes, buses,etc. and being in open or enclosed places, standing on cue or being in a crowd or outside the home alone.
PAR	Paranoid Ideation Disordered thinking including suspiciousness
PSY	Includes depersonalization, delusions and hallucinations

The SCL-90 is readily available online at the Gottman Institute. However, the revised version of the SCL-90 R is copyright, and all rights have been given to Pearson™ on the high price. The SCL-90 has been reviewed with few changes and nearly identical to the previous

version and equally used in clinical and research settings. Miotto et al. (2010) described that the SCL-90 had been corroborated as a screening instrument and good enough to develop the symptomatology profile of the patients. Nevertheless, in the absence of cutoff score, higher scores are considered to produce the clinical picture. But, most scientific published researches are using simple mean values for the nine dimensions of both SCL-90 or the SCL-90-R. Both scales are reliable and valid tools and have been translated into many languages such as in Arabic, Chinese, Danish, Dutch, French, German, Hebrew, Italian, Japanese, Korean, Norwegian, Portuguese, Spanish, Swedish, Vietnamese, etc. (Derogatis, 2000). The following table includes the item numbers and score ranges of the subscales.

Table 3

Item numbers and score range of subscales of SCL-90

Subscales	Item numbers	Score range
SOM	12 items (1, 4,12, 27, 40, 42, 48, 49, 52, 53, 56 58)	0 to 48
OCD	10 items (3, 9, 10, 28, 38, 45, 46, 51, 55, 65)	0 to 40
INT	9 items (6, 21, 34, 36, 37, 41, 61, 69, 73)	0 to 36
DEP	13 items (5, 14, 15, 20, 22, 26, 29, 30, 31, 32, 54, 71, 79)	0 to 52
ANX	10 items ((2, 17, 23, 33, 39, 57, 72, 78, 80, 86)	0 to 40
HOS	6 items (11, 24, 63, 67, 74, 81)	0 to 24
PHOB	7 items (13, 25, 47, 50, 70, 75, 82)	0 to 28
PAR	6 items (8, 18, 43, 68, 76, 83)	0 to 24
PSY	10 items (7, 16, 35, 62, 77, 84, 85, 87, 88, 90)	0 to 44

Minnesota Multiphasic Personality Inventory. In order to determine the criterion validity of SCL-90, the Urdu version of MMPI (Mirza, 1999) with 399 items was used. The MMPI is a dichotomous instrument having ten subscales which include depression, hysteria,

Hypochondriasis, psychopath deviate, masculinity/femininity, paranoia, Psychasthenia, schizophrenia, hypomania and social introversion.

Depression Anxiety Stress Scales. The Urdu version of DASS-42 (Zafar, 2014) has been utilized in the present study as a standardized measure. The scale has three subscales each rated on five-point Likert scale ranges from 0 to 3. The purpose of the DASS is to assess the emotional states or feelings which they experienced over the past week. According to the Cronbach's Alpha, the reliability of the scale is .86, and the subscales range from .65 to .68 (Zafar, 2014).

Procedure. To conduct the study, ethical approval was obtained from the ethical committee of the International Islamic University. For a collection of data, permission was sought from the administration of the colleges and universities of Islamabad. Initially, 400 students were approached in their classrooms and asked individually to participate in the study. Additionally, copies of the questionnaires were distributed to collect the data from their acquaintances. Only 380 student returned the questionnaires forms out of which 13 were discarded due to incomplete responses. Thus, the response rate was almost 70%. For establishing the convergent validity, out of 367, 150 participants were requested to fill the MMPI along with the SCL-90. Only (n=63) out of them have completed the forms. Subsequently, 140 respondents have filled the booklet containing DASS and the SCL-90.

Results. To establish and determine the reliability of the Translated version of SCL-90, Cronbach reliability, and the inter-item total correlation was carried out. Moreover, Confirmatory Factor Analysis was done for assessing the construct validity of each subscale and of the overall Global Severity Index which is the sum of all the items of SCL-90 and reflects the psychological distress.

Table 4

Mean scores, Standard deviations, Alpha Reliability Coefficients, and Skewness of all the subscales of Symptom CheckList-90 (N=367)

Variables	*No of items*	*M*	*SD*	*α*	*Range*		*Skewness*
					Potential	*Actual*	
SOM	12	12.1	8.4	.86	0-48	0-41	.74
OCD	10	15.01	8.3	.86	0-40	0-39	.33
INT	9	12.2	7.4	.85	0-36	0-34	.59
DEP	13	16.9	10.2	.87	0-52	0-48	.51
ANX	10	10.8	7.8	.86	0-40	0-39	.76
HOS	6	7.8	4.9	.76	0-24	0-23	.53
PHOB	7	7.04	5.7	.81	0-28	0-28	.78
PAR	6	8.16	4.7	.71	0-24	0-24	.45
PSY	10	10.05	7.7	.84	0-40	0-38	.91
GSI	90	109.3	61.41	.98	0-360	6-328	.62

Note: *α*=Cronbach's , SOM= Somatization, OCD= Obsessive Compulsive, INT= Interpersonal sensitivity, DEP= Depression, ANX= Anxiety, HOS= Hostility, PHOB=Phobia, PAR= Paranoid, PSY= Psychoticism, and GSI= Global Severity Index.

Table 4, indicates the alpha reliability coefficients of the nine primary subscales range from .71 to .87, and overall reliability of the total items of SCL-90 represented the Global severity index is .98 which seems highly satisfactory.

Table 5

Inter-scale correlations of the Subscales of SCL-90

Scales	1	2	3	4	5	6	7	8	9
1-SOM	__								
2-OCD	.66**	__							
3-INT	.62**	.78**	__						
4-DEP	.72**	.82**	.82**	__					
5-ANX	.81**	.81**	.78**	.82**	__				
6-HOS	.54**	.61**	.58**	.65**	.64**	__			
7-PHOB	.65**	.72**	.73**	.71**	.77**	.56**	__		
8-PAR	.59**	.73**	.77**	.72**	.72**	.62**	.66**	__	
9-PSY	.69**	.71**	.77**	.76**	.79**	.66**	.71**	.75**	__

Note: α=Cronbach's , SOM= Somatization, OCD= Obsessive Compulsive, INT= Interpersonal sensitivity, DEP= Depression, ANX= Anxiety, HOS= Hostility, PHOB=Phobia, PAR= Paranoid, PSY= Psychoticism

Table 5, presents that all the subscales are significantly correlated with each other.

To verify the underlying dimensions and to explain the relationships between observed measures or indicators with hidden variables or factors, Confirmatory Factor analysis was used. CFA is the most commonly used statistical procedures to examine the predefined model to fit an observed set of data in applied research. In the present study, CFA was run by using AMOS for validating the subscales of SCL-90 in Urdu.

Table 6

Standardized loadings of Confirmatory Factor Analysis for subscales of Symptom CheckList-90 (N=367)

Items	Factors				
	SOM	**OCD**	**INT**	**DEP**	**ANX**
1	.52				
4	.63				
12	.61				
27	.59				
40	.66				
42	.68				
48	.66				
49	.76				
52	.67				
53	.70				
56	.76				
58	.69				
3		.57			
9		.62			
10		.56			
28		.68			
38		.45			
45		.56			
46		.66			
51		.66			
55		.74			
65		.57			
6			.54		
21			.50		
34			.56		
36			.62		
37			.67		
41			.67		
61			.69		
69			.71		
73			.55		
5				**.21**	
14				.54	
15				.62	
20				.49	
22				.67	
26				.67	
29				.68	
30				.67	
31				.65	
32				.65	
54				.68	

71			.69	
79			.72	
2				.62
17				.72
23				.68
33				.72
39				.62
57				.71
72				.72
78				.64
80				.69
86				.54

Items	**Factors**			
	HOS	**PHOB**	**PAR**	**PSY**
11	.49			
24	.44			
63	.59			
67	.73			
74	.56			
81	.74			
13		.66		
25		.73		
47		.61		
50		.68		
70		.65		
75		.62		
82		.63		
8			.57	
18			.47	
43			.73	
68			.57	
76			.54	
83			.50	
7				.63
16				.67
35				.46
62				.71
77				.60
84				.68
85				.50
87				.69
88				.63
90				.61

Note: SOM= Somatization, OCD= Obsessive Compulsive, INT= Interpersonal sensitivity, DEP= Depression, ANX= Anxiety, HOS= Hostility, PHOB=Phobia, PAR= Paranoid, and PSY= Psychoticism.

Table 6, shows that factors loading of confirmatory factor analysis for SCL-90 and its nine subscales. Based on the initial criteria of standardized regression weights are higher than .35 is

considered as acceptable factor loading (Field, 2009). Thus, the present findings indicated that all the factor loading of the nine subscales are above than .35 except the item no 5 from the subscale of depression which may be due to cultural bias. Therefore, to improve the model fit the item, 5 was not included.

Further to assess the measurement models, the stepwise model fit indexes were attained of all the subscales of SCL-90.

Table 7

Model Fit Indices for Nine Dimensions of SCL-90 (N = 367)

Models	$\chi^2(df)$	χ^2/df	Goodness of Fit Indices GFI	AGFI	CFI	IFI	RMSEA
M1: Somatization (12 Items) with error covariances							
	60.21**(38)	.58	.97	.96	.99	.99	.03
M2: Obsessive Compulsive (10 Items) with error covariances							
	56.97**(32)	.78	97	.96	.98	.98	.04
M3: Interpersonal Sensitivity (9 Items) with error covariances							
	25.14**(20)	.25	.98	.96	.99	.99	.03
M4: Depression (12 Items) with error covariances							
	92.25**(46)	.01	.96	.92	.96	.96	.06
M5: Anxiety (10 Items) with error covariances							
	39.35**(31)	.26	.97	.97	.99	.99	.03
M6: Hostility (6 Items) with error covariances							
	14.28**(5)	.85	.98	.94	.98	.98	.07
M7: Phobia (7 Items) with error covariances							
	16.46**(12)	.37	.98	.97	.99	.99	.03
M8: Paranoid Ideation (6 Items) with error covariances							
	14.12**(7)	.01	.98	.95	.97	.97	.06
M9: Psychoticism (10 Items) with error covariances							
	38.10**(30)	.27	.97	.95	.99	.99	.03

Note. GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; CFI = Comparative Fit Index; IFI = Incremental Fit Index; RMSEA = Root Mean Square Error of Approximation

**$p < .01$

Table 7, contains the goodness of fit of the confirmatory factor analysis for all nine subscales. According to the accepted measures of global fit indices such as the goodness of fit

indices (GFI, AGFI, CFI) of 0.90 or higher and a root mean square error (RMSEA) .06 or less than indicates the close fit between the sample and theoretical model (Brown, 2015).

Thus, the above findings indicated that chi-square values of all the nine models were significant and allow modification indices to correlate among items. The chi-square values for Somatization $\chi 2(58, N = 367) = 72.6, p < .01$, CFI =.97, RMSEA = .04; Obsessive Compulsive $\chi 2(32, N = 367) = 67.3 p < .01$, CFI = .97, RMSEA = .05; Interpersonal Sensitivity $\chi 2(20, N = 367) = 25.1, p < .01$, CFI = .99, RMSEA= .03; Depression$\chi 2(56, N = 367) = 116.7, p < .01$, CFI = .96, RMSEA= .05; Anxiety$\chi 2(31, N = 367) = 48.62, p < .01$, CFI = .98, RMSEA= .04; Hostility$\chi 2(5, N = 367) = 11.91, p < .01$, CFI =.98, RMSEA = .04; Phobia $\chi 2(12, N = 367) = 16.4, p < .01$, CFI =.99, RMSEA = .04; Paranoid Ideation $\chi 2(7, N = 367) = 11.3, p < .01$, CFI =.99, RMSEA = .04; and Psychoticism $\chi 2(30, N = 367) = 47.9, p < .01$, CFI =.98, RMSEA = .04 were close fit models.

Furthermore, the nine scales i.e., SOM ($\chi 2/df=1.91$), OCD($\chi 2/df=2.11$), INT($\chi 2/df=1.25$), DEP($\chi 2/df=2.08$), ANX($\chi 2/df=1.56$), HOS($\chi 2/df=2.38$),PHOB($\chi 2/df=1.37$), PAR ($\chi 2/df=1.62$), and PSY($\chi 2/df=1.59$), the ratio is nearer to 2 which support that all scales are close fit models (Figure 3 to 11 graphical representation of the good fits model)

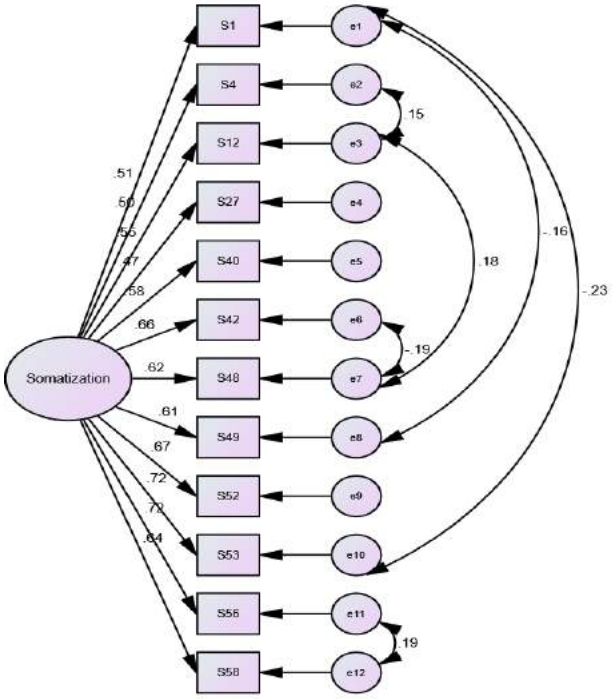


Figure 3. Measurement Model of Somatization (12 items)

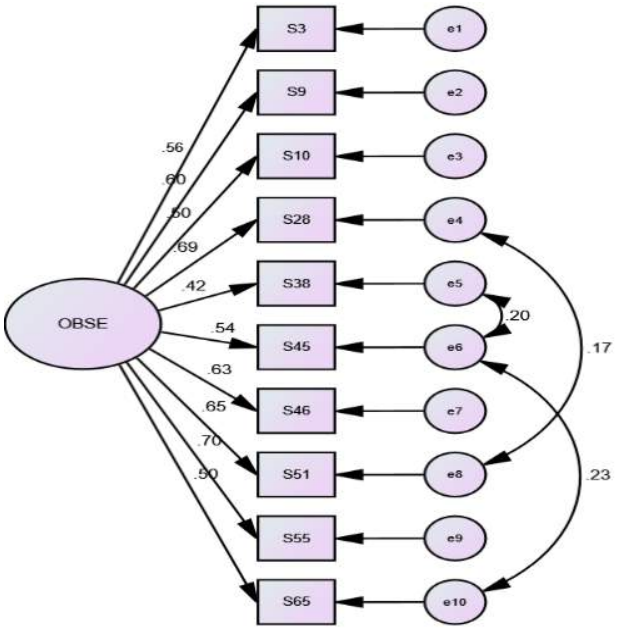


Figure 4. Measurement Model of Obsessive-Compulsive (10 items)

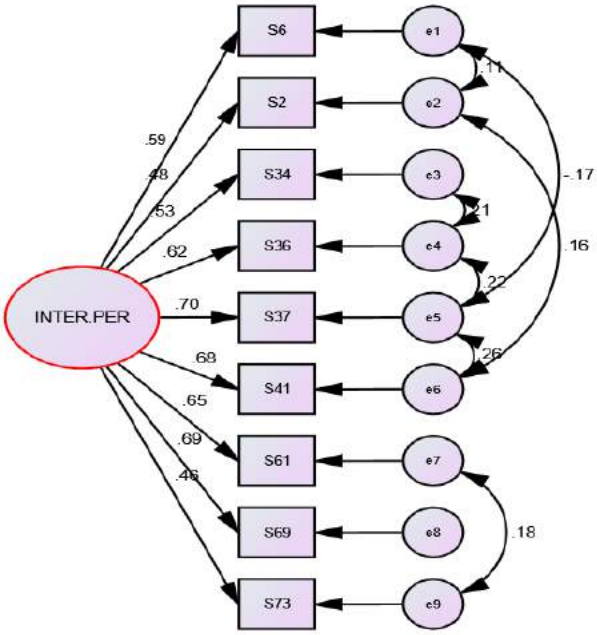


Figure 5. Measurement Model of Interpersonal Sensitivity (9 items)

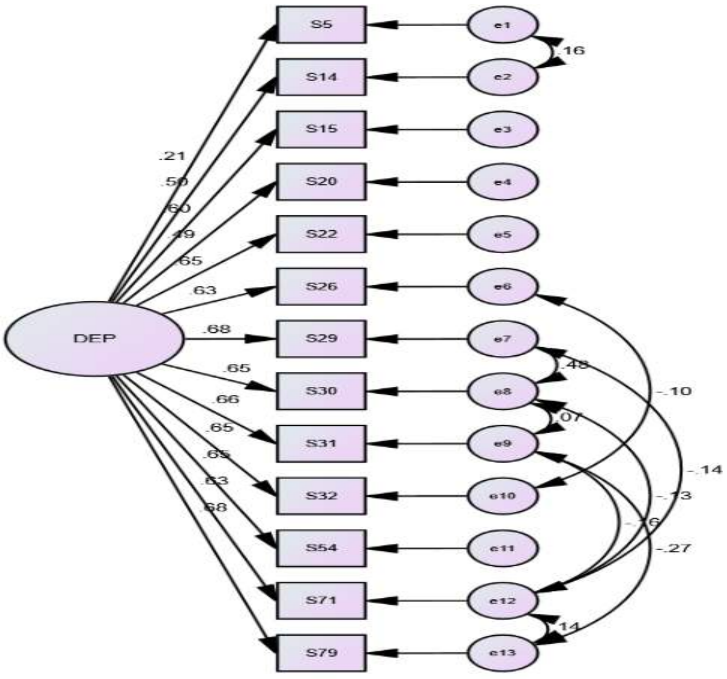


Figure 6. Measurement Model of Depression (13 items)

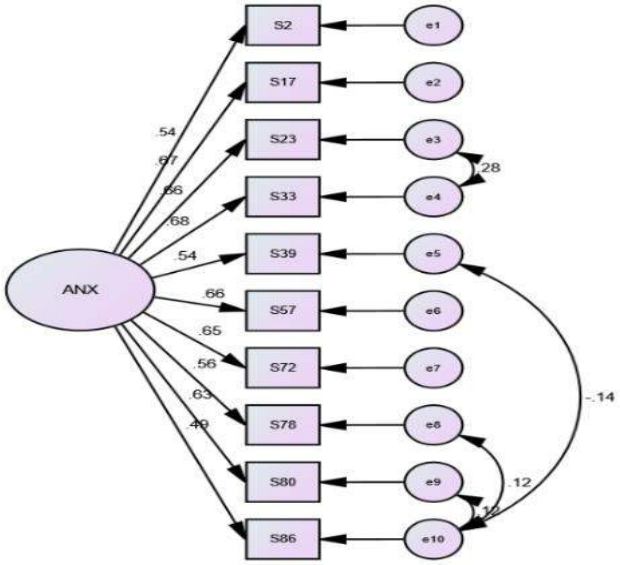


Figure 7. Measurement Model of Anxiety (10 items)

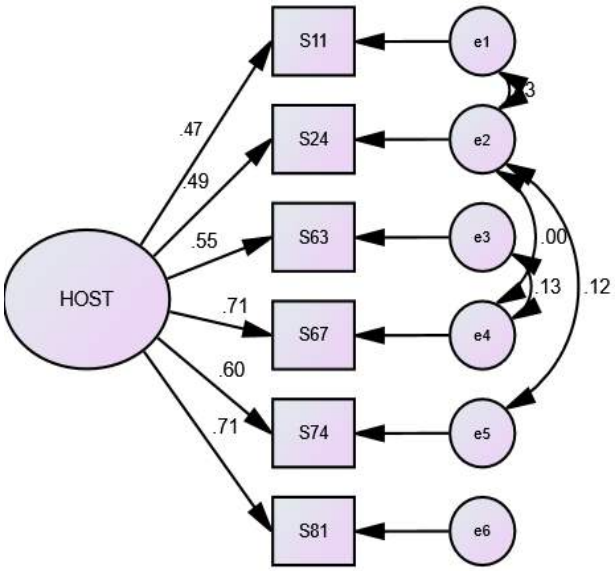


Figure 8. Measurement Model of Hostility (6 items)

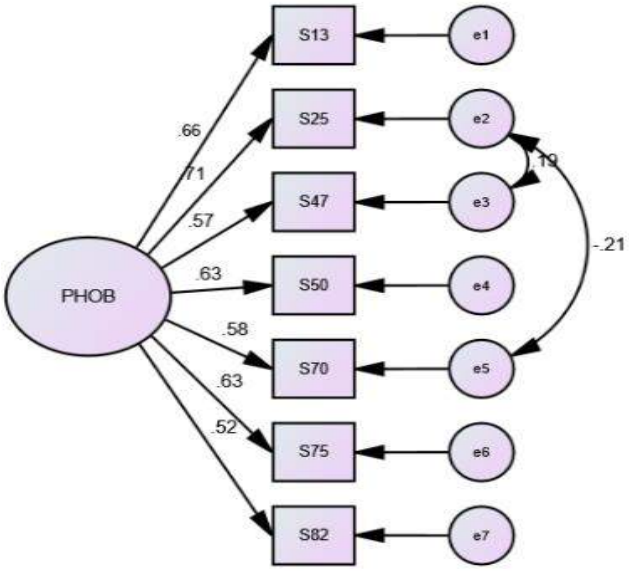


Figure 9. Measurement Model of Phobia (7 items)

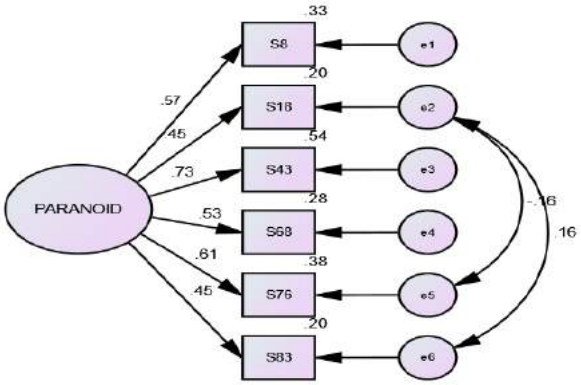


Figure 10. Measurement Model of paranoid (6 items)

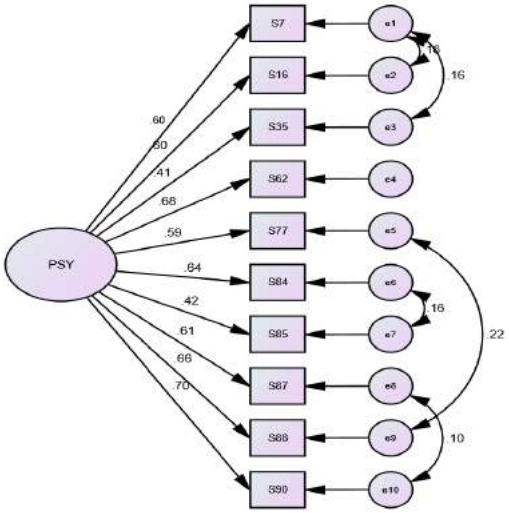


Figure 11. Measurement Model of Psychoticism (10 items)

For investigating the concurrent validity, the scores on MMPI and DASS were correlated with the totals of SCL-90.

Table 8

Correlation between subscales of MMPI and SCL-90 (n=63)

Variables	SOM	OCD	INT	DEP	ANX	HOST	PAR	PHOB	PSY
D	.27*	.40**	.32**	.29**	.41**	.28**	.26**	.37**	.29**
Hs	.34**	.34**	.31**	.29**	.40**	.28*	.21**	. 44**	.29**
Hy	.27*	.22*	.18	.28*	.29*	.25**	.06	.31**	.14
Pd	.22*	.39**	.36**	.38**	.31**	.25*	.32**	.30**	.37**
Mf	-.01	-.17	-.08	-.13	-.02	-.07	.05	-.03	-.03
Pa	.36**	.42**	.39**	.46**	.41**	.36**	.35**	50**	.48**
Pt	.28*	.45**	.41**	.44**	.35**	.32**	.39**	.38**	.39**
Sc	.28*	.34*	.26*	.33*	.31*	.31*	.25*	.38*	.40**
Ma	.40	.12	.10	.12	.07	.16	.20	.10	.21*
Si	.13	.18	.20	.12	.20	-.06	.11	.08	.16

Note: the variables of SCL are soma= somatic, ocd=obsessive compulsive, inter= interpersonal, dep= depression, anx=anxiety, host= hostility, para=paranoid, pho= phobic anxiety, and psy=psychoticism whereas the MMPI scales are D=depression, Hs=hysteria, Hy=Hypochondriasis, Pd=psychopath deviate, Mf=masculinity/femininity, Pa=paranoia, Pt=Psychasthenia, Sc=schizophrenia, Ma=hypomania and Si= social introversion ***** *p<0.05* *** p<0.01*

Table 8, shows the high correlation between the subscales of MMPI and SCL-90 except for Social Introversion and Masculinity/Femininity. Moreover, Hypomania only correlates with Psychoticism.

Table 9

Correlation between subscales of DASS and SCL-90 (n=140)

Scales	Depression	Anxiety	Stress
Somatization	.37**	.42**	.38**
Obsessive Compulsive	.54**	.48**	.54**
Interpersonal Sensitivity	.50**	.44**	.50**
Depression	.52**	.46**	.52**
Anxiety	.51**	.49**	.49**
Hostility	.35**	.32**	.29**
Phobia	.46**	.41**	.42**
Paranoid	.52**	.51**	.49**
Psychoticism	.57**	.48**	.46**

** $p<0.01$

Table 9, demonstrates that the subscales of SCL-90 significantly correlates with depression, stress, and anxiety.

Phase III: Discriminant Validity of the SCL-90.

Further, in order to differentiate between the healthy individuals and patients with psychiatric disorders on the subscales of the SCL-90, a comparison was made.

Sample. The data was collected from the two groups comprised of 100 healthy people and 100 diagnosed with different psychological disorders through purposive sampling. Both groups were matched on the basis of sex and ages ranging from 18 to 36 *(M*= 25.21, *SD*= 4.08*).* The patients with intellectual disability and having severe psychiatric disorders such as psychosis were excluded from the study from the healthy individuals who belonged to the different social sectors/setting.

Procedure. In order to collect the data from the psychiatric patients, permission was obtained from the head of the Psychiatry Department of Armed Forces Military Hospital, Benazir Bhutto Shaheed Hospital and Pakistan Institute of Medical Sciences accordingly.

Furthermost, the patients who came to the hospital for the session and followed up, were diagnosed with mood disorders and anxiety disorders. After socializing the patients and the consent, the symptom checklist was administered.

Table 10

Means, Standard Deviations, and t- values of differences on the subscales of SCL-90 between healthy people and psychiatric patients (N=200)

	Healthy Individuals (n = 100)		Psychiatric Patients (n = 100)			95% *CI*		Cohen's
Variables	*M*	*SD*	*M*	*SD*	*t*(198)	*LL*	*UL*	*d*
SOM	13.81	8.90	21.25	10.32	5.31***	-10.0	-4.65	.76
OCD	15.34	8.94	21.13	7.91	4.85***	-8.22	-3.47	.69
INT	12.68	7.73	18.92	7.56	5.82***	-8.43	-4.22	.82
DEP	18.27	10.72	27.44	10.77	6.01***	-12.10	-6.18	.85
ANX	11.94	8.31	19.91	9.53	6.30***	-10.42	-5.45	.89
HOST	8.56	5.34	11.90	5.82	4.36***	-5.03	-1.93	.61
PHOB	7.69	5.90	12.92	5.80	6.01***	-7.11	-3.62	.86
PAR	8.91	4.72	11.87	5.34	4.07***	-4.35	-1.57	.57
PSY	11.22	7.81	18.54	9.01	6.06***	-9.50	-4.86	.85

*Note. Df=198, *** p<0.001, CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit*

Table 10, illustrates the significant mean differences between healthy individuals and psychiatric patients on all the subscales of Symptom checklist-90, somatization, obsessive-compulsive, interpersonal, depression, anxiety, hostility, phobia, paranoia, and psychoticism.

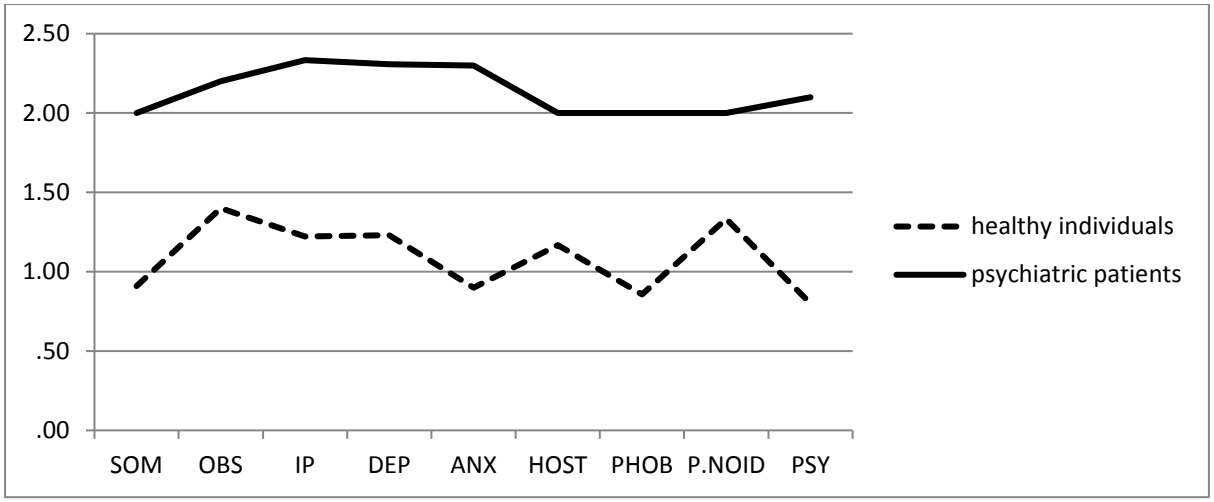


Figure12. Graphical representation of the means of healthy individuals and psychiatric patients

Above figure, indicates that patients had higher mean scores as compared to the healthy individuals on the subscales of the SCL-90

Discussion

The study 1 was comprised of three stages. In Stage 1, the SCL-90 (Derogatis et al.,1973) translated and adapted by using the forward-backward translation technique (Brislin,1976). First, the SCL-90 was given to eight bilingual experts for Urdu translation. Then the final version of the SCL-90 was prepared after post experts' evaluation. The equivalency of the scale was achieved through the back translation, no ambiguity, and complexity was found in the tryout study.

In Stage II, the Cronbach Alpha reliability coefficient of the SCL-90 and its subscale was .71 to .98 (see Table 4). Inter-item correlation indicated high correlation among the subscales of SCL-90 (see Table 5). Further, CFA was used to examine the construct validity through covariance matrix and to explain the variances and covariances among observed scores. The ten measurement model diagrams were also drawn for the SCL-90 by using AMOS. According to factor loadings of the scale and the Fit indices, all encountered the pre-established criterion values and designated an excellent model (see Table 6 and 7). These findings are in line with

a study of reliability and validity of the SCL-90 in Japanese. There was a high correlation among all the items and with each construct and GFI was also over .90 which added validity to the findings of the present study (Tomioka, Shimura, Hidaka, & Kubo, 2008). Bonynge (1993) observed the high intercorrelations among all the subscales.

Likewise, in a study by Prunas, Sarno, Preti, Madeddu, and Perugini, (2012) on a large community-based sample, SCL-90 was translated and validated in Italian version by back translation. Reliability was found to be highly satisfactory, but Principal component analysis yielded a single factor and proved to be a measure of general distress. Kevin, Chapman, Petrie, and Vines, (2012) suggested that the SCL-90 found an adequate measure of Psychological distress in a community-based sample of 91 African American women. Consistent with previous literature, the factorial invariance of the SCL-90 was relatively little or no agreement regarding the dimensionality of the SCL-90 but found to be a highly consistent measure (Cyr, McKenna-Foley, & Peacock, 1985; Prunas et al., 2012). Few studies with several measurement models of SCL-90-R decided that the proposed models fit satisfactorily to the data examined by the original nine (see Carpenter & Hittner, 1995; Vassend & Skrondal, 1999; Schmitz et al.,2000).

Similarly, a study by Urban et al. (2014) assessed the SCL-90-R on an extensive community sample and found that all nine-factor yielded the closest fit through the CFA. This bifactor model has significantly described the psychological symptoms load on an overall primary factor such as global severity and also have a secondary loading on a particular dimension of symptoms. Results of Paap et al. (2011) study supported to postulate above, as 60 items were identified by applying the item response theory and were clustered in seven scales supporting the multidimensionality of SCL-90-R. Correspondingly, the Dutch SCL-90 R model revealed that the total scale score measures general psychological distress with high reliability (Smits, Timmerman, Barelds, & Meijer, 2015).

The convergent reliability was explored by administering the MMPI and DASS. It was found that most of the subscales of MMPI were correlated with the SCL-90 which is consistent with the previous literature. Initially, Derogatis, Rickels, and Roch (1976) first took the initiative to replace the clinical scales of the MMPI with SCL-90 because of the considerable criticism to MMPI over the years. The results of the study indicated that all subscales, as well as the MMPI content and cluster scales, have shown the peak correlations among the patient population. Likewise, DASS has significantly correlated with the nine primary constructs of SCL. In the past, a number of other psychological measurement instruments have been compared with the SCL-90. For example, the Hamilton Depression Scale and General Health Questionnaires have been found to correlate with the depression scale and anxiety subscales of the SCL-90 R (Koeter, 1992), the SCL depression showed good convergence with the Beck Depression Inventory (Prinz et al. 2013). Moreover, the SCL depression subscale performed better than Major Depressive Inventory (Aben, Verhey, Lousberg, Lodder, & Honig, 2002).

Finally, the discriminant validity of the Urdu SCL-90 was verified by comparing healthy individuals and psychiatric outpatients. Findings indicated that patients had high means levels of all the subscales as compared to the healthy individuals. Correspondingly, in a study by Bonicatto, Dew, Soria, and Seghezzo (1997) have indicated sufficient sensitivity in perceiving differences in all dimensions between patients and nonpatients in Argentinian population. It was also pointed out that a neurological patient group had significantly elevated scores on the subscales, i.e., Interpersonal Sensitivity, Depression, and Somatization than a healthy control.

Thus, Urdu SCL-90 was found to be a highly reliable and valid self-report measure for the assessment of psychiatric disorders in Clinical settings. Moreover, it has adequate convergent and divergent validity which is highly supported by the literature

Chapter-IV

STUDY II
DYSFUNCTIONAL SCHEMA MODES AND COMORBIDITY OF PSYCHIATRIC SYMPTOMS IN INDIVIDUALS WITH EPILEPSY

Method

The study-II was aimed to investigate the association between dysfunctional schema modes and comorbidity of psychiatric symptoms in Individuals with epilepsy. The effect of various demographical and clinical variables on dysfunctional schema modes and comorbidity of psychiatric symptoms were examined. Moreover, some survey-based questions regarding self-disclosure and fear were also discussed.

Objectives

The objectives of the present study were:

1. To examine the reliability of the measures for the main study.
2. To find out the relationship between dysfunctional coping modes (compliant surrender, detached protector, detached self-soother, self-aggrandizer, bully and attack, and angry protector) and the psychiatric symptoms (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism) in individuals with epilepsy.
3. To investigate the relationship between dysfunctional child modes (Vulnerable child, angry child, enraged child, impulsive child, undisciplined child) and psychiatric symptoms (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism) in individuals with epilepsy.

4. To examine the association among dysfunctional parenting modes (punishing parenting, demanding parenting) and adaptive modes (happy child, happy adult) with psychiatric symptoms (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism) in individuals with epilepsy.
5. To study the effect of chronicity of epilepsy on schema modes and comorbidities of psychiatric symptoms.
6. To determine the role of duration of Epilepsy as moderator in the association between dysfunctional child modes and hostility.
7. To examine the effect of demographic variables including socio-economic status, education, and gender on schema modes and psychiatric symptoms among people with epilepsy

Hypotheses

The following hypotheses and sub-hypotheses were devised for achieving the objectives of the present research.

Hypothesis 1

There will be a significant positive association between Schema Modes and the psychiatric symptoms in individuals with epilepsy.

Sub-hypotheses

1a: Dysfunctional coping modes will positively predict Psychiatric symptoms portray in SCL-90 among the individuals with epilepsy.

1b: Dysfunctional child modes will positively predict the Psychiatric symptoms among persons with epilepsy

1c: Dysfunctional demanding and punishing parenting modes will positively predict the psychiatric symptoms among individuals with epilepsy

1d: Adaptive modes will be the inverse predictor of psychiatric symptoms among individuals with epilepsy.

Hypothesis 2

There will be a significant effect of the chronicity of epilepsy on dysfunctional schema modes and psychiatric symptoms in individuals with epilepsy.

Sub-hypotheses

2a: There will be considerable differences between the three groups of chronic epilepsy on dysfunctional coping modes, child modes and parenting modes.

2b: There will be a non-significant effect of chronicity of epilepsy and adaptive modes.

2e: There will be a significant influence of the chronicity epilepsy on the comorbidities of psychiatric symptoms.

Hypothesis 3

Duration of epilepsy significantly moderates the relationship between dysfunctional child modes and hostility in individuals with epilepsy.

Hypothesis 4

People with epilepsy from low-socioeconomic status will significantly score high on schema modes and susceptible to psychiatric comorbidity as compared to middle and upper class.

Hypothesis 5

There will be significant mean differences regarding levels of education, schema modes and psychiatric symptoms in people with epilepsy.

Hypothesis 6

Males with epilepsy will score high on dysfunctional coping modes, child modes, parenting modes and adaptive modes as compared to females with epilepsy

Sample

The purposive sample of 108 persons with epilepsy having the age ranged from 15 to 65 years (*M*=24.9, *SD*=7.42), with age onset at (*M*=15.19, *SD*=8.2) including 53.7% was female, 37% were married was collected. The detailed demographics and clinical characteristics are presented in (Table 11 and 12). Only diagnosed patients as per the guidelines of ILAE and by fulfilling the below-mentioned inclusion criteria were recruited from the various neurology department of the Hospitals after getting permission from the head of the departments of the particular hospitals of Pakistan Institute of Medical Sciences and Shifa International Hospital.

Inclusion criteria. According to the inclusion criteria of the sample, the participant must have active epilepsy as taking Antiepileptics more than one year. All the participant must be diagnosed with epilepsy as per the guidelines of ILAE.

Exclusion criteria. The merely suspected cases of epilepsy and having another comorbidity such as psychopathology, learning disability, etc. are excluded from the research.

Ethical Approval. The ethical approval was obtained from the Ethical Committee, Department of Psychology, International Islamic University, Islamabad. Further, the Clinical Research Centre of Shifa International Hospital was also appraised about the research plan, and they permitted the undersigned for data collection from the neurology ward of their hospital (see Appendix A and B).

Demographics and Clinical Characteristics. The demographics and clinical characteristic of the individuals with epilepsy are presented in following tables.

Table 11

Socio demographic Characteristics of Participants (N=108)

Variables	Categories	N	%
Gender			
	Male	50	46.3
	Female	58	53.7
Marital Status			
	Single	68	63
	Married	40	37
Socioeconomic Status			
	Lower	30	28.8
	Middle	52	48.1
	Upper	26	24.1
Education			
	Illiterate	11	10.2
	Primary	14	13.0
	Middle	16	14.8
	Matric	22	20.4
	Intermediate	14	13.0
	Graduation	31	28.7
Occupation			
	Unemployed	25	23.1
	Govt. employee	13	12
	Self-employed	28	25.9
	Students	23	21.3
	House wife	19	17.6

Table 11, represents a total of 108 participants mean age was 24.91 ranged from 18 to 56 years (SD= 7.42), among these females, were 58 (53.7%), being single 68 (63%), had a socioeconomic status middle class 52 (48.1%) followed by lower 30 (28.8%). Most of the participants educational level were Matric whereas above followed by middle 16 (20.4%) and illiterate 11 (10.2%). By occupation, most of them were self-employed 28 (25.9%), and 25 (23.1%) were unemployed.

Table 12

Clinical Characteristics of Participants (N=108)

Variables	Categories	N	%
Type of Epilepsy			
	Focal Seizure	24	22.2
	Generalized Seizure	84	77.8
Duration of Illness			
	1 to 5 years	39	36.1
	6 to 10 years	37	34.3
	11 years and above	32	29.6
Reason for Epilepsy			
	Family History	48	44.4
	Head Injury	10	9.3
	Post-secondary	3	2.8
	Unknown	47	43.5
Triggers for epilepsy			
	Fatigue	2	1.9
	Sleep deprivation	4	3.7
	Stress	8	7.4
	Poor-adherence	9	8.3
	All above	43	39.8
	High grade fever	3	2.8
	Unknown	39	36.1

Table 12, depicts the clinical characteristic of the patients which includes the types of epilepsy, reasons, and triggers. The Generalized seizures were the most common (77.7%) followed by focal seizures (22.2%). Almost 36.1% had 1 to 5 years of epilepsy, 34.3% had 6 to 10 years and 29.6 having epilepsy more than 11 years. According to the reasons for epilepsy, 44.4% reported strong family history, while 43.5% did not know the reason and only 10 (9.3%) had a head injury. Forty-three (39.8 %) people with epilepsy had reported the combination of

fatigue, sleep deprivation, stress and poor adherence to medicines as triggers for epilepsy. However, 39 (36.1%) were unaware of the triggers for epilepsy.

Instruments

Semi-Structured Interview Questionnaire: A semi-structured interview questionnaire was used to investigate the various sociodemographics and clinical variable from the individuals who were suffering from epilepsy. The questionnaire was included the different questions regarding the age at the time of onset of epilepsy, types of seizure, duration of seizure, family history, socioeconomic status, occupation, marital status and awareness regarding illness, and triggers of epilepsy.

Short Schema Mode Inventory (SMI). The short version of SMI a self-report measure developed by Lobbestael, van Vreeswijk, Spinhoven, Schouten, and Arntz (2010) containing 124 items. It is a 6-point Likert scale range from "1 = *never or hardly ever*" to 6=*always*". It measures 14 schema modes categorized into four main types; the dysfunctional child modes, dysfunctional coping modes, dysfunctional parenting modes and the healthy modes. The SMI has good internal consistency for all subscales, Cronbach α ranged from .78-.96. The higher score reveals the activation of modes (Lobbestael, van Vreeswijk, & Arntz, 2007). For the present study, the Urdu version of the inventory was used (Riaz, Khalily, & Kalsoom, 2013) Following table presented the summary of schema modes.

Table 13

Summary of the Schema Modes (Young et al.,2003)

Categories	**Modes**	**Explanation**
Dysfunctional Child Modes	Vulnerable (VC)	the feelings of isolation, hopeless, frightened, victimized or anxious
	Angry Child (AC)	the sense of isolation, hopeless, frightened, victimized or anxious;
	Enraged Child (EC)	expresses the severe sense of resentment and wrath that results in hurting or damaging people or objects

	Impulsive Child (IC)	seems the spoiled and acts on wishes and follows natural inclinations immediately without thinking of consequences
	Undisciplined Child (UC)	often behave impulsive, violent, irritated and having difficulty to finish routine or boring tasks.
Dysfunctional Parenting Modes	Punitive Parent (PP)	refers as always indulge in criticizing others or themselves, having suicidal fantasies and self-loathing,
	Demanding Parent (DP)	strive for high status, try to meet high standards, seek perfection and avoid wasting time.
Dysfunctional Coping Modes	Compliant Surrender (CS)	acts in a passive, submissive, reassurance-seeking, or self-critical way towards others due to fear of rejection
	Detached Protector (DP)	cut off or disengage from all joys of life and stay in isolation and depersonalization
	Detached Self-soother (DS)	involve in pleasurable or soothing activities include workaholism, gambling, dangerous sports, or drugs
	Self-Aggrandiser (SA)	show lack of empathy, extremely self-absorbed, competitive, grandiose and abusive
	Bully and Attack (BA)	portrays antisocial and criminal acts, may harm anyone with proper strategic either emotionally, physically, sexually, and verbally
	Angry Protector (AP)	concealments of the anger feeling and a stream of bitterness and resentment from others.
Adaptive Modes	Healthy Adult (HA)	represents the appropriate skills and functional behaviors of an adult such as working, parenting, nurturing, taking responsibility, and committing.
	Happy Child (HC)	entails playful or enjoyable activities and feeling of contentment because core emotional needs are sufficient.

Symptom Checklist-90 (SCL-90). The SCL-90 is a 90-item, brief, multidimensional checklist designed to assess psychopathology and psychological distress. It is a five-point Likert scale, and each item is rated on a five-point scale of distress ranging from “not at all” to “extremely.” It encompasses the nine primary symptom dimensions and intensities: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and global distress scale (Derogatis, 1977). The test has good reliability with the range of 0.78–0.90 (Derogatis 1983). The higher the score

yield the pathology. For the present study, the nine subscales of SCL-90 of Urdu version was used with the reliability ranged from .72 to 98 (see Table 4 in Study 1).

Procedure

The respondents were recruited from the different neurological departments of the hospital. After obtaining the ethical approval, the head of the departments of the neurology including Pakistan Institute of Medical Sciences, and Shifa International Hospital was approached for the Permission of collection of data. The doctors and nurses were requested to refer the diagnosed patients with epilepsy above the age of 14 years to the researcher. Moreover, the verbal consent was secured with the assurance that the confidentiality of the participants in the study will be strictly maintained. A brief history (Semi-Structured Interview) from the individuals with epilepsy were taken, which include the age at the time of onset, duration of seizure, family history, socioeconomic status, and awareness regarding illness, education, and parents' employment status. After socializing to the purpose of the study, SMI and SCL-90 were administered. Eighty patients were interviewed in hospitals whereas 18 patients were interviewed on the phone due to their requests and feasibility. Two patients did not cooperate and as such were dropped during the interview. Most of the patients who visited the neurology ward with complaints of seizures were newly diagnosed, some of them had the comorbidities of learning disability, stroke and other neurological ailments. Thus, the final sample led to 108 after discarding the two incomplete questionnaires.

Results

The present study mainly had two-fold purposes. First is to explore the association between the dysfunctional schema modes and psychiatric comorbidities among the people with epilepsy. Secondly, it was intended to examine the effect of various demographics and clinical

characteristics of the respondents. In order to achieve the objective, alpha reliability of the measure was calculated for the main study.

Table 14

Mean scores, Standard deviations, Alpha Reliability Coefficients, and Skewness of the Schema Mode Inventory (N=108)

SMI	No of items	*M*	*SD*	*α*	*Range*		Skewness
					Mini	*Max*	
DP	9	23.52	9.23	.81	9	49	.73
CS	7	23.37	6.38	.63	8	39	-.04
DSS	4	13.27	4.99	.69	4	24	.38
SA	10	32.18	9.56	.75	13	51	.001
BA	9	25.32	7.72	.67	12	45	.38
AP	10	29.12	9.74	.76	10	50	.07
VC	10	27.21	10.47	.84	10	51	.55
EC	10	28.81	12.31	.80	10	59	.34
IM	9	27.82	9.65	.82	11	50	.32
UC	6	17.90	5.46	.59	8	31	-.26
AC	10	29.12	9.74	.80	10	51	.07
PP	10	25.23	9.63	.75	10	50	.55
DP	10	34.48	9.78	.79	10	57	.05
HC	10	36.53	9.53	.76	15	58	-.26
HA	10	36.64	10.39	.82	14	60	.01
SMI	124	180.97	66.36	.97	0-360	6-328	-.43

SMI scales: *VC = Vulnerable Child; AC = Angry Child; EC = Enraged Child; IC = Impulsive Child; UC = Undisciplined Child; HC = Happy Child; CS = Complaint Surrender; DPT = Detached Protector; DSS = Detached Self Soother; SA = Self Aggrandizer; BA = Bully and Attack; PP= Punitive Parent; DP = Demanding Parent; HA = Healthy Adult*

The results in Table 14 indicating the reliability coefficients of all the subscales of Short Schema Mode Inventory. The reliability of the subscales DP, SA, AP, VC, EC, IM, AC, PP, HC, HA and SMI ranged from .75 to .97. However, the reliability of the subscales UC, CS, DSS, and BA had less than .70 which may be because of cultural sensitivity and having less

number of items. According to Nunnally (1978), the acceptable range of reliability is .70 or higher but in cases lower thresholds between .50 to .60 can be used. Similarly, Nunnally and Bernstein (1994) also argued that high alpha does not mention the high degree of internal consistency, less reliability may be due to less number of items.

The values of skewness indicated that the data is normally distributed and fulfill the underlying assumption for using parametric tests.

Predicting Psychiatric Symptoms from Dysfunctional Schema Modes

As the primary goal of the study was to predict the psychiatric symptoms from the four domains of schema modes, include dysfunctional coping modes, child modes, and parenting modes. While the fourth is the adaptive modes. Standard multiple regression analysis was used to examine the prediction of Psychiatric symptoms from the dysfunctional schema modes. Preliminary analyses show that there is a no violation of the assumptions of normality, linearity, multicollinearity, and independence of residuals.

Table 15

Standard Multiple Regression Predicting Somatization from Dysfunctional Schema Modes (N=108)

Predictors	*β*	*P*	R^2	*F (df)*
D. Coping Modes			.27	6.39(6, 101)
Detached protector	.40	.00		
Compliant surrender	.07	.52		
Detached self-soother	.08	.39		
Self-aggrandizer	-.19	.16		
Bully and attack	.05	.63		
Angry protector	.16	.18		
D. Child Modes			.30	8.65 (5, 102)
Vulnerable child	.56	.00		
Angry child	-.12	.45		
Enraged child	.02	.86		
Impulsive child	.07	.65		
Undisciplined child	-.03	.98		
D. Parenting Modes			.26	19.23(2, 105)
Punishing parent	.53	.00		
Demanding parent	-.04	.65		
Adaptive Modes			.01	.49 (2, 105)
Happy Child	-.13	.41		
Happy Adult	.05	.75		

Note. ***$p < .001$, **$p<.01$, *$p<.05$*; D = Dysfunctional.

Table 15 shows that all six predictors of dysfunctional coping modes could account for 27 % of the variance on Somatization, F (6, 101) = 6.40, $p<0.01$ and detached protector (β = .40, $p<.01$), made a substantial contribution to the prediction of Somatization.

Dysfunctional child modes could account for 30 % of the variance on Somatization, F (5, 102) = 8.65, p<0.01. However, the vulnerable child made a significant contribution (β = .57, p<.01) to the prediction of Somatization. As well as, dysfunctional parenting modes accounted for 26 % of the variance on Somatization, F (2, 105) = 19.23, p<0.01 and only punishing parent made a significant contribution (β = .53, p<.01) to the prediction of Somatization.

Moreover, findings on the adaptive modes were non-significant.

Table 16

Standard Multiple Regression Predicting Obsessive Compulsive from dysfunctional Coping Modes (N-108)

Predictors	*B*	*p*	R^2	*F(df)*
D. Coping Modes			.38	10.31(6, 101)
Detached protector	.49	.00		
Compliant surrender	.08	.42		
Detached self-soother	-.13	.17		
Self-aggrandizer	-.05	.66		
Bully and attack	.17	.12		
Angry protector	.08	.45		
D. Child Modes			.48	18.88 (5, 102)
Vulnerable child	.67	.00		
Angry child	-.35	.01		
Enraged child	.22	.05		
Impulsive child	.07	.57		
Undisciplined child	.07	.47		
D. Parenting Modes			.39	34.09 (2, 105)
Punishing parent	.63	.00		
Demanding parent	-.02	.77		
Adaptive Modes			.01	.49 (2, 105)
Happy Child	-.07	.65		
Happy Adult	-.02	.87		

**p<.05; **p<.01*; D = Dysfunctional.

Table 16, All six predictors of dysfunctional coping modes accounted for 34 % of the variance on Obsessive Compulsive, F (6, 101) = 10.13, $p<0.01$ and detached protector ($\beta = .49$, $p<.01$), observed as a significant predictor of Obsessive Compulsive.

Dysfunctional child modes were able to account for 46 % of the variance on Obsessive Compulsive, F (5, 102) = 18.87, $p<0.01$. Vulnerable child ($\beta = .67$, $p<.01$) positively predicting

the Obsessive compulsive, Enraged child also contributing in prediction (β = .22, p<.05) and Angry child mode (β = -.35, p<.05) was the inverse predictor of Obsessive Compulsive. Dysfunctional parenting modes showed 38 % of the variance F (2, 105) = 34.09, p<0.01 and punishing parent (β = .64, p<.01) found a significant predictor of Obsessive Compulsive.

Table 17

Standard Multiple Regression Predicting Interpersonal sensitivity from Dysfunctional Modes (N=108)

Predictors	*B*	*p*	R^2	*F(df)*
D. Coping Modes			.32	7.83 (6, 101)
Detached protector	.36	.00		
Compliant surrender	-.14	.18		
Detached self-soother	-.03	.72		
Self-aggrandizer	.02	.91		
Bully and attack	.11	.35		
Angry protector	.24	.05		
D. Child Modes			.45	16.54 (5, 102)
Vulnerable child	.68	.00		
Angry child	-.19	.15		
Enraged child	.02	.84		
Impulsive child	.24	.09		
Undisciplined child	-.11	.34		
D. Parenting Modes			.29	20.99 (2, 105)
Punishing parent	.55	.00		
Demanding parent	-.04	.62		
Adaptive Modes			.05	2.51 (2, 105)
Happy Child	-.34	.04		
Happy Adult	.21	.19		

**p<.05; **p<.01*; D = Dysfunctional.

All six predictors of dysfunctional coping modes were able to account for 28 % of the variance on Interpersonal sensitivity, F (6, 101) = 7.83, p<0.01. Detached Protector (β = .36, p<.01), and Angry Protector (β = .24, p<.05) significantly contribute to the prediction of Interpersonal sensitivity.

Dysfunctional child modes were able to account for 42 % of the variance on Interpersonal sensitivity, F (5, 102) = 16.54, *p*<0.01. Among all predictors of dysfunctional

child modes, only vulnerable child mode made a significant contribution (β = .69, p<.01) to the prediction of Interpersonal sensitivity. Parenting modes were able to account for 27 % of the variance F (2, 105) = 20.97, p<0.01 and punishing parenting made a significant contribution (β = .55, p<.01) to the prediction of Interpersonal sensitivity.

Additionally, adaptive modes explained 5% variance for Interpersonal sensitivity, F (6, 101) = 2.51, p<0.05 and happy child negatively predicted the INT.

T**able 18**

Multiple Regression Predicting Depression from Dysfunctional Coping modes (N=108)

Predictors	*B*	*p*	R^2	*F(df)*
D. Coping Modes			.43	12.75 (6, 100)
Detached protector	.36	.00		
Compliant surrender	-.08	.37		
Detached self-soother	-.01	.92		
Self-aggrandizer	-.06	.59		
Bully and attack	.11	.31		
Angry protector	.38	.00		
D. Child Modes			.57	27.85 (5, 101)
Vulnerable child	.77	.00		
Angry child	.01	.96		
Enraged child	-.08	.39		
Impulsive child	.11	.36		
Undisciplined child	-.05	.57		
D. Parenting Modes			.36	30.34 (2, 104)
Punishing parent	.61	.00		
Demanding parent	-.02	.82		
Adaptive Modes			.05	2.60 (2, 105)
Happy Child	-.32	.04		
Happy Adult	.16	.31		

**p<.05; **p<.01*; D = Dysfunctional.

Dysfunctional coping modes account for 40 % of the variance on Depression, F (6, 101) = 12.76, $p<0.01$. Among all, the Angry protector (β = .36, $p<.01$) and detached protector (β = .38, $p<.01$), made a significant contribution to the prediction of depression. All five predictors of dysfunctional child modes were able to account 56 % of the variance on Depression, F (5, 102) = 25.85, $p<0.01$. However, the Vulnerable child made a significant contribution (β = .77, $p<.01$) to the prediction of depression.

Both Demanding and Punishing parent mode were able to account 35 % of the variance on Depression, F (2, 105) = 30.34, p<0.01 and punishing parent found to be a significant predictor (β = .61, p<.01) of Depression.

Further, the happy child had significantly inversely predicted the depression. However, there was a non-significant effect on a Happy adult.

Table 19

Multiple Regression Predicting Anxiety from Dysfunctional Schema Modes (N=108)

Predictors	*β*	*p*	R^2	*F(df)*
D. Coping Modes			.36	11.52 (6, 101)
Detached protector	.36	.00		
Compliant surrender	-.07	.48		
Detached self-soother	-.02	.83		
Self-aggrandizer	-.17	.18		
Bully and attack	.11	.31		
Angry protector	.35	.00		
D. Child Modes			.46	17.28 (5, 102)
Vulnerable child	.65	.00		
Angry child	-.14	.32		
Enraged child	.03	.74		
Impulsive child	.15	.27		
Undisciplined child	-.02	.88		
D. Parenting Modes			.32	24.27 (2, 105)
Punishing parent	.59	.00		
Demanding parent	-.12	.14		
Adaptive modes			.06	3.18(2, 105)
Happy Child	-.33	.25		
Happy Adult	.10	.72		

*p<.05; **p<.01*; D = Dysfunctional.

Dysfunctional coping modes were able to account for 33 % of the variance on Anxiety, F (6, 101) = 09.59, p<0.01. However, The Detached Protector is significantly predicting Anxiety (β = .37, p<.01) followed by angry protector (β = .36, p<.01).

Dysfunctional child modes were able to account for 43 % of the variance on Anxiety, F (5, 102) = 17.28, p<0.01. The vulnerable child made a significant contribution (β = .66, p<.01) to the prediction of Interpersonal sensitivity. As well as dysfunctional parenting modes were able to account for 31 % of the variance on Anxiety, F (2, 105) = 24.28, p<0.01. The punishing significantly contributed (β = .60, p<.01) to the prediction of Anxiety.

Further, adaptive modes made no contribution to predicting Anxiety.

Table 20

Standard Multiple Regression Predicting Hostility from Dysfunctional Modes (N=108)

Predictors	*β*	*p*	R^2	*F(df)*
D. Coping Modes			.48	15.72 (6, 101)
Detached protector	.27	.01		
Compliant surrender	-.19	.04		
Detached self-soother	-.07	.41		
Self-aggrandizer	.12	.28		
Bully and attack	.13	.17		
Angry protector	.39	.00		
D. Child Modes			.53	23.28 (5, 102)
Vulnerable child	.24	.03		
Angry child	.13	.31		
Enraged child	.45	.00		
Impulsive child	.03	.83		
Undisciplined child	-.08	.42		
D. Parenting Modes			.28	20.53 (2, 105)
Punishing parent	.56	.00		
Demanding parent	-.11	.24		
Adaptive Modes			.03	1.58 (2, 105)
Happy Child	-.26	.10		
Happy Adult	.15	.35		

**p<.05; **p<.01*; D = Dysfunctional.

Table 20, indicated that the six modes of Dysfunctional Coping were able to account for 45 % of the variance on Hostility, F (6, 101) = 15.72, $p<0.01$. However, Angry protector made a more significant contribution (β = .39, $p<.01$) followed by detached protector (β = .28, $p<.01$) to the prediction of hostility. Nevertheless, complaint surrender (β = -.19, $p<.05$) had a significant inverse association with Hostility.

The dysfunctional child modes were able to account for 51 % of the variance on Hostility, F (5, 102) = 23.28, p<0.01. The enraged child made a significantly greater contribution (β = .46, p<.01) followed by a vulnerable child (β = .25, p<.05) to the prediction of Hostility. Moreover, the parenting modes accounted for 27 % of the variance on Hostility, F (2, 105) = 20.53, p<0.01. Among both dysfunctional parenting modes, only punishing parent made a significant contribution (β = .56, p<.01) to the prediction of Hostility.

In addition, the healthy modes had no contribution in the prediction of Hostility.

Table 21

Multiple Regression Predicting Paranoid ideation from Dysfunctional Coping Modes (N=108)

Predictors	*β*	*p*	R^2	*F(df)*
D. Coping Modes			.27	6.39 (6, 101)
Detached protector	.34	.00		
Compliant surrender	-.13	.23		
Detached self-soother	-.18	.86		
Self-aggrandizer	-.04	.74		
Bully and attack	.12	.31		
Angry protector	.23	.09		
D. Child Modes			.39	13.41 (5, 102)
Vulnerable child	.76	.00		
Angry child	-.05	.74		
Enraged child	.04	.75		
Impulsive child	-.06	.68		
Undisciplined child	-.16	.17		
D. Parenting Modes			.28	20.08 (2, 105)
Punishing parent	.55	.00		
Demanding parent	-.07	.47		
Adaptive Modes			.03	1.52 (2, 105)
Happy Child	-.27	.09		
Happy Adult	.19	.23		

**p<.05; **p<.01*; D = Dysfunctional.

The dysfunctional coping modes were able to account for 23 % of the variance on Paranoid ideation, F (6, 101) = 6.27, p<0.01. And detached protector significantly predicting paranoid (β = .35, p<.01).

Moreover, dysfunctional child modes showed 37 % of the variance on Paranoid ideation, F (5, 102) = 13.41, p<0.01. And vulnerable child made a significant contribution (β =

.77, $p<.01$) to the prediction of Paranoid ideation. Dysfunctional parenting modes were able to account for 26 % of the variance on Paranoid ideation, F (2, 105) = 20.08, $p<0.01$ and only punishing parent made a significant contribution ($\beta = .55$, $p<.01$) to the prediction of Paranoid ideation.

Table 22

Multiple Regression Predicting Phobia from Dysfunctional Modes (N=108)

Predictors	*β*	*p*	R^2	*F(df)*
D. Coping Modes			.32	7.90 (6, 101)
Detached protector	.38	.00		
Compliant surrender	-.07	.49		
Detached self-soother	.02	.84		
Self-aggrandizer	-.09	.49		
Bully and attack	.24	.04		
Angry protector	.10	.39		
D. Child Modes			.38	12.54 (5, 102)
Vulnerable child	.69	.00		
Angry child	-.15	.29		
Enraged child	-.09	.45		
Impulsive child	.09	.52		
Undisciplined child	.04	.73		
D. Parenting Modes			.35	28.78 (2, 105)
Punishing parent	.63	.00		
Demanding parent	-.13	.13		
Adaptive Modes			.03	1.47 (2, 105)
Happy Child	-.19	.23		
Happy Adult	.03	.83		

**p<.05; **p<.01*; D = Dysfunctional.

Above table 22, demonstrates that dysfunctional coping modes accounted for 28 % of the variance on Phobia, F (6, 101) = 7.90, $p<0.01$. Detached protector made greater contribution (β = .38, $p<.01$) than bully and attack (β = .25, $p<.05$) to the prediction of Phobia.

Moreover, the variance of dysfunctional child modes was accounted for 35 % of the variance on Phobia, $F (5, 102) = 12.54$, $p<0.01$. The vulnerable child has significantly predicting Phobia ($\beta = .70$, $p<.01$). Whereas the parenting modes were able to account for 34 % of the variance on Phobia, $F (2, 105) = 28.78$, $p<0.01$ and punishing parent made a significant contribution ($\beta = .63$, $p<.01$) to the prediction of Phobia.

However, adaptive modes have not made any contribution.

Table 23

Multiple Regression Predicting Psychoticism from Dysfunctional Modes (N=108)

Predictors	*β*	*P*	R^2	*F(df)*
D. Coping Modes			.32	8.01 (6, 101)
Detached protector	.41	.00		
Compliant surrender	-.02	.98		
Detached self-soother	-.02	.81		
Self-aggrandizer	-.13	.31		
Bully and attack	.13	.26		
Angry protector	.21	.07		
D. Child Modes			.49	19.56 (5, 102)
Vulnerable child	.87	.00		
Angry child	-.09	.49		
Enraged child	.02	.81		
Impulsive child	-.11	.43		
Undisciplined child	-.09	.39		
D. Parenting Modes			.38	32.44 (2, 105)
Punishing parent	.64	.00		
Demanding parent	-.06	.42		
Adaptive Modes			.02	1.47 (2, 105)
Happy Child	-.16	.31		
Happy Adult	.02	.88		

**p<.05; **p<.01*; D = Dysfunctional.

Table 23, illustrated that the dysfunctional coping modes were able to account for 28 % of the variance on Psychoticism, F (6, 101) = 8.00, $p<0.01$. Further, the detached protector made a significant contribution to the prediction of Psychoticism *(*β = .41, $p<.01$).

Dysfunctional child modes were able to account for 47 % of the variance on Psychoticism, F (5, 102) = 19.55, $p<0.01$. Vulnerable child mode significantly contributed (β = .87, $p<.01$) to the prediction of Psychoticism. However, dysfunctional parenting modes were

able to account for 37 % of the variance on Psychoticism, F (2, 105) = 32.44, p<0.01. Only punishing parent mode made a significant contribution (β = .64, p<.01) to the prediction of Psychoticism.

Thus, the above results for the hypotheses 1a to 1d showed that the detached protector, vulnerable child, and punishing parent mode were significantly contributing to the prediction of Somatization, Depression, Obsessive-Compulsive, Interpersonal Sensitivity, Anxiety, Hostility, Paranoid, Phobia, and Psychoticism. However, Angry Protector was a significant predictor of Depression, Anxiety, and Interpersonal Sensitivity represented psychological distress. The Enraged child had made a significant contribution to the prediction of Hostility and Obsessive and compulsive. However, the angry child had negatively predicted the OCD. Subsequently, Compliant surrender negatively associated with Hostility. Further, bully and attack made a noteworthy contribution to the prediction of Phobia.

The impact of Chronicity of epilepsy on Schema Modes and Psychiatric Symptoms.

In order to see the effect of chronicity of illness on Schema modes and psychiatric symptoms, a one-way variance analysis was run. Chronicity of disease was determined by the years of epilepsy and categorized into three groups; below five years, 6 to 10 years, and 11years above.

Table 24

Analysis of Variance (ANOVA) between Chronicity of epilepsy and Dysfunctional Coping Modes (N=108)

	Less than 5 years (*n*=39)		6 to 10 years (*n*=19)		above than 11 years (*n*=32)				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 105)*	η^2	*P*
DP	23.62	8.28	22.95	9.86	24.07	9.82	.12	.04	.88
BA	25.46	6.98	25.32	8.83	25.15	7.44	.01	.02	.98
AP	30.21	8.34	27.77	10.51	29.34	10.48	.60	.11	.54
CS	24.63	5.99	22.47	7.30	22.87	5.59	1.22	.15	.29
DSS	13.91	4.63	13.02	5.74	12.78	4.53	.51	.09	.45
SA	33.60	8.64	30.83	10.30	32.03	9.81	.80	.12	.98

Note. η^2 = eta squares, *M* = Mean, *SD* = Standard deviation. DP=detached protector, CS=Compliant Surrender, DSS=Detached Self-soother, SA=Self-aggrandizer, BA= Bully and Attack, AP= Angry Protector; Cl = confidence interval; LL = lower limit, UL = upper limit.

Table 24, shows the comparison made of the three groups of years of epilepsy on dysfunctional coping modes. Their results indicated that chronicity of illness had no impact on the utilization of coping modes.

Table 25

Analysis of Variance (ANOVA) between Chronicity of epilepsy and Dysfunctional Child Modes (N=108)

	Less than 5 years (*n*=69)		6 to 10 years (*n*=19)		above than 11 years (*n*=20)				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 105)*	η^2	*P*
VC	27.17	9.92	24.31	9.90	30.61	11.06	3.23	.05	.04
AC	30.21	8.34	27.77	10.51	29.34	10.48	.60	.01	.55
EC	30.27	11.32	26.05	12.31	30.21	13.27	1.42	.03	.25
IC	29.43	9.46	26.57	9.88	27.30	9.63	.89	.02	.41
UC	18.96	5.10	17.17	6.26	17.44	4.81	1.18	.02	.31

Note. η^2 = eta squares, *M* = Mean, *SD* = Standard deviation. VC=Vulnerable child, AC= Angry child, EC=Enraged child, IC=Impulsive child, UC=Undisciplined child.

Above table 25, shows that chronicity of epilepsy had a significant impact on the vulnerable mode whereas other has no effect on the other dysfunctional child modes.

Table 26

Pairwise Comparisons for Vulnerable Child with chronicity of epilepsy (N=108)

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Vulnerable Child	Less than five years	6 to 10 years	2.86	.44	-2.73	8.46
		above than 11 years	-3.44	.34	-9.26	2.37
	6 to 10 years	Less than 5 years	-2.86	.44	-8.46	2.73
		above than 11 years	-6.31*	.03	-12.19	-.41
	Above than 11 years	Less than 5 years	3.44	.34	-2.37	9.26
		6 to 10 years	6.31*	.03	.41	12.19

Note: *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

Table 26, further elaborates the pairwise comparison of three socio-economic statuses with vulnerable child mode. Tukey post hoc test revealed that the long duration of illness causes vulnerability.

Table 27

Analysis of Variance (ANOVA) between Chronicity of epilepsy and Dysfunctional Parenting Modes and Adaptive Modes (N=108)

	Less than 5 years (*n*=39)		6 to 10 years (*n*=37)		above than 15 years (*n*=32)				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 105)*	η^2	*P*
Parenting Modes									
Punishing parent	25.65	9.63	24.30	9.92	25.23	9.63	.25	.01	.77
Demanding parent	35.55	8.58	33.02	10.72	34.48	9.78	.67	.01	.51
Adaptive Modes									
Happy Child	38.17	9.04	37.16	10.95	33.81	7.93	2.00	.03	.14
Happy Adult	39.42	10.40	35.54	10.96	34.53	9.22	2.32	.04	.10

Note. η^2 = eta squares, *M* = Mean, *SD* = Standard deviation.

Above Table 27. demonstrates the comparison of three groups of years of epilepsy on the dysfunctional parenting modes and adaptive modes. The results specified that there was no significant difference between groups regarding both dysfunctional patenting modes. Likewise, no significant effect of chronicity was found on the Happy child and Happy Adult.

Table 28

Analysis of Variances between Chronicity of Epilepsy and Psychiatric Symptoms (N=108)

	Less than 5 years (*n*=39)		6 to 10 years (*n*=37)		above than 11 years (*n*=32)				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 105)*	η^2	*P*
SOM	21.72	10.03	16.29	8.43	19.62	6.66	3.66	.07	.03
OCD	19.43	8.24	17.12	7.31	19.62	6.66	1.21	.02	.30
INT	16.11	8.57	14.08	7.40	16.39	7.91	1.21	.02	.30
DEP	23.88	12.75	20.68	11.94	23.36	10.49	.89	.02	.41
ANX	17.84	9.44	15.52	8.27	17.30	7.72	1.03	.02	.36
HOS	11.12	5.72	9.24	5.79	11.30	5.18	1.58	.03	.20
PHOB	10.11	7.32	9.24	6.36	10.56	5.31	.56	.01	.57
PAR	8.98	5.78	8.52	5.46	10.68	4.64	1.51	.02	.22
PSY	14.81	9.56	12.35	7.71	14.81	8.31	.98	.01	.37

Note. SOM= Somatization, OCD= Obsessive Compulsive, INT= Interpersonal sensitivity, DEP= Depression, ANX= Anxiety, HOS= Hostility, PHOB=Phobia, PAR= Paranoid, and PSY= Psychoticism.

Above Table 28, represented the significant effect of chronicity of epilepsy on the Somatization. However, no significant mean differences were found for obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoid, and psychoticism. For examining the differences between the years of epilepsy, Post analysis was carried out.

Table 29

Pairwise Comparisons for Somatization with chronicity of epilepsy (N=108)

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Somatization	Less than 5 years	6 to 10 years	5.52*	.04	.33	10.72
		above than 11 years	.73	.32	-4.62	6.10
	6 to 10 years	Less than 5 years	-5.52*	.04	-10.72	-.33
		above than 11 years	-4.78	.86	-10.25	.67
	Above than 11 years	Less than 5 years	-.73	.32	-6.10	4.62
		6 to 10 years	4.78	.86	-.67	10.25

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

The table 29, displays the pairwise comparisons between the three groups of years of epilepsy revealed that People with epilepsy notably reported symptoms of somatization during the first five years of illness.

Moderating Effect of Duration of epilepsy on the relationship between child modes and hostility

The child modes accounted 51% observance for the prediction of hostility. For further analyzing the relationship between dysfunctional schema modes and hostility, the moderating effect of years of epilepsy was examined by employing the Model 1 by Processing SPSS.

Table 30

Moderation Effect of Duration of Epilepsy on Dysfunctional Child and Hostility (N=108)

		Hostility	
		95% Confidence Interval	
Predictors	B	*LL*	*UL*
Constant	5.44**	-9.56	-1.33
DE	.02	-.08	.11
DC	.09**	.07	.11
DC X DE	.01*	-.01	.00
R^2		.51	
ΔR^2		.03	
F		36.51***	
ΔF		5.44	

Note. DE= Duration of Epilepsy; DC= Dysfunctional Child CL=Confidence Interval
****p<.001; **p<.01; *p<.05*

In Table 30, the results presented the moderating effect of duration of epilepsy in the association between dysfunctional child and hostility (β = .01, p<.05, ΔR^2= .03). It was examined that duration of epilepsy added 3% additional variance in the relationship between dysfunctional child and hostility. The moderating effect of duration of epilepsy showed through the mod graph in figure 13.

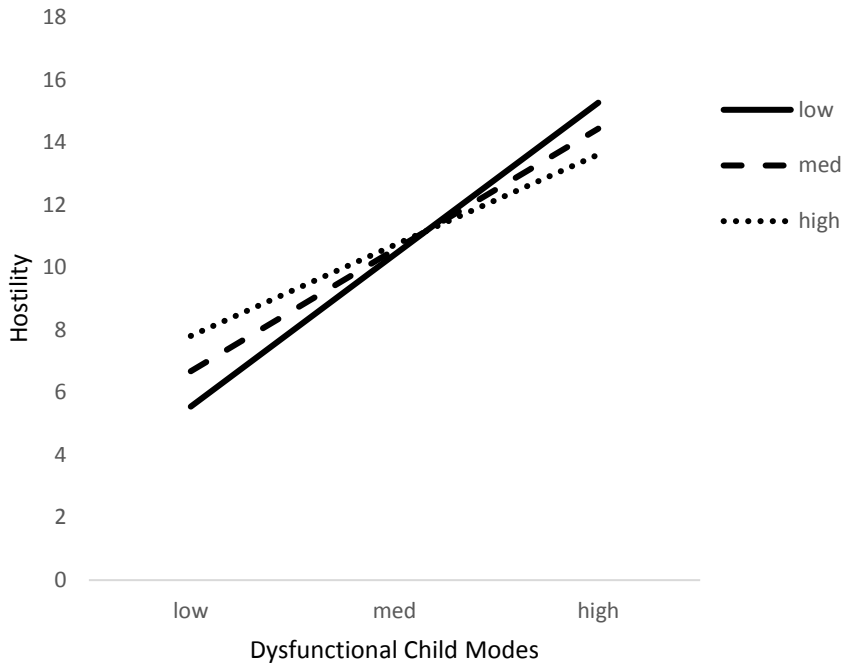


Figure 13. Modgraph on the Moderating Effect of Duration of Epilepsy on Dysfunctional Child and Hostility

The Above Figure 13, demonstrated the significant interaction of duration of epilepsy on the dysfunctional child modes and hostility. The slope showed that people with less duration of epilepsy significantly used child dysfunctional modes and having elevated levels of hostility.

Subsequently, the demographic variables were examined to see the outcome of socioeconomic status and education on the studied variables.

Effect of Socioeconomic status on study variables

A one-way variance analysis was carried out to see the effect of three classes, lower class, middle class and upper class of socioeconomic status on dysfunctional coping, dysfunctional child, dysfunctional parenting and adaptive modes. As well as the influence on psychiatric symptoms among individuals with epilepsy were also analysed. The classification of the social status was based on the income, education, and employment according to the Asian Bank Development (Chun, 2010).

Table 31

Socioeconomic differences between low, middle, and upper class on psychiatric symptoms (N=108)

	Low (n=30)		Middle (n=52)		Upper (n=26)				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 105)*	*p*	η^2
HOS	12.96	5.58	9.82	5.07	9.14	6.03	4.28	.02	.08
SOM	21.46	10.45	19.21	9.13	18.41	8.57	.80	.45	.02
INT	17.73	7.50	14.61	7.32	14.69	9.47	1.64	.20	.03
OCD	20.30	7.32	17.70	6.99	18.82	8.57	1.15	.32	.02
DEP	25.21	11.27	20.71	10.78	23.50	14.02	1.48	.23	.03
ANX	19.24	9.34	15.88	7.93	16.45	8.77	1.49	.23	.03
PHOB	11.76	7.75	8.95	6.03	10.08	5.85	1.77	.18	.03
PAR	10.83	5.54	8.38	4.97	9.47	5.78	2.01	.14	.04
PSY	16.69	9.55	12.76	8.17	13.23	7.86	2.15	.12	.04

Note. η^2 *= eta squares, M = Mean, SD = Standard deviation. SOM= Somatization, OCD= Obsessive Compulsive, INT= Interpersonal sensitivity, DEP= Depression, ANX= Anxiety, HOS= Hostility, PHOB=Phobia, PAR= Paranoid, PSY= Psychoticism*

Table 31, described that there was a significant difference between groups regarding hostility F (2, 105) = 4.28, p<.05, However, there was no difference between groups in other subscales of SCL-90. Further post hoc analysis was done to see the group comparison.

Table 32

Pairwise Comparisons for Hostility among three classes of Socioeconomic Status

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*P*	95% *CI*	
					LL	*UL*
Hostility	Low class	Middle class	3.13*	.04	.10	6.17
		Upper class	3.82*	.03	.27	7.36
	Middle class	Low class	-3.13*	.04	-6.17	-.10
		Upper class	.68	.93	-2.49	3.86
	Upper class	Low class	-3.82*	.03	-7.36	-.27
		Middle class	-.68	.93	-3.86	2.49

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

The table 32, presented that lower class had significantly observed the symptoms of hostility as compared to the middle and upper class.

Table 33

Socioeconomic differences between low, middle, and upper class on Dysfunctional Coping Modes (N=108)

	Low (*n*=30)		Middle (*n*=52)		Upper (*n*=26)				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 105)*	*P*	η^2
DP	28.92	10.91	21.25	7.50	21.85	7.95	8.07	.00	.13
BA	29.48	8.94	24.47	6.30	22.23	7.01	7.58	.00	.13
AP	34.05	8.05	27.48	9.73	26.69	9.82	5.88	.00	.10
CS	23.65	6.08	23.23	6.26	23.34	7.16	.04	.96	.00
SA	34.44	9.18	32.48	9.77	29.00	9.05	2.36	.09	.07
DSS	14.48	4.70	13.44	5.19	11.53	4.58	2.54	.08	.07

Note. η^2 *= eta squares, M = Mean, SD = Standard deviation. DP=detached protector, CS=Compliant Surrender, DSS=Detached Self-soother, SA=Self-aggrandizer, BA= Bully and Attack, AP= Angry Protector*;

The table 33 shows , that there was a significant difference between groups in terms of dysfunctional coping modes including detached protector F (2, 105) = 8.08, p<.01, bully and attack F (2, 105) = 7.58, $p<.01$ and angry protector F (2, 105) = 5.89, p<.01. Post-hoc comparison using Hochberg's GT2 indicated that the mean was significantly higher for lower class than the middle and upper class of socioeconomic status. However, there was no difference between groups regarding other types of dysfunctional coping modes including complaint surrender, detached self-soother, and self-aggrandizer.

Table 34

Pairwise Comparisons for the Detached Protector among three classes of Socioeconomic Status in Relation to Dysfunctional Coping Modes

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Detached Protector	Low class	Middle class	7.65*	.00	2.84	12.50
		Upper class	7.06*	.01	1.43	12.71
	Middle class	Low class	-7.67*	.01	-12.50	-2.85
		Upper class	-.61	.98	-5.66	4.45
	Upper class	Low class	-7.07*	.01	-12.71	-1.43
		Middle class	.61	.98	-4.45	5.66

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit;*UL* = Upper Limit.

In Table 34, the post hoc analysis depicted that lower class had significantly utilized detached protector mode as compared to middle and upper class.

Table 35

Pairwise Comparisons for Bully and Attack among three categories of Socioeconomic Status in Relation to Dysfunctional Coping Modes

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Bully and Attack	Low class	Middle class	5.01*	.01	.96	9.06
		Upper class	7.25*	.00	2.51	11.98
	Middle class	Low class	-5.01*	.01	-9.06	-.96
		Upper class	2.24	.49	-2.00	6.48
	Upper class	Low class	-7.25*	.00	-11.99	-2.51
		Middle class	-2.24	.49	-6.58	2.00

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

Similarly, Table 35, showed post hoc comparison that low class scored high on Bully and Attack mode as compared to middle and upper class.

Table 36

Pairwise Comparisons for Angry Protector among three categories of Socioeconomic Status in Relation to Dysfunctional Coping Modes

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Angry Protector	Low class	Middle class	6.57*	.01	1.39	11.75
		Upper class	7.36*	.01	1.31	13.42
	Middle class	Low class	-6.57*	.01	-11.75	-1.39
		Upper class	.79	.97	-4.63	6.22
	Upper class	Low class	-7.36*	.01	-13.42	-1.43
		Middle class	-.79	.97	-6.22	4.63

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

Table 36, represented that lower class significantly had high mean on Angry protector as compared to the lower and upper class.

T**able 37**

Analysis of Variance (ANOVA) between Socioeconomic Status and Dysfunctional Child Modes (N=108)

	Low (*n*=30)		Middle (*n*=52)		Upper (*n*=26)				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 105)*	*P*	η^2
VC	30.49	10.67	25.94	9.60	25.96	11.47	2.07	.13	.04
AC	34.05	8.05	27.48	9.73	26.69	9.82	5.89	.00	.10
EC	36.03	11.30	26.34	11.67	25.42	11.61	8.16	.00	.13
IC	32.14	8.79	26.64	9.25	25.19	10.08	4.66	.01	.08
UC	19.95	5.79	17.48	5.25	16.38	4.94	3.42	.03	.06

Note. η^2 = eta squares, *M* = Mean, *SD* = Standard deviation. *Cl* = confidence interval; *LL* = lower limit, *UL* = upper limit.

Above table 37, signifies that there was a significant difference between groups in terms of dysfunctional child modes including angry child F (2, 105) = 5.89, p<.01, enraged child F (2, 105) = 8.16, $p<.01$, impulsive child F (2, 105) = 4.66, p<.01 and undisciplined child F (2, 105) = 3.42, p<.01 However, there was no difference between groups in terms of vulnerable child.

Table 38

Pairwise Comparisons for Angry Child among three classes of Socioeconomic status in People with Epilepsy

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Angry Child	Low class	Middle class	6.57*	.01	1.38	11.75
		Upper class	7.36*	.01	1.31	13.42
	Middle class	Low class	-6.57*	.01	-11.75	-1.38
		Upper class	.79	.97	-4.63	6.22
	Upper class	Low class	-7.36*	.01	-13.42	-1.31
		Middle class	-.79	.97	-6.22	4.63

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

In Table 38, Post-hoc comparison using Hochberg's GT2 indicated that the Angry child mean significantly higher for lower class than middle class.

Table 39

Pairwise Comparisons for Enraged Child among three categories of Socioeconomic status in People with Epilepsy

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Enraged Child	Low class	Middle class	9.69*	.00	3.26	16.12
		Upper class	10.61*	.00	3.09	18.12
	Middle class	Low class	-9.69*	.00	-16.12	-3.26
		Upper class	.92	.98	-5.82	7.65
	Upper class	Low class	-10.61*	.00	-18.12	-3.09
		Middle class	-.92	.98	-7.65	5.81

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

In Table 39, the enraged was significantly dominant among lower class as compared to the middle and upper classes.

Table 40

Pairwise Comparisons for Impulsive Child among three classes of Socioeconomic status in People with Epilepsy

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Impulsive Child	Low class	Middle class	5.49*	.04	.30	10.68
		Upper class	6.94*	.02	.88	13.01
	Middle class	Low class	-5.49*	.04	-10.68	-.30
		Upper class	.1.45	.88	-3.98	6.89
	Upper class	Low class	-6.94*	.02	-13.01	-.88
		Middle class	-1.45	.88	-6.89	3.98

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

The table 40, further showed the post hoc comparison on impulsive child and indicated that lower class scored significantly than middle and upper class.

Table 41

Pairwise Comparisons for Undisciplined Child among three categories of Socioeconomic status in People with Epilepsy

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Undisciplined Child	Low class	Middle class	2.46	.13	-.50	5.44
		Upper class	3.56*	.04	.09	7.04
	Middle class	Low class	-2.46	.13	-5.44	.50
		Upper class	1.09	.77	-2.02	4.21
	Upper class	Low class	-3.56*	.04	-7.04	-.09
		Middle class	-1.09	.77	-4.21	2.02

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

In continuation of post hoc comparison, Table 41 revealed that Low class had significantly scored high on the Undisciplined child as compared to the upper group. Yet, no significant mean difference was found for the middle class.

Table 42

Analysis of Variance (ANOVA) between Socioeconomic Status and Dysfunctional Parenting Modes and Adaptive Modes (N=108)

	Low (*n*=30)		Middle (*n*=52)		Upper (*n*=26)				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 105)*	η^2	*P*
D. Parenting Modes									
Punishing parent	29.38	10.67	23.68	8.84	23.53	8.75	4.08	.07	.02
Demanding parent	34.52	8.83	35.12	9.94	33.13	10.71	.36	.00	.70
Adaptive Modes									
Happy child	37.94	9.31	36.97	9.67	34.03	9.42	.37	.00	.70
Happy Adult	36.78	10.53	37.30	10.19	35.17	10.88	1.28	.02	.28

Note. ; η^2 = eta squares, M = Mean, SD = Standard deviation.

The Table 42, revealed that there was a significant difference between groups regarding dysfunctional parenting modes including punishing parent F (2, 105) = 4.08, p<.05. In addition, a comparison was made of the three groups, lower, middle, and upper classes of the socioeconomic status of individuals had epilepsy in terms of adaptive modes.

Nevertheless, there was no difference between groups with regard to adaptive modes including happy child and happy adult.

Table 43

Pairwise Comparisons for Undisciplined Child among three classes of Socioeconomic status in People with Epilepsy

Variable	(I) SES	(J) SES	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Punishing Parenting	Low class	Middle class	5.70*	.02	.49	10.91
		Upper class	5.84	.06	-.24	11.93
	Middle class	Low class	-5.70*	.02	-10.91	-.49
		Upper class	1.44	1.00	-5.31	5.60
	Upper class	Low class	-5.84	.06	-11.93	.24
		Middle class	-.14	.1.0	-5.60	5.31

Note. *$p < .05$; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit.

In Table 43, Post-hoc comparison using Hochberg's GT2 indicated that the mean was meaningfully higher for lower class than the middle class of socioeconomic status. Yet no significant mean difference of upper class on Punishing Parenting

Thus, the people with epilepsy from the lower class had significantly developed hostility by using the absolute modes including DP, BA, AP, AC, EC, IC, UC and PP.

Impact of Education on Study Variables

Moreover, in order to get insight that how education plays a role in characterizing the modes among PWE and its connection with psychiatric disorders, the impact of education was also investigated during the study of variables. A one-way ANOVA was used to compare the categories of education includes illiterate, primary, middle, matric, intermediate and graduate of educational level of individuals had epilepsy regarding dysfunctional coping modes.

Table 44

Analysis of Variance (ANOVA) between Education and Dysfunctional Coping Modes

Variable	Levels of Education	*n*	*M*	*SD*	*F* (2, 105)	*P*	η^2
Detached Protector	illiterate	11	29.61	13.37	1.30	.27	.06
	primary	14	23.26	8.32			
	middle	16	21.95	9.22			
	matric	22	23.90	9.43			
	inter	14	24.01	9.21			
	graduate	31	21.80	7.42			
Self-aggrandizer	illiterate	11	39.00	10.58	1.66	.12	.08
	primary	14	34.02	7.63			
	middle	16	28.76	10.67			
	matric	22	31.13	9.01			
	inter	14	31.69	8.07			
	graduate	31	31.67	9.78			
Detached self-soother	illiterate	11	15.55	5.91	1.18	.32	.05
	primary	14	13.50	5.11			
	middle	16	11.00	4.49			
	matric	22	13.50	5.00			
	inter	14	13.82	5.02			
	graduate	31	13.13	4.77			
Compliant surrender	illiterate	11	25.79	7.26	1.77	.15	.08
	primary	14	25.21	5.73			
	middle	16	19.75	6.13			
	matric	22	23.09	6.57			
	inter	14	23.33	5.19			
	graduate	31	23.77	6.46			
Angry protector	illiterate	11	35.32	9.29	2.92	.06	.12
	primary	14	33.78	7.71			
	middle	16	28.50	11.23			
	matric	22	30.45	10.34			
	inter	14	25.67	8.34			
	graduate	31	25.74	8.52			
Bully and attack	illiterate	11	32.95	9.61	2.98	.02	.13
	primary	14	26.54	6.97			
	middle	16	23.68	8.06			
	matric	22	24.82	5.72			
	inter	14	24.07	7.21			
	graduate	31	23.84	7.51			

Note. η^2 = Eta Squared.

Results indicated in Table 44, revealed that there was a significant difference between groups in terms of bully and attack F (2, 105) = 2.98, p<.05. However, there was no significant

difference regarding compliant surrender, detached protector, detached self-soother, and self-aggrandizer.

Table 45

Pairwise Comparisons for Bully and Attack among the levels of Education in People with Epilepsy

Variable	(I) levels of education	(J) levels of education	Mean Difference (I-J)	*P*	95% *CI*	
					LL	*UL*
Bully And Attack	Illiterate	Primary	6.41	.39	2.52	15.34
		middle	9.26*	.02	.59	17.94
		matric	8.13*	.05	-.04	16.31
		inter	8.88*	.05	-.04	17.80
		graduate	9.11*	.01	1.34	16.88
	Primary	Illiterate	-6.41	.39	-15.34	2.50
		middle	2.84	.99	-5.25	10.95
		matric	1.71	1.00	-5.85	9.29
		inter	2.46	.99	-5.90	10.83
		graduate	2.69	.98	-4.43	9.82
	Middle	Illiterate	-9.26*	.02	-17.94	-.59
		primary	-2.84	.99	-10.95	5.25
		matric	-1.13	1.00	-8.40	6.14
		inter	-.38	1.00	-8.48	7.72
		graduate	-.15	1.00	-6.96	6.66
	Matric	Illiterate	-8.13*	.05	-16.31	.043
		primary	-1.71	1.00	-9.29	5.85
		middle	1.13	1.00	-6.14	8.40
		inter	.74	1.00	-6.82	8.31
		graduate	.97	1.00	-5.19	7.15
	Inter	Illiterate	-8.88*	.05	-17.80	.04
		primary	-2.46	.99	-10.83	5.90
		middle	.38	1.00	-7.72	8.48
		matric	-.74	1.00	-8.31	6.82
		graduate	.23	1.00	-6.89	7.36
	Graduate	Illiterate	-9.11*	.01	-16.88	-1.34
		primary	-2.69	.98	-9.82	4.43
		middle	.151	1.00	-6.66	6.96
		matric	-.97	1.00	-7.15	5.19
		inter	-.23	1.00	-7.36	6.89

Note. *$P<.05$, η^2 = Eta Squared.

Hence, the Post-hoc comparison using Hochberg's GT2 indicated that Bully and Attack mean was significantly higher for illiterate people than other groups of education.

Table 46

Analysis of Variance (ANOVA) between Education and Dysfunctional Coping Modes

Variable	Levels of Education	*n*	*M*	*SD*	*F* (2, 105)	*P*	η^2
Angry child	illiterate	11	35.32	9.29	2.97	.21	.07
	primary	14	33.78	7.71			
	middle	16	28.50	11.24			
	matric	22	30.45	10.34			
	inter	14	25.68	8.34			
	graduate	31	25.74	8.52			
Enraged child	illiterate	11	35.45	11.39	1.76	.12	.13
	primary	14	32.23	10.45			
	middle	16	29.02	12.78			
	matric	22	29.77	13.52			
	inter	14	28.50	12.42			
	graduate	31	24.26	11.38			
Impulsive child	illiterate	11	35.41	9.20	2.02	.08	.08
	primary	14	29.98	8.06			
	middle	16	26.67	10.89			
	matric	22	27.41	10.85			
	inter	14	26.64	7.851			
	graduate	31	25.58	8.80			
Undisciplined child	illiterate	11	21.79	6.33	1.74	.13	.09
	primary	14	18.71	4.87			
	middle	16	17.14	5.75			
	matric	22	18.00	5.33			
	inter	14	17.96	4.71			
	graduate	31	16.45	5.32			
Vulnerable child	illiterate	11	33.05	13.12	1.47	.21	.08
	primary	14	27.07	8.57			
	middle	16	25.79	9.21			
	matric	22	29.33	11.14			
	inter	14	27.75	10.46			
	graduate	31	24.19	9.96			

Note. η^2 = Eta Squared.

Table 46, represented that there are a no significant group differences regarding child modes. Though the mean is high for the illiterate class as compared to other groups.

Table 47

Analysis of Variance (ANOVA) between Level of Education and Dysfunctional Parenting Modes and Adaptive Modes

Variable	Levels of Education	*N*	*M*	*SD*	*F* (2, 105)	*p*	η^2
D. Parenting Modes							
Punishing parent	illiterate	11	32.02	13.25	1.37	.24	.06
	primary	14	25.92	6.61			
	middle	16	24.48	9.21			
	matric	22	24.93	8.77			
	inter	14	24.25	10.94			
	graduate	31	23.54	9.18			
Demanding parent	illiterate	11	36.79	11.21	1.11	.36	.05
	primary	14	35.07	9.70			
	middle	16	29.56	10.19			
	matric	22	34.32	10.91			
	inter	14	36.66	7.99			
	graduate	31	35.06	8.84			
Adaptive Modes							
The Happy Child	Illiterate	11	42.48	9.74	4.12	.00	.17
	Primary	14	39.13	8.22			
	Middle	16	29.25	9.26			
	Matric	22	33.73	8.51			
	Inter	14	38.21	8.34			
	graduate	31	38.25	9.23			
Happy Adult	illiterate	11	39.52	9.51	1.89	.10	.08
	primary	14	38.42	11.03			
	middle	16	30.50	11.37			
	matric	22	35.18	9.92			
	inter	14	36.41	8.65			
	graduate	31	39.14	10.18			

Note. η^2 = Eta Squared.

Table 47, indicated that there was no significant effect of educational level on the individuals with epilepsy regarding dysfunctional parenting modes.

However, there were significant outcomes of the degree of education regarding Happy child and the non-significant difference for Happy Adult.

Table 48

Pairwise Comparisons for Happy Child among the levels of Education in People with Epilepsy (N=108)

Variable	(I) levels of education	(J) levels of education	Mean Difference (I-J)	*p*	95% *CI*	
					LL	*UL*
Happy Child	Illiterate	Primary	3.35	.99	-7.39	14.10
		middle	13.22*	.00	2.77	23.67
		matric	8.75	.12	-1.10	18.60
		inter	4.26	.98	-6.48	15.01
		graduate	4.22	.94	-5.14	13.58
	Primary class	Illiterate	-3.35	.99	-14.10	7.39
		middle	9.87*	.04	.11	19.63
		matric	5.39	.69	-3.72	14.51
		inter	.91	1.00	-9.17	10.99
		graduate	.86	1.00	-7.72	9.45
	Middle	Illiterate	-13.22*	.00	-23.67	-2.77
		primary	-9.87*	.05	-19.63	-.11
		matric	-4.47	.86	-13.24	4.28
		inter	-8.96	.01	-18.72	.79
		graduate	-9.01*	.02	-17.22	-.79
	Matric	Illiterate	-8.75	.12	-18.6	1.10
		primary	-5.39	.69	-14.52	3.72
		middle	4.47	.86	-4.28	13.24
		inter	-4.48	.89	-13.61	4.63
		graduate	-4.53	.65	-11.96	2.91
	Inter	Illiterate	-4.26	.98	-15.01	6.48
		primary	-.91	1.00	-10.99	9.17
		middle	8.96	.09	-.79	18.72
		matric	4.48	.89	-4.63	13.60
		graduate	-.04	1.00	-8.63	8.54
	Graduate	Illiterate	-4.21	.94	-13.58	5.14
		primary	-.86	1.00	-9.45	7.72
		middle	9.01*	.02	.79	17.22
		matric	4.53	.65	-2.91	11.96
		inter	.043	1.00	-8.54	8.63

Note. **P<.05,* η^2 = Eta Squared.

Post-hoc comparison using Hochberg's GT2 designated that the significant means differences of individuals with epilepsy illiteracy, primary, middle and graduate in terms of Happy Child F (2, 105) = 4.12, p<.01 was found. The results indicated that People with epilepsy

had significant high mean on the illiterate group as compared to the middle group. Moreover, significant mean differences found between those who graduated as compared to the middle pass group. Thus, the PWE who had no or less education and graduated significantly used happy child mode as compared to those who had left education.

Gender differences in the study variables.

To examine the mean differences between male and female on the schema mode inventory and symptom checklist, an independent sample of t-test analysis was run.

T**able 49**

Difference between Male and Female regarding Dysfunctional Coping Modes (N=108)

	Gender								
	Male		Female				95% CI		
	n=50		n=58						
Variables	*M*	*SD*	*M*	*SD*	*t(107)*	*P*	LL	UL	Cohen's *d*
DP	25.04	10.59	22.22	7.80	1.59	.12	-.69	6.32	.30
CS	24.90	6.69	22.06	5.85	2.35	.02	.44	5.22	.45
DSS	14.83	5.21	11.93	4.41	3.13	.00	1.06	4.74	.60
SA	35.07	9.71	29.71	8.78	3.01	.00	1.83	8.88	.58
BA	26.39	8.42	24.41	7.00	1.34	.18	-.90	4.93	.26
AP	30.63	9.78	27.82	9.60	1.50	.14	-.96	6.91	.29

Note. Variables=DP=detached protector, CS=Compliant Surrender, DSS=Detached Self-soother, SA=Self-aggrandizer, BA= Bully and Attack, AP= Angry Protector;Cl = confidence interval; LL = lower limit, UL = upper limit.

Table 49, displayed that, male scores were significantly higher on dysfunctional coping modes includes detached self-soother, self-aggrandizer ($p<.01$) and complaint surrender ($p<.05$) than female. While there was no significant difference found between male and female in terms of detached protector, bully, and attack and angry protector.

Table 50

Differences between Male and Female regarding Dysfunctional Child Modes (N=108)

	Gender								
	Male n=50		Female n=58				95% CI		
Variables	*M*	*SD*	*M*	*SD*	*t(107)*	*P*	LL	UL	Cohen's d
VC	28.77	10.62	25.87	10.26	1.44	.15	-1.09	8.89	.28
AC	30.63	9.78	27.82	9.60	1.50	.14	-.90	5.51	.29
EC	31.17	13.26	26.78	11.15	1.87	.06	-.27	9.05	.36
IC	30.38	10.16	25.63	8.69	2.62	.01	1.15	8.35	.50
UC	19.33	5.41	16.67	5.24	2.59	.01	.62	4.69	.46

Note. VC=Vulnerable child, AC= Angry child, EC= Enraged Child, IC= Impulsive child, UC=Undisciplined child. Cl = confidence interval; LL = lower limit, UL = upper limit.

Above table 50, specified that males' scores were significantly higher in dysfunctional child modes including undisciplined child and impulsive child ($p<.05$) as compared to female. While no significant difference was found between male and female in terms of the vulnerable child, enraged child,and angry child.

Table 51

Difference between Male and Female in terms of Dysfunctional Parenting Modes and Adaptive Modes

	Gender								
	Male n=50		Female n=58				95% CI		
Variables	*M*	*SD*	*M*	*SD*	*t(107)*	*P*	LL	UL	Cohen's *d*
D. Parenting Modes									
PP	27.65	10.99	23.15	7.69	2.48	.02	.90	8.10	.47
DP	36.81	10.28	32.47	8.95	2.34	.02	.67	8.00	.45
Adaptive Modes									
HA	38.64	8.64	34.73	9.98	2.16	.03	.32	7.51	.42
HC	39.34	10.82	34.33	9.51	2.56	.01	1.12	8.87	.48

Note; PP=Punishing Parenting, DP=Demanding Parenting, HA=Healthy Adult, HC=Happy Child, D= Dysfunctional. *Cl* = confidence interval; *LL* = lower limit, *UL* = upper limit.

Table 51, mentioned that male scores were significantly higher in dysfunctional parenting modes include punishing and demanding parent ($p<.05$) than female.

Similarly, the significant differences were calculated between male and female on Adaptive modes. Male had high scores on happy child and healthy adult modes as compared to females.

Table 52

Gender differences on the subscales of Symptom Checklist-90 (N= 108)

	Gender								
	Male n=50		Female n=58				95% CI		
Subscales	*M*	*SD*	*M*	*SD*	*t(107)*	*P*	LL	UL	Cohen's *d*
SOM	19.12	9.99	20.09	9.38	-.51	.60	-4.67	2.73	.10
OCD	19.31	7.66	18.16	7.38	.79	.43	-1.72	4.02	.15
INT	15.45	8.36	15.53	7.71	-.54	.95	-3.15	2.98	.01
DEP	23.04	12.01	22.28	11.71	.33	.74	-3.78	5.30	.06
ANX	16.90	8.95	16..96	8.30	-.03	.97	-3.36	3.25	.01
HOST	10.75	5.77	10.32	5.52	.42	.67	-1.70	2.61	.07
PHOB	10.56	7.28	9.53	5.89	.81	.42	-1.49	3.54	.15
PAR	9.90	8.83	5.76	5.03	1.03	.30	-.98	3.13	.57
PSY	14.93	9.05	13.13	8.17	1.08	.28	-1.19	5.08	.21

SOM= Somatization, OCD= Obsessive Compulsive, INT= Interpersonal sensitivity, DEP= Depression, ANX= Anxiety, HOS= Hostility, PHOB=Phobia, PAR= Paranoid, and PSY= Psychoticism

Table 52, signifies that there are no gender differences on the Subscales of Symptom Checklist-90.

Survey-based Questions Regarding Sensitivity of Epilepsy

Based on the questions about the attitude, stigma, or self-disclosure among people towards epilepsy a semi-structured interview was conducted. Fear of having a seizure was asked merely through a single question; "Do you afraid of having seizure anytime or anywhere? "Yes" or "No"? Similarly, other issues were enquired regarding Sharing of illness with others and Information in workplace reflected the self-disclosure among the folks with Epilepsy. Moreover, it was asked that how much their regular life routine affected because of seizures. Below table shows the frequencies obtained on the following themes.

Table 53

Sensitivity towards epilepsy (N=108)

Variables	Categories	N	%
Fear of having seizure			
	Yes	84	77.8
	No	24	22.2
Share illness with others			
	Yes	38	35.2
	No	70	64.8
Inform in workplace	Yes	35	32.4
	No	73	67.6
Effects on normal daily life routine			
	Yes	99	91.7
	No	9	8.3

Table 53, showed that fear of having a seizure endorsed by 84 (77.8%). Of 108 participants only 38 (35.2%) shared the information regarding illness with others, and 35 (32.4%) informed others at the workplace about their epilepsy. In the present study, most of the participants 99

(91.7%) reported that epilepsy affects their normal daily life routine, especially after the seizure. Visual representation is also indicating the above findings.

Moreover, it was revealed from the literature that these features significantly associated with psychiatric symptoms. The bar charts were used to represent the mean differences of those who had a fear of seizure or not having seizure in terms of psychiatric disorders.

Fear of seizures and psychiatric symptoms.

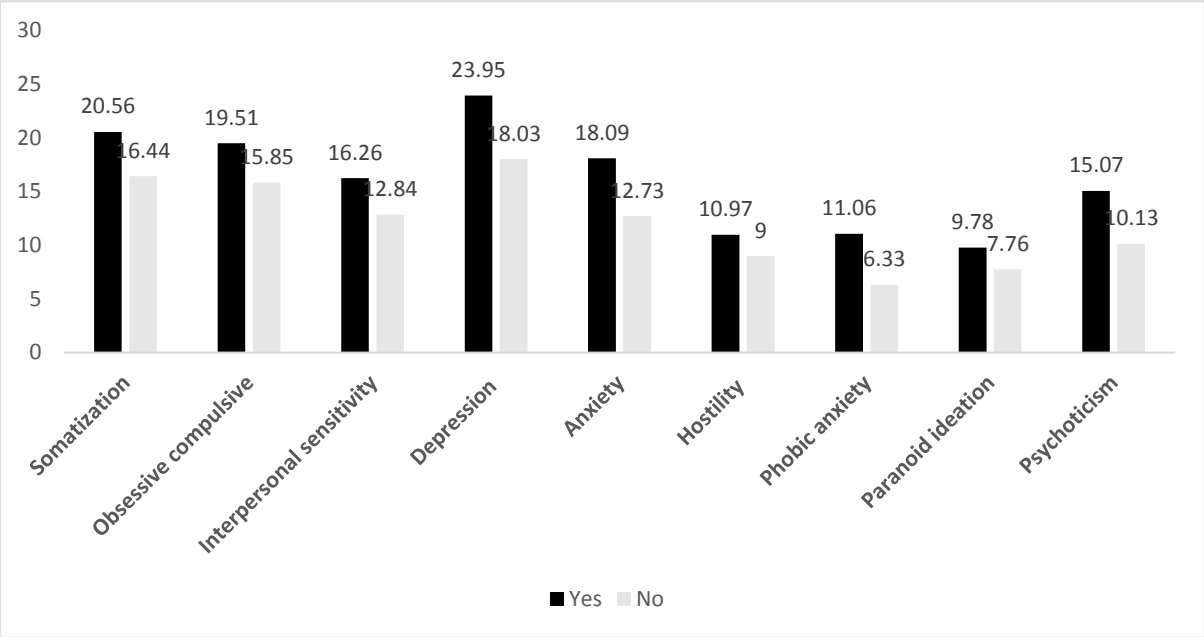


Figure 14. Mean differences between those who had a fear of having seizure and who had not Fear of having seizure concerning Psychiatric symptoms

The above figure 14, represented that who reported fear of having a seizure all the time had elevated mean difference on the subscales of SCL-90.

Self-disclosure and Psychiatric Symptoms

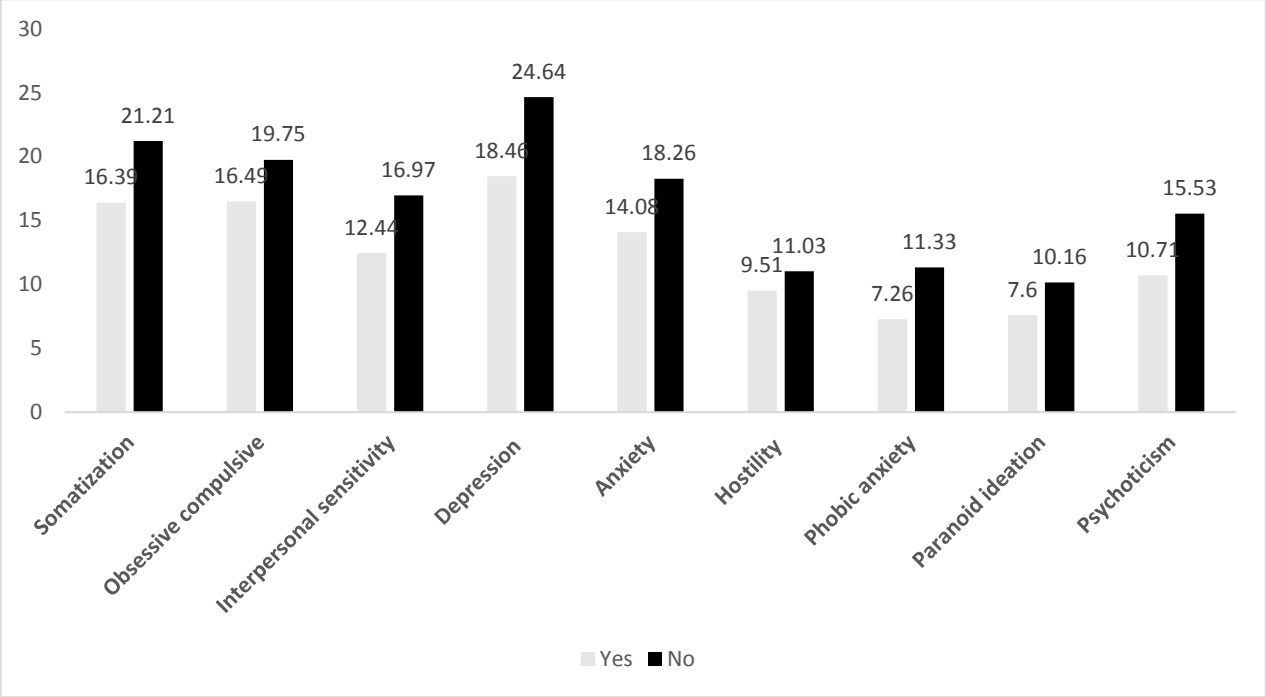


Figure 15. Mean difference between who share illness with others and those who did not share illness with others in terms of Psychiatric symptom

This figure indicates the mean differences of those who shared their epilepsy had less mean on the subscales of SCL-90 as compared to those who could not share.

Discussion

The Study II investigated the two-fold aims; First was to examine the association between dysfunctional and healthy schema modes with the array of psychiatric symptoms represented in Symptom Checklist-90. Secondly, the effect of various social and clinical variables such as socioeconomic status, education and duration of epilepsy on schema modes and psychiatric symptomology were explored in the individuals with epilepsy.

A total of 108 people with epilepsy participated having the age range of 15 to 65 years (*M*=24.9, *SD*=7.42), including 53.7% female. Majority respondents belonged to middle class 52 (48.1%), and only 31% were educated while 23% doing the job and 25% were self-employed. Moreover, the female ratio was high with epilepsy, and 63% young adults were observed unmarried. These findings are in line with the studies by Saher (2012) and Aziz, Akhtar, and Hasan (1997), reported that epilepsy is more prevalent among young adults and due to this stigmatization, marrying a person with epilepsy is a big problem.

According to the clinical characteristics of the patients in present study, they were using antiepileptic for one year, and the mean age at onset was (*M*=15.19, *SD*=8.2). Most patients (77.7%) were diagnosed with the Generalized seizures whereas only (22.2%) had focal seizures. A survey conducted in Pakistan revealed that generalized seizures were more prevalent with a strong family history (Aziz et al., 1997; Khan, Jehan, Khan, H, & Khan, 2011). Almost 36.1% had 1 to 5 years of epilepsy, 34.3% had 6 to 10 years and 29.6 having epilepsy more than 11 years. According to the reasons for epilepsy, 44.4% stated strong family history, while 43.5% did not know the reason and only 10 (9.3%) had a head injury. Forty-three (39.8 %) people with epilepsy had reported the combination of fatigue, sleep deprivation, stress, and non-adherence to medicines as triggers for epilepsy. However, 39 (36.1%) were unaware of the triggers for epilepsy. It has been proven from the well-documented studies that are missing a dose of medicine or not taking them appropriately, poor habits of sleep and psychological distress are the main provocative factors of seizures (Shorovon, 2011; Schulze-Bonhage & Haut, 2011).

Further, in order to assess the link between schema modes and psychological morbidity. The schema mode inventory and the symptom checklist-90 were used. As well as the importance of duration of epilepsy, effect of poor economic condition and levels of education were explored.

Dysfunctional Coping modes and Psychiatric Symptoms

It was hypothesized that the six factors of dysfunctional coping modes positively predicted the psychiatric symptoms described in Symptom checklist-90. Multiple regression was used, and the findings revealed that coping modes accounted 27% to 48% variance in the prediction of psychiatric symptoms. The results showed that Detached Self-Soother and Self-Aggrandizer were found to be non-significant. However, the *Detached Protector (DP)* had significantly contributed in the prediction of all the psychiatric symptoms including somatization, depression, anxiety, interpersonal sensitivity, hostility, paranoia, phobia, psychoticism, and obsessive-compulsive disorder. *Angry Protector (AP)* was significantly positively contributing to the prediction of Depression, Anxiety, Interpersonal sensitivity, and hostility. *Bully and Attack* (BA) had significantly predicted the phobia whereas *Compliant Surrender (CS)* was the inverse predictor of Hostility.

Keeping in view the model of psychopathology, Young et al., (2003) described that dysfunctional coping modes are the unhealthy coping styles mostly employed by individuals who want to guard themselves against the painful events and indulge themselves in self-soothing activities. People who are emotionally shattered and feeling helplessness subjected to have maladaptive schemas such as isolation, disconnection, and avoidance. Correspondingly, findings of the present study notably revealed that patients with psychiatric issues seeking and efficiently employing the avoidance styles to divert their attention from the dysfunctional thoughts and were adopting avoidance strategies such as detached protector and angry protector.

Similar findings of the study by Khalily et al., (2011) indicated that avoidance, overcompensation, and surrender coping styles were mostly used for the major depressive disorder. Alfasos (2009) found that individuals with the complaint of psychosomatic,

depression, paranoid ideation and hostility were significantly predicted from the early maladaptive schemas includes pessimism/ negativity and social isolation or withdrawal. Theil et al., (2014) examined that schema failure was associated mainly with the symptoms of depression. Given the cognitive-vulnerability stress theory, negativity increased the likelihood of mood and anxiety disorders (Alloy & Riskind, 2006). The hopelessness theory is a component of the cognitive vulnerability-stress model, further elaborated that depression tends to attribute the life events in a pessimistic style resulted into dysfunctional attitudes (Abramson, Metalsky, & Alloy, 1989). Respectively, Beck's cognitive theory (Beck, 1987) garnered evidence from empirical investigations that feelings of disapproval or poor self-concept elevated the disorders of Axis 1.

Interestingly, the compliant surrender has negatively predicted the hostility as it is quite evident that hostile people are more aggressive and hostile with low tolerance to failure or refusal are more likely to outspoken, controlling, and impulsive. Understanding the surrender coping style, depicting the self-defeating behaviors or non-responsiveness in the case of rejection. Thus, in line with present findings compliant surrender is likely to have an inverse relationship with hostile. Consistent with the past researches, patients with psychiatric disorders persistently adopt maladaptive coping strategies and deprived (Barefoot et al., 1991; Lobbestael, Arntz, & Sieswerda, 2005)

Another noteworthy finding mentioned that Bully and Attack mode is associated with Phobia. It has been observed that people with epilepsy having high levels of social anxiety or fear of being at open places due to the unannounced complication of seizure. On the basis of this finding that PWE utilized more often bully and Attack mode to over-compensate their fear. Hinrichsen, Waller, and Van Gerko (2004) indicated that social anxiety and agoraphobia have excessively used emotional inhibition, abandonment, and vulnerability to harm schemas. Equally, other studies also found the presence of shame/defectiveness, mistrust, vulnerability

to harm, impaired limits and autonomy, incompetence, social undesirability, deprivation of emotion and entitlement for the fear of social surroundings, negative evaluation (Hedley, Hoffart, & Sexton, 2001; Delattre et al., 2003; Pinto-Gouveia, Castilho, Galhardo, & Cunha, 2006; Atalay, Atalay, Karahan, & Caliskan, 2008; Shariatzadeh, 2017) and Psychological distress (Thimm, 2017).

Dysfunctional Child Modes and Psychiatric Symptoms

The dysfunctional child modes including a vulnerable child, angry child, enraged child, impulsive child, and enraged child modes are hypothesized as the significant predictors of the psychiatric symptoms among people with epilepsy. The multiple regressions yielded that 30% to 58% variance accounted for psychiatric symptoms. The impulsive and undisciplined child was found to be non-significant. However, the *Vulnerable child (VC)* was found to be an essential predictor of all the psychiatric symptoms portray in symptom checklist. The *Angry child (AC)* was significantly inversely predicting obsessive compulsive. The *Enraged child* (EC) made a significant contribution to the prediction of Hostility and OCD.

Broadly speaking, the results of the present study exposed that people with epilepsy utilized vulnerable child mode which is associated with schemas related to the Vulnerable child mode include abandonment, mistrust/abuse, emotional deprivation, social isolation, dependence/incompetence, vulnerability to harm or illness, enmeshment/underdeveloped self, and pessimism. These early maladaptive schemas were provoked due to the exposure to stressors. Schmidt and Joiner (2004) tested the EMS model and expressed that negative life experiences plagued the individuals with maladaptive and self-perpetuated schemata which lead to dysfunctional states. It has been observed that EMS significantly predicted the symptoms of Axis 1. Though there are few studies which examined the role of schema modes, large studies considered the EMS for the prediction of Psychiatric symptoms. Thus, our

findings supported by several studies conducted on the relationship of Early Maladaptive Schemas subjected to use in schema modes with psychiatric symptoms. Mood and anxiety disorders were significantly predicted from the EMS with moderate to high explained variance (Schmidt, Joiner, Young, & Telch, 1995; Welburn et al., 2002; Shah& Waller, 2000; Haris & Curtin, 2002; Jenkins, 2009; Soygut et al., 2009; Renner, Lobbestael, Peeters, Arntz, & Huibers, 2012; Yoo, Park, &Jun, 2014; Shorey, Elmquist, Anderson, & Stuart, 2015; Haugh, Miceli, & DeLorme, 2016).

Halvorsen, Wang, Eisemann, and Waterloo, (2010) examined the three groups such as recent and previous cases of depressogenic with non-depressive. The multiple regression represented that Impaired Autonomy, Impaired Limits, and undesirability explained the high variance to the prediction of depression severity. Glaser, Campbell, Calhoun, Bates, and Petrocelli, (2002) found 54% variance between the psychological distress and Beck Depressive scale and 50% variance of the Anxiety subscale of SCL-90. Similarly, Riso et al., (2006) expounded the relation of Young's EMS with depression and found their significant contribution in chronic depression that recognized vulnerability to harm a crucial factor of psychopathology.

Furthermore, obsessive-compulsive had a negative association with the angry child but positively predicted from the Enraged child. Young postulated that angry child triggered from the schema of subjugation, abandonment, emotional depreciation, and mistrust. Besides, angry child mode transferred into enraged when the situation was beyond the control substantiated through outburst and fierceness. Very few studies have been conducted on the utilization of schema modes in Obsessive-compulsive disorder. Initially, Voderholzer et al., (2013) explored schema modes and found that patients with OCD have utilized the dysfunctional coping, child and parenting modes. Yet, significant scores were observed for a vulnerable child, angry child, punishing and demanding parent. Correspondingly, Theil et al. (2014) identified that OCD has

significantly used the self-sacrifice and abandonment schemata for predicting OCD. Kwak and Lee (2015) also confirmed the former outcomes and illuminated that people with anxiety disorders significantly confronted social isolation, failure, and incompetence. These results also supported by Kim et al., (2014) by revealing that the OCD symptom related to the sexual/religious predicted from the self-undeveloped, has the vulnerability to harm. Thus, in line with the findings of the present study, it gives an understanding that people with epilepsy may likely to develop OCD due to the persistent use of the schemas and feeling of rejection and suppression.

In addition, past researches have consistently highlighted the emotional and temperament issues of people with epilepsy because of the clinical and psychological factors. Thus, the existing study disclosed that the Enraged child has significantly predicted hostility among individuals with epilepsy. In line with the studies by Tremblay and Dozois (2009) and Alfasfos (2009) indicated that mistrust, entitlement, and insufficient self-control were usually triggered Enraged child mode and had significantly predicted the hostility or aggression. By means, the entitlement refers to the feeling of superiority and tries to control the behaviors of others or to dominate the others. While avoiding the pain or discomfort, insufficient self-control depicted the high frustration in achieving the targets by enhancing the sentiments and impulses. Similarly, mistrust is the feeling of being cheated, or someone is deceitful or deceiver. It is quite evident that hostility has represented as the aggressive trait which is characterized by irritability, anger, explosive and pessimistic (Barefoot et al., 1991). Thus, Lobbestael et al., (2008) findings also supported the current analysis and signified that VC, UC, AC, DP, AP, and DSS proved to be more commonly used modes by AXIS-II patients.

Dysfunctional Parenting and Psychiatric Symptoms

The dysfunctional parenting modes predictors accounted for 26% to 42% variances for prediction of psychiatric disorders. Parent punishing mode has significantly become the factor of adding burden to the psychiatric illnesses. Nonetheless, the demanding parenting mode was not found to be a significant contributor. The results significantly corroborated with the previous studies found that imposed restrictions, excessive criticism, authoritarian style, and punitiveness are knowingly leading to mood and anxiety disorders. The relationship between schema domain disconnection/rejection, impaired autonomy and impaired limits and depression have significantly mediated by punishing parenting (Harris, & Curtain, 2002; McGinn, Cukor, & Sanderson, 2005; Kennedy, 2006; Thimm, 2010)

Haugh et al., (2016) verified the meditational model of parenting in psychopathology given by Young (1990) that selective internalization of the parent's actions, beliefs, knowledge, and sentiments generated permanent marks on the cognition in the form of adaptive and maladaptive schemas. Young argued that this initial interaction is very crucial in forming the unique emotional temperament among children such as shyness or inherent aggressive nature. Mainly, these biological reinforcements of personality get permanent over time through the interaction with the environment. Accordingly, it can be presumed that unhealthy personality traits are the product of insecure or unfavorable milieu (Kagan, Reznick, & Snidman, 1988). Thus, the current finding significantly highlighted the importance of nature vs. nurture. Despite the fact that epilepsy is a genetic disorder, but findings signified that poor environment and parenting could be provocative for epilepsy.

Adaptive Attributes and Psychiatric Morbidity

The adaptive modes include a healthy child, and a healthy adult was accounted very less from 1% to 3% for psychiatric issues. As well as the only Healthy child was found an

inverse predictor of Depression and Interpersonal sensitivity. Consistent with the past researches, Happy child, and a Healthy adult was negatively correlated with the Axis I and II disorders (Lobbesteal et al., 2008; Khalily et al., 2011).

Altogether the outcomes of the present study indicated the occurrence of maladaptive schema modes among the people with epilepsy. These modes were significantly predicted the psychiatric symptoms mentioned in Symptom Checklist-90. It has been observed that the coping avoidance strategies include DP and AP have strongly predicted the depression and anxiety disorders. In addition, the people with social anxiety complaints used the overcompensation mode,i.e., BA. Consistently, the results showed that people with epilepsy expansively used VC, AC and EC mode which contributed significantly to the prediction of the psychiatric symptoms and indicated their sensitivity towards the emotional needs. Punishing parenting mode has also significantly contributed to the prediction of all the symptoms. While the happy child was found to be an inverse predictor of depression and interpersonal sensitivity.

Consistent with the study by Camara, and Calvete, (2012) it was found that EMS has been significantly moderated by the stressful events leading to psychopathology. According to the diathesis-stress model, stress has activated the predisposition of developing a psychiatric disorder. Thus, the influence of environment has a substantial impact on the individuals (Ingram & Luxton, 2005). As in Pakistan nowadays, where awareness and acceptance of epilepsy is low. Very few foundations and organization are working for spreading knowledge about epilepsy and having no rights for the benefits of epileptic people in Pakistan. In this scenario, the findings of present study are very consistent with the past researches and highlighted the distress among the epileptic population of Pakistan. Eberhart, Auerbach, Bigda-Peyton, and Abela (2011) supported the diathesis-stress model and assessed that dependent interpersonal stress had increased the possibility of maladaptive schemas which in turn has

developed morbidity. The domain disconnection and rejection and other-directedness have significantly mediated the interpersonal stressors. Lobbestael and Arntz (2012) also described that healthy cognitions become weaker or break due to anger-inducing events.

That is why, it can be said that people with epilepsy are more likely to develop psychiatric disorders as compared to their counterparts (Hermann et al., 2000), as the violent convulsion, fear, and perceived stigma are the prominent stressors of persons with epilepsy. Importantly, social isolation, rejection, emotionally deprived, lack of empathy, low self-esteem, self-efficacy and a reduced sense of mastery are potentially causing maladaptive coping styles (Baker et al., 2009). Thus, the present study will emerge to be a well-substantiated model given by Young (2003) and will play a significant role in predicting symptomology.

Role of Years of epilepsy, Socioeconomic status, Education and Gender on Study Variables

The second hypothesis with sub-hypotheses (2a to 2e) was about the impact of chronicity of epilepsy on the schema modes and comorbidities. The outcomes revealed that years of epilepsy had no significant effect on dysfunctional coping, parenting and adaptive modes. However, people with epilepsy significantly scored higher on vulnerable child mode due to the increased years of epilepsy. No significant effect was found for other child modes. Notably, the findings of the current study supported by Young et al., (2003) corroborated that medical ailment is more likely to originate the schema vulnerability to harm.

Moreover, the psychiatric comorbidities such as depression, anxiety, obsessive-compulsive, interpersonal sensitivity, phobia, paranoia, psychoticism, and hostility had no significant mean differences among the three categories of chronicity of epilepsy except somatization. Pairwise analysis indicated that less duration of epilepsy has significantly produced symptoms of somatization. Consistently, Novy, Bell, Peacock, Sisodiya, and Sander,

(2017) found that no significant effect of chronicity on the relationship of psychiatric comorbidities except somatic complaints.

So far, the study significantly highlighted the involvement of dysfunctional child modes in predicting hostility. Hostility or anger had frequently been reported among the people with epilepsy due to the perceived role of the amygdala. Thus, it was hypothesized (3rd hypothesis) that duration of epilepsy has significantly moderated the relationship between dysfunctional child and hostility. The findings specified that hostility had been decreased with the increased years of epilepsy. Correspondingly, hostility is the form of aggression, perceived as the high anger state combined with bitterness, suspiciousness, and mistrust (Spielberger, 1988; Campbell, 2009). Notably, aggression also represented as a symptom of the psychiatric disorder which develops the feelings of being disregarded (Onike & Lyketsos, 2011). Brodie et al. (2016) explained that aggression, anger, and irritability are the most common Behavioural problems also recognized as Interictal Aggression. Unfortunately, new AEDs has exacerbated hostility and aggression, especially with the higher doses. Thus, the presence of hostility is well documented from the findings. Moreover, based on the likely outcome of the current study, it can be assumed that hostility would decrease after stabilizing the effects of drugs with an increased period of epilepsy.

The fourth hypothesis and sub-hypotheses (4a to 4d) stated that people with epilepsy from low socioeconomic status has significantly scored high on psychiatric symptoms and dysfunctional schema modes. The socioeconomic status was comprised of three groups low, middle and high classes. The results showed that PWE from lower class were more hostile and aggressive as compared to the middle and upper classes. Further, it has been explored that the PWE from middle and upper classes has significantly scored less on the dysfunctional coping modes as compared to lower class. Post-hoc analysis indicated that detached protector, bully, and attack and angry protector were the more prominent used modes among the individuals

with epilepsy from the lower class. Regarding the dysfunctional child modes, PWE from lower class reported high levels of the angry child, enraged child, and impulsive child than middle and upper class. Whereas the upper class has significantly scored high on the Undisciplined child as compared to the other groups.

Findings of the current study primarily supported by the previous literature state that people with epilepsy from lower class were subjected to be burdened with psychiatric comorbidities and inadequate resources to treatment, necessities of life, and stigmatization make them hostile. It is evident, that hostility is a psychological construct product of Cognitive and Behavioral components. Seo, Kim and Park, (2015) explicated that people with epilepsy who had low income, less education and unemployment scored high on hostility and anger. Consistent with previous researches, the low-socioeconomic status is allied with the low quality of life (Koch, 2008), poorer psychosocial health, maladaptive coping responses include taking drugs, drunkenness, obesity, helplessness, and hostility (Lynch, Kaplan, & Salonen, 1997). Thus, results of the study indicate that Lower social class has significantly experienced rejection, abandonment, hopelessness, involvement in criminal activity, and become aggressive. Moreover, perceived stigma has evoked aggression and ultimately causing psychological disturbance. Mickelson and Williams (2008) proposed that poverty itself is a stigma which causing interpersonal problems like fear of rejection, and or improper support and intrapersonal issues like diminished self-esteem among people. That is why to deal with people with epilepsy by utilizing the avoidance strategies,i.e., detached protector and angry protector.

In line with the Young (2003) assumptions, it can be anticipated that people with epilepsy perceived instability due to rejection and lack of support. Besides this, they also, have the depreciation of nurturance, and companionship. Much exposed to the feeling of shame and guilt and received blaming of their incompetence. From the use of Bully and Attack, it can also

be foreseen, that PWE consistently protects their ego or self-defeating behavior by countering them the opposite. Edward (2013) revealed overcompensation is the fight mode, so it is likely that anger or aggression among PWE may use as a guard to protect themselves from the feelings of inadequacy. This is in noteworthy finding which is supported by the study of Tsopelas, Saintfort, and Fricchione (2001), who argued that violent or implosive personality is rare among PWE. Findings of the present study indicated that with the increased duration of epilepsy, hostility decreased. Onike and Lyketsos (2011) also suggested that hostility and anger are just the symptoms of psychiatric disorders. Thus, the preponderance of the previous evidence mentioned that Interictal aggression is due to behavioral, neurological and psychological reasons (Mendez, Doss, & Taylor, 1993; Der Feltz-Cornelis, 2002). Further, the assumptions of Collins, Camfield, Camfield, and Lee, (2007) has strengthened the outcome of our study that PWE only has emotional troubles, but that is awful to consider them violent, and explosive. As such, there is a dire need to shake off the myths associated with the personality of PWE.

Surprisingly, current findings also explored that PWE from the upper class has significantly used undisciplined child mode which is the expression of emotions, impulsive acts and blindly following of the natural inclinations to satisfy their needs. Edwards (2013) stated that the undisciplined child is due to the inappropriate firmness, lack of involvement and improper emotional support to their children. Moreover, the punitive mode is prominent among the PWE lower class. Findings of the current study captured the exciting picture relating to the culture of Pakistan, parents from upper class are more permissive especially when they found that their children have some medical illness. Correspondingly, PWE from lower class perceived their parents punitive because in lower class parents do not understand the emotional needs of their children and force them to behave accordingly.

The study also hypothesized (5a to 5c) that there would be a significant effect of education on the schema modes. A one-way analysis exposed that there was notably mean difference was found for Bully and Attack child mode between the six levels of education. Multiple comparisons showed that People with epilepsy who did not receive any education significantly scored high on Bully and Attack as compared to the middle, matric, inter and graduate levels. Moreover, non-significant mean differences were found for the respective coping modes. Nonetheless, educational levels had no impact on the dysfunctional child and parenting modes. Only mean differences were observed for happy child F (2, 105) = 4.12, p<.01. Pairwise analysis indicated that illiterate people suffering from epilepsy used happy child mode as compared to those who had some level of education. Similarly, those who did graduation significantly had a high mean difference as compared with those who did not complete their schooling.

The findings revealed two potential propositions. First, it has been observed that people with epilepsy who attained less education significantly practiced Bully and Attack mode. BA used overcompensation strategy to retaliate with the environment overly in the form of verbally, and physically in order to avoid exploitation or disgrace, because, Pakistan belongs to Low Middle-Income Country, with the unstable political scenario, inflation, high illiteracy rate, no facilities for health, and having a low living standard. In view of this, corruption is the most prominent problem and terrorism added to this. Moreover, the present study demonstrated that more than 60% PWE did not complete Graduation. Consistent with past studies, Reisinger and Dilorio (2009) illustrated that financial constraint could lead to low education by affecting employment status which is significantly related to helplessness or hopelessness. Consequently, Mensah, Beavis, Thapar, and Kerr, (2007) found that PWE has dramatically faced challenging life due to the cognition and behavioral side effects of AEDs and seizure

further damage their quality of life. Thus, very few PWE get formal education especially on the onset of illness.

Secondly, the current results showed that PWE with no education or Graduates has significantly scored high on the Happy child mode. As Young et al. (2003) described that happy child is the working mode having adaptive skills, easily socialize with others and be motivated. It is plausible that PWE with no education excluded themselves from the competitive environment.Moreover, they do not have any aspiration for the high living standard and goals. Further, PWE who done graduation has significantly revealed that they have achieved seizure freedom and as such are stable on medicines. In addition, they felt less stigma and are able to fulfill their goals in life.

According to last hypotheses (6a to 6d), the results mentioned that male scored high on detached self-soother and self-aggrandizer as compared to females. While no significant difference was noticed in other coping modes. However, significant mean differences were found in terms of dysfunctional child modes. Male had suggestively high means on the Impulsive and Undisciplined child as compared to females. Similarly, parenting modes including punishing and demanding, male have significantly perceived more by as compared to females. Thus, female scored less on adaptive modes including happy child and adult as compared to men.

To sum up the discussion, it was revealed that male significantly utilized the DSS, SA, IC, and UC as compared to female counterparts. As Young et al. (2003) illustrated that in order to avoid the painful stimulus, DSS refers to unhealthy and maladaptive coping style such as the use of alcohol, gambling, overeating and watching movies. Whereas Self Aggrandizer is associated with competing others, get the things by hook and crook, and people using this mode are excessively self-absorbed. Similarly, IC and UC indicated the schemata of entitlement and

insufficient self-control. Both IC and UC were rude, listened to their desires, ruined and self-centered (Young at al., 2003). Moreover, the male also perceived high scores on their parents demanding, punishing and adaptive modes as compared to females. It can be comprehended in our society that male is the more dominant and expected to be a bread earner of the family. Also, stereotypical behavior regarding gender is still prevalent. Usually, the unnecessary freedom and permissive parenting have exploited the males. Consistent with the literature, Lobbestael et al. (2005) found that Males vigorously used Bully and Attack mode as compared to women. Moreover, low scores on EMS which includes defectiveness, embarrassment, and incompetence has significantly reduced the adaptability and functioning of women (Alfasfos, 2009; Welburn et al., 2012; Kwak & Lee, 2015).

In order to assess their acceptance regarding epilepsy, the question pertaining to fear and self-disclosure was interviewed by the people with epilepsy. Generally, dichotomous questions were designed. They were inquired about the following questions "Do they fear of having seizure all the time?", regarding self-disclosure, "Do they feel comfortable in sharing their illness at workplace or others?" 77% people with epilepsy endorsed that they have a persistent fear of having a seizure, 64% PWE including school going adolescents, housewives and young adults stated that they do not share their illness with others. Especially the employees who due to the fear of losing job, could not courage to inform at their workplace. The mean of those who professed fear of seizure had high means of psychological symptoms entail in SCL-90. Similarly, who shared their illness with others had less mean on the subscales of SCL-90.

Initially, Bett (1981) was the one who assessed fear of seizure during the interview from patients. He also described that fear has significantly interfered their social and occupational functioning and severely felt anxiety while going into social gatherings, termed as "true phobic anxiety." He further, elaborated that this fear may lead to psychological disorders.

Congruently, fear of seizure has been studied by Newsom-Davis, Goldstein, and Fitzpatrick (1998) and highlighted that PWE suggestively documented that patients anticipated death due to seizure or brain damage. Moreover, seizure phobia also leads to social isolation and patient deliberately starts avoiding from the social gathering. LeDoux (1996) demonstrated that the brain contains an "emotional motor system" where the fear is generated or conditioned and provide the basis of psychopathology too. Pellman and Kim, (2015) added that all the emotions regulated in Amygdala are useful for conditioning the behavior and containing the memories regarding fear be recognized as a process of reconsolidation. Therefore, anxiety disorders such as phobia, panic disorder, and post-traumatic disorder likely to have the basis of fear and stress. It is worth to note that fear having more or fewer responses is similar to the symptomatic exhibition of anxiety disorders. Interestingly, a patient with anxiety symptoms indicates increased heartbeat, sweating, nausea, and hyperactivity, as well as response to fear also accelerate respiration or heart rate, and poor appetite. Notably, during the seizure, patient experience these symptoms according to the temporal link of ictus discussed in chapter 1. Thus, from the above, it is understood that limbic system and excessive fear of convulsion are a strong basis of the psychiatric distress among PWE. Consequently, PWE is at high risk of psychiatric comorbidities (Kohler et al., 2001; Marsh & Rao, 2002; Tellez-Zenteno et al., 2007).

Moreover, the figure 26, has demonstrated the elevated means of Psychiatric Symptoms of those who did not share about their disease to other people. Findings of the qualitative study on the Pakistani PWE by Rhodes, Small, Ismail, and Wright (2008) revealed that the presence of distress is because of the inequalities in the workplace, not recognizing epilepsy as a social disability and perceived discrimination. The study conducted on the Pakistanis who were living in London. Notably, the analysis expounded the difficulties associated with disclosures such as a problem in marrying, job loss, cancellation of driving license, shame, guilt and fear of social restrictions. Similarly, another significant contribution made by Khan, Huerter, Sheikh,

and Thiele (2004), by comparing the American and Kashmiri Population to measure their approach towards treatment and perception regarding epilepsy. Knowingly, Kashmiri PWE used alternative ways to treat epilepsy as compared to American PWE in terms of reduced job status, low profile of education, fear of sharing with others and reduced quality of life.

Conclusion

Keeping in view the above findings, the study exposed that PWE has significantly utilized the specific schema modes DP, AP, CS, VC, AC, and EC which were made a robust contribution to the prediction of psychiatric symptoms entail in Symptom Checklist-90. In addition, chronicity of epilepsy is significantly contributing in Somatization. It was also revealed that duration of epilepsy had a significant interaction with the dysfunctional child modes and hostility. Perceptively, hostility decreased with the increasing duration of epilepsy possibly due to the lessening of adverse effects of AED. The Low socio-economic status had a promising effect on the modes. The PWE from low class has significantly employed the BA, AP, DP, AC, EC IC. and EC is widely associated with the upper class. However, hostility was significantly found in the lower class as well. Thus, no formal education is significantly causing resentment towards PWE. The present study highlighted the role of education as it is the key to combat poverty. Suggestively indicating that PWE suffered emotional problems as compared to general population. However, findings of the present study remarkably shake off the misconception that PWE is violent and having a criminal tendency.In order to over-compensate their incompetence, they just use defensive mechanism. It is concluded that PWE is more prone to develop psychiatric disorders due to adverse effects of Antiepileptic drugs and suffer emotional instabilities. Moreover, fear of seizure or concealment of disease exacerbated the symptomatology. Thus, management of epilepsy should be dealt in terms of psychotherapeutically.

Implications

Since epilepsy is a well-recognized disease, associated psychiatric comorbidities make the life complex of these people. Thus, current study suggestively explored the emotional difficulties of PWE through Young et al. (2003) schema model of Psychopathology. It provides the basis to the neurologist, general physician, and psychologist to the psychological intervention of the PWE.

The findings of the current significantly highlighted that aggression or anger is reduced with the increasing duration of epilepsy and rarely lead to violent personality. This is a significant contribution in developing insight among the caregivers and PWE.

It has been revealed that PWE who concealed their illness from the workplace suffered more psychological distress as compared to those who did not conceal. Thus, present study suggestively focused that self-disclosure is helpful in developing resilience among PWE.

It is a fact that low socioeconomic status has vastly affected the PWE, as they do not get proper treatment and get an education. The outcome of the present study also signifies that PWE who get an education has significantly developed skills leading to a balanced life. Thus, the proper legislation and advocacy group are required to be developed.

The study strikingly presented that over-controlling or punitive nature of parents ultimately leads to psychopathology. Moreover, the early interaction of children with parents leaves the long-lasting effect on their personality. Therefore, it is prudent to develop parenting program for promoting the mental health.

Limitations and Recommendations

Regarding the constraints, the study only took the sample with a broad age range, it is suggested to conduct analysis according to different age groups.

Since fear and self-disclosure were found to be crucial and have vastly effect on the quality of life of PWE, therefore, it is recommended that in future proper scales should be used in assessing the stigma, quality of life and so forth. Further, in order to boost the self-esteem and self-efficacy of PWE, awareness and support program should be implemented. It will also improve their quality of life and further help in reducing the stigma.

Findings indicated that parenting is also a crucial factor in developing psychopathology. It is highly recommended that Parenting styles should also be investigated among PWE.

Since study explored the association between schema modes and psychiatric comorbidities first time among the People with Epilepsy and found the significant role of socioeconomic status and education in contributing maladaptive schemas. Therefore, this psychopathology model should be verified through Structured Equation Modelling.

Chapter-V

STUDY-III

COMPARISON BETWEEN PEOPLE WITH EPILEPSY AND HEALTHY CONTROLS ON THE UTILIZATION OF SCHEMA MODES

As discussed earlier, the epileptic personality had been considered by many ways and deemed to be an implosive and aggressive. Findings of the Study-II indicates that people with epilepsy experienced emotional difficulties and vulnerable. In order to draw the schema profile of the utilization of modes among control group and people with epilepsy, a comparison will be drawn.

Objectives

- To examine the differences between healthy individuals and people with epilepsy on the dysfunctional coping, child and parenting modes.
- To compare the healthy and non-healthy groups on the adaptive modes.

Hypotheses

1. There will be a significant difference between the coping modes (Detached Protector, Detached Self-soother, Compliant surrender, Angry protector, Bully and Attack, and Self-aggrandizer) of the control and PWE.
2. The child modes including (Vulnerable child, Angry child, enraged child, impulsive child and undisciplined child) are the characteristics modes of the individuals with epilepsy as compared to the healthy group.
3. The healthy group will score less on the parenting modes (demanding and punishing parenting modes) as compared to individuals with epilepsy.

4. Individuals with epilepsy significantly will score less on the adaptive modes (happy child and Healthy adult) as compared to healthy controls.

Sample

The sample comprised of two groups and each group had 60 participants. The participants were matched on the basis of age, gender, and education. There was 40% male and 60% female with a mean age (*M*=21.45 and *SD*=6.07). Regarding education, 14% were illiterate, 10% were primary, 15% were a middle pass, 22% were matric, 11% were intermediate, and 27% was a graduate.

Instruments

Short Schema Mode Inventory (Lobbestael et al., 2010) (see details in study II, section Instruments).

Procedure

In order to find the match group of people with epilepsy on the basis of age, gender, and education, the purposive sampling technique was used. After introducing the purpose of administering the tool, the verbal consent was taken from the participant. Some of the participants who were not well educated have requested the researcher to read the statements for them. Each participant took 30 to 35 minutes to complete the questionnaire.

Results

In order to compare the scores of individuals with epilepsy and the healthy group on the subscales of schema mode inventory, contains dysfunctional coping, dysfunctional child, dysfunctional parenting and healthy modes, the independent t-test analysis was carried out on SPSS 19.

Table 54

Mean scores, Standard Deviation, and t-values on the subscales of Dysfunctional Coping Modes in term of healthy individuals and people with epilepsy (PWE)

	Groups								
	healthy		PWE						
	N=60		N=60				95% CI		
Variables	*M*	*SD*	*M*	*SD*	*t(118)*	*P*	LL	UL	Cohen's *d*
DP	20.96	7.22	22.77	9.02	1.21	.22	-4.75	1.15	.22
CS	24.92	5.29	22.99	6.22	1.62	1.07	-.37	3.81	.33
DSS	13.74	3.43	13.23	5.06	.64	.52	-1.05	2.07	.11
SA	33.09	7.12	31.47	9.53	1.05	.29	-1.42	4.66	.19
BA	24.93	6.49	24.80	7.82	.09	.92	-2.46	2.72	.01
AP	26.18	8.33	27.91	9.74	-1.04	.30	-5.00	1.55	.19

Note. Variables=DP=detached protector, CS=Compliant Surrender, DSS=Detached Self-soother, SA=Self-aggrandizer, BA= Bully and Attack, AP= Angry Protector; *Cl* = confidence interval; *LL* = lower limit, *UL* = upper limit.

The Table 54, displayed non-significant mean differences between dysfunctional coping modes between healthy people and individuals with epilepsy. However, people with epilepsy had high mean on the detached protector, and angry protector signified the use of these modes.

Table 55

Mean scores, Standard Deviation, and t-values on the subscales of Dysfunctional Child Modes in term of healthy individuals and people with epilepsy (PWE)

	Groups								
	Healthy N=60		PWE N=60				95% CI		
Variables	*M*	*SD*	*M*	*SD*	*t(118)*	*P*	LL	UL	Cohen's *d*
VC	23.46	8.74	25.79	10.20	1.34	.18	-5.76	1.11	.24
AC	26.18	8.33	27.91	9.74	1.04	.30	-.5.00	1.55	.19
EC	22.50	9.44	28.77	12.21	3.15	.00	-.10.21	-2.33	.57
IC	27.06	6.81	27.01	10.02	.03	.97	-3.04	3.15	.01
UC	17.39	4.68	17.87	5.59	.50	.61	-2.33	1.38	.09

Note.VC= Vulnerable child, AC= Angry child, EC= Enraged child, IC= Impulsive child, and UC=Undisciplined child. Cl = confidence interval; *LL* = lower limit, *UL* = upper limit.

Above Table 55 represented the significant mean differences in the dysfunctional child modes. People with epilepsy had high mean score on the enraged child mode (t=3.15, p<.01). Subsequently, the mean of individuals with epilepsy was slightly high on Angry child and enraged child. While the mean of the control group was slightly high on impulsive child and undisciplined child. Mean score on vulnerable child mode was same for both groups.

Table 56

Difference between Healthy group and People with Epilepsy(PWE) in terms of Dysfunctional Parenting Modes and Adaptive Modes

	Control								
	healthy n=60		PWE n=60				95% CI		Cohen's
Variables	*M*	*SD*	*M*	*SD*	*t(118)*	*P*	LL	UL	*d*
D. Parenting Modes									
PP	23.81	8.17	23.66	9.26	.09	.92	-3.01	3.31	.01
DP	37.71	7.66	33.19	10.14	2.75	.00	1.26	7.76	.49
Adaptive Modes									
HC	41.02	7.27	35.84	9.09	3.44	.00	2.20	8.16	.62
HA	41.21	8.13	35.98	10.73	2.99	.00	1.76	8.69	.54

Note. D= Dysfunctional; PP=Punishing Parenting, DP=Demanding Parenting, HA=Happy Adult, HC=Happy Child. *Cl* = confidence interval; *LL* = lower limit, *UL* = upper limit.

Above table 56, exhibited that, control scores were significantly higher on demanding parenting (t=2.75, p<.01) than people with epilepsy. While there were no significant mean differences were found between the two groups for punishing parenting mode.

On adaptive modes, People with epilepsy significantly scored less on Happy adult (t=9.09, p< .01) and Happy child (t=10.73, p< .01) as compared to healthy individuals.

Discussion. Schema mode viewed as the current state or emotional phase which can be flipped according to the situation. Thus, it can be said that every individual is utilizing any one of the mode or various modes all the times, but the predominant state is always called as dysfunctional schema mode. It can be adaptive or maladaptive usually depending on the

situation or life experience. Consequently, a dysfunctional schema mode triggered in response to coping with the distressing events. As concluded in study II, that people with an epilepsy experience a high level of stress due to the unannounced sudden burst of the firing of neurons in brain resulted in a seizure which is thought to damage the brain. Accordingly, the prime objective of the study was to make a comparison between the modes of people with epilepsy and healthy group.

Till to date, only one study has been conducted on the exploration of schema modes among the patients with temporal lobe epilepsy and frontal lobe epilepsy. It has been observed that people with temporal lobe epilepsy mostly used enraged or angry child mode. While, the detached protector and vulnerable child mode were mostly utilized by the patients with frontal lobe epilepsy (Zaman & Khalily, 2016). Thus, findings of the present study are consistent with the past study, as temporal lobe primarily regulates emotions, cognitive states, and behavior. Subsequently, the child modes including angry or enraged triggered, because of the emotional upheaval, unmet core needs such as feelings of appreciation, unconditional positive regard and due to abuse or being deprived of from the privileges. Stigmatization is the crucial factor associated with epilepsy, as previously epilepsy was considered to be a contagious, and possession of some evil spirit. Specifically, in Pakistan, a study conducted by Saher (2012) exposed that people with epilepsy experienced more discernment regarding job and marrying. Concealment is the best strategy for them to prevent from social rejection.

A significant mean difference was found on the detached protector between healthy individuals and people with epilepsy. Detached protector is the coping style in which people get disconnected, isolated and used avoidance strategy. During this mode, patients feel helpless, numb, empty and involve in some self-soothing activities (Young et al., 2003). As discussed above, the social discrimination and prevailed misconceptions enable the people with epilepsy to shut off their emotions and avoid healthy activities.

Therefore, the results of the present study revealed the significant differences between the happy child and healthy adult mode. Individuals with epilepsy had fewer scores on the adaptive modes which suggestively indicated their susceptibilities in carrying functional behavior or skills appropriately. Correspondingly, Lobbestael and Arntz (2012) significantly found the differences between the mean scores of patients with Axis II and non-patients.

Chapter-VI

SUMMARY

The primary objective of the research was to study the psychosocial consequences of epilepsy and its effect on the lives of People with Epilepsy (PWE). Epilepsy has been manifested through sudden and paroxysmal seizures. Thus, the fear of seizure provides the basis for Psychiatric symptoms. Moreover, the occurrence of seizure especially the location, duration, and frequency of seizure have marked their effect on the brain and behavior. Generally, the seizure associated with Temporal lobe holds the emotional seat called Amygdala. Accordingly, damage to Temporal lobe due to seizure has emerged emotional difficulties and psychopathology among PWE. That is why PWE are at high risk of psychological disturbance. Keeping in view the mechanism behind the psychological disturbance, the research aimed to verify the psychopathological model of Schema. According to Young et al. (2003), maladaptive schemas was formed due to the unmet core needs, trauma and lack of affection, subsequently, the poor early interaction has given rise to early maladaptive schemas which are the memories and cognition. Further, Young et al. (2003) elaborated that these EMS has been recognized as permanent traits and self-perpetuated schemas triggered by the stressful life events. The response to cope with EMS is called schema mode, relatively unstable or can be accessed through many modes at a time. Moreover, the use of one mode is predominant while ignoring others has indicated the psychopathology.

Therefore, the current research purported to investigate the association between the dysfunctional schema modes and psychiatric symptoms. In Study-I, the psychometric properties of Symptom Checklist-90 (SCL-90) (Derogates, 1973) containing nine subscales were established in Urdu through forwarding and backward translation technique. The convergent validity was determined with MMPI and DASS. Nonetheless, discriminant validity was figured out between the healthy and psychiatric population. According to the results, the

Confirmatory analysis revealed that each subscale had a good fit and a distinct measure. While the correlation between the subscales of MMPI and DASS was significant. Mean scores of healthy and non-healthy samples were also significantly differed on the subscales of SCL-90. Thus, the SCL-90 is the worth addition assessment measure for the research purpose, therapeutic alliance, and diagnosis.

The study was carried on people with epilepsy by identifying the association between schema modes and comorbidity of psychiatric symptoms used in SCL-90. The findings indicated that the detached protector, angry protector, vulnerable child, enraged child, angry child mode have significantly predicted the psychiatric symptoms. In addition, the increased duration of epilepsy has greatly lessened the anger, hostility pertaining to dysfunctional child mode. Moreover, the low socioeconomic status and having no formal education has significantly affected the dysfunctional coping, parenting child modes and adaptive modes.

The study made the comparison between the individuals with epilepsy and healthy counterparts. Results showed that PWE had less mean scores on adaptive modes as compared to the healthy group. Whereas PWE has significantly utilized Enraged child mode. Thus, three studies are the worthy addition to the existing literature and significantly highlighted the burden of psychiatric comorbidities specifically in the epileptic population of Pakistan.

Limitations and Suggestions

As no research can be perfect, the present research was conducted only in twin cities of Pakistan which are well developed. Further, the various psychological determinants were studied quantitatively. For the comprehensive analysis of the living standards and management of epilepsy, a qualitative study should be conducted in the rural and slum areas of Pakistan.

Implications

Based on the findings of the current research, a psychosocial model will be introduced to cater the psychological and behavioural issues of the people with epilepsy.

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Appendix A

ETHICAL APPROVAL FROM DEPARTMENT OF PSYCHOLOGY IIU

INTERNATIONAL ISLAMIC UNIVERSITY
FACULTY OF SOCIAL SCIENCES
Department of Psychology
Date 11/03/2014/06DPEC

Ms Nadia Shafique
PhD Scholar
Department of Psychology
IIUI

Ref: Dysfunctional Schema Modes and Comorbidity of Psychiatric Symptoms in Individuals with Epilepsy: An Exploratory Study

Ms Nadia Shafique

Thank you for the application with attached documents on 6th February, 2014 for submitting a request for the above mentioned title research to the committee (DPEC) for approval.

On behalf of the committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form and supporting documents. The favourable opinion is given that you comply with the stipulation set out in the committee mandate.

The following list of documents reviewed and approved by the committee is as follows:

1. Application form
2. Informed consent
3. Information sheet

With the committee's best wishes for the success of this project.

Yours Sincerely

Dr Tahir Khalily

Chairperson Board of studies and Convener of Department of Psychology IIUI Ethics Committee (DPEC)

Appendix B

ETHICAL APPROVAL FROM

INSTITUTIONAL REVIEW BOARD & ETHICS COMMITTEE SHIFA INTERNATIONAL HOSPITAL (SIH)

شفا انٹرنیشنل ہسپتال اسلام اباد
Shifa International Hospitals Ltd.
Sector : H-8/4, Islamabad - Pakistan
Tel : 051-8463000, 8463075
Fax : 051-4863182
Email: irbshifa@shifa.com.pk
Web: www.irbshifa.com.pk/irb

INSTITUTIONAL REVIEW BOARD
& ETHICS COMMITTEE
(IRB & EC)
Shifa International Hospitals Ltd. (SIH)
Shifa College of Medicine (SCM)
Shifa College of Nursing (SCN)

August 22, 2016

Ms Nadia Shafique
Islamic International University
Islamabad

Ref: **IRB# 551-400-2015**

Dear **Ms Shafique**

After review of your amended protocol entitled as **"Dysfunctional schema modes and comorbidity of psychiatric symptoms in individuals with epilepsy"** by the IRB & EC. The committee is pleased to ***APPROVE*** your study with change of *methodology*.

The IRB/EC is in accordance with the ICH and GCP guidelines. Any changes in the protocol should be notified to the committee for prior approval. ***All the informed consents should be retained for future reference (if applicable). A proper report should be submitted quarterly and final report after completion of the study to the IRB & Ethics Committee.***

Sincerely,

DR. EJAZ A KHAN
Chairman, IRB & EC

Cc: **Dr Maimoona Siddiqui**, Chief of Neurology

Cc: Records IRB & EC
Research Office

Appendix C

PERMISSION LETTER FOR ARMED FORCES INSTITUTE OF MENTAL HEALTH

INTERNATIONAL ISLAMIC UNIVERSITY, ISLAMABAD
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF PSYCHOLOGY
P.O. Box No. 1243 Telegram ALJAMIA Telex.54068 IIU PK. Tel: 9019790, Fax No.9257909

No. IIU/FSS/PSY/2015 Date: 25/02/2015

Major General Saleem Jahangeer,
Commandant,
Armed Forces Institute of Mental Health

Dear Sir,

Greetings from Department of Psychology, International Islamic University, Islamabad. May I introduce **Ms Nadia Shafique**, she is a PhD Scholar in the Department of Psychology, International Islamic University, Islamabad. She is working on her PhD dissertation titled as **"DYSFUNCTIONAL SCHEMAS MODES AND CO MORBIDITY OF PSYCHIATRIC SYMPTOMS IN INDIVIDUALS WITH EPILEPSY: AN EXPLORATORY STUDY"** under my supervision. In this regard, your institution's cooperation is highly needed. If your kind office allows Ms Nadia to collect data from your prestigious institution, it would be a great assistance to our student to accomplish her research study. She will also acknowledge your kind cooperation in her dissertation and, upon your request, would share the findings of his research study.

Looking forward for the growing cooperation.

(DR. MUHAMMAD TAHIR KHALILY)
Chairman,
Department of Psychology

Appendix D

PERMISSION LETTER FOR PAKISTAN INSTITUTE OF MEDICAL SCIENCES (PIMS), ISLAMABAD

INTERNATIONAL ISLAMIC UNIVERSITY, ISLAMABAD
FACULTY OF SOCIAL SCIENCES
Department Of Psychology
051-9019790

No.HOD/PSY-2015 Dated: 16-09-2015

Dr. Mazhar Badshah
Neurologist
Pakistan Institute of Medical Sciences (PIMS),
Islamabad.

Dear Sir

Greetings from Department of Psychology, International Islamic University, Islamabad. May I introduce **Ms Nadia Shafique**, she is a PhD scholar in the department of Psychology, International Islamic University- Islamabad. She is working on her PhD dissertation titled as **"DYSFUNCTIONAL SCHEMA MODES AND CO-MORBIDITY OF PSYCHIATRIC SYMPTOMS IN INDIVIDUALS WITH EPILEPSY: AN EXPLORATORY STUDY"** under my supervision. In this regard, yours cooperation is highly needed. If you kindly allow Ms Nadia to collect data from your prestigious Institution, it would be a great assistance to our student to accomplish her research study. She will also acknowledge your kind cooperation in her dissertation and, upon your request, would share the findings of her research study.

Looking forward for the growing cooperation.

Regards

Dr. Muhammad Tahir Khalily

Appendix E

CONSENT FORM IN URDU

﴾اجازت نامہ﴿

السلام علیکم!

میں انٹرنیشنل اسلامک یونیورسٹی اسلام آباد پاکستان میں ڈاکٹریٹ کی طالبہ ہوں اور مرگی کے مرض میں مبتلا لوگوں کے نفسیاتی مسائل پر تحقیق کر رہی ہوں۔ اس سلسلے میں امید کرتی ہوں کہ آپ اس تحقیق میں دلچسپی اور حصہ لیں گے۔

میری تحقیق کا عنوان ہے۔

"Dysfunctional Schema Modes and Co morbidity of Psychiatric Symptoms in Individuals with Epilepsy."

آپ کی اس تحقیق میں حصہ لینے کی خواہش رضا کارانہ ہے۔ اگر آپ اس میں حصہ لینے پر متفق ہیں تو آپ کو کچھ سوالناموں کے جواب دینے ہوں گے جو کہ آپ اور دوسروں کے خیالات میں متفق ہوں گے۔ تمام مہیہ کردہ معلومات صیغہ راز میں رکھی جائیں گی۔ اور یہ صرف تحقیقی مقاصد کے لیے استعمال کی جائیں گی۔ اگر آپ اس سے متفق ہیں تو برائے کرم اس فارم پر دستخط ثبت کریں۔ اگر آپ کی اس پر کوئی تحفظات ہوں تو آپ اس تحقیقی کام سے کسی وقت بھی کنارہ کر سکتے ہیں۔

میں ----------اپنی رضا سے اس ریسرچ میں شمولیت اختیار کر رہی/کر رہا ہوں۔ اور میں اس کو کسی بھی وقت قطع تعلق کر سکتی/سکتا ہوں۔

دستخط رائے کنندہ: ----------

دستخط تجزیہ کار: ---------- تاریخ: ----------

Appendix F

SEMI-STRUCTURED INTERVIEW QUESTIONNAIRE

DEMOGRAPHIC INFORMATION FROM

نام:_____

جنس مرد/عورت:_____ عمر:_____

آپ کا تعلق کہاں سے ہے:_____

تعلیم:_____

کام کی نوعیت:_____

کام کا دورانیہ:_____ ماہنا آمدنی_____

والد کی تعلیم اور شعبہ_____

والدہ کی تعلیم اور شعبہ:_____

کتنے بہن بھائی ہیں؟_____

آپ کا بہن بھائیوں میں نمبر:_____

شادی شدہ: ہاں نہیں

شوہر کی تعلیم اور شعبہ_____

بچے کتنے ہیں؟_____

بیماری کے متعلق چند سوالات

1۔ مرگی کا پہلا دورہ کب اور کیسے پڑا؟

_____

2۔ مرگی کا حالیہ دورہ کب پڑا؟

_____

3۔ کیا خاندان میں پہلے بھی کسی کو مرگی کی شکایت ہے۔اگر نہیں تو

_____

4۔ کیا مرگی کسی دماغی چوٹ کی وجہ سے ہوئی؟

_____

5۔ مرگی کی کونسی قسم ہے

_____

Type of Epilepsy:

18۔ کیا آپ کے گھر والے یا اردگرد کے لوگ آپ کے دورے کو قابو پانے کے لیے کچھ تدبیر اختیار کرتے ہیں؟

19۔ کیا آپ کو ہر وقت دورہ پڑنے کا خدشہ رہتا ہے۔

ہاں نہیں

20۔ کیا آپ سمجھتے ہیں کہ اگر اس بیماری کا علاج اچھی طرح سے کیا جائے تو انسان ایک نارمل زندگی گزار سکتا ہے؟

21۔ کیا آپ نے اپنی شادی سے پہلے بیماری کے بارے میں پہلے ذکر کیا تھا؟

Appendix G

SYMPTOM CHECKLIST-90

INSTRUCTIONS

مندرجہ ذیل فہرست ان مسائل اور شکایات کےبارے میں ہے جو لوگوں کو اکثر پیش آتے ہیں۔ہر ایک کو غور سے پڑھیں۔ ایسا کرنے کے بعد کسی ایک کیفیت کو منتخب کریں جیسے مثال کے طور پر کسی پریشانی یا مسئلے نے آپکو پچھلے ہفتے حتیٰ کے آج بھی الجھائے رکھا ہے۔ دائیں جانب دیئے گئے مسلےپر ہندسے میں دائر ہ لگائیں اور کسی بھی جز کو خالی نہ چھوڑیں۔ مندرجہ ذیل (Key) آپکو جواب دینے میں مدد دے گی۔

"0"پر دائرہ لگائیے، اگر آپ کا جواب ہے،"بالکل نہیں"

"1"پر دائرہ لگائیے، اگر آپ کا جواب ہے "تھوڑابہت"

"2"پر دائرہ لگائیے، اگر آپ کا جواب ہے" کم و بیش "

"3"پر دائرہ لگائیے، اگر آپ کا جواب ہے" کافی حد تک "

"4"پر دائرہ لگائیے، اگر آپ کا جواب ہے " حد سے زیادہ "

برائے مہربانی آغاز سے پہلے مندرجہ ذیل مثال پڑھ لیجیئے۔

مثال :پچھلے ہفتے میں آپ نے کتنی بار پریشانی اور ناگواری محسوس کی؟

کمر میں درد 0◯1 2 3 4

آپ نے کتنی بار ناگواری اور پریشانی محسوس کی۔	حد سے زیادہ	کافی حد تک	کم و بیش	تھوڑا بہت	بالکل نہیں
1۔ سر میں درد۔	4	3	2	1	0
2۔ گھبراہٹ یا لرزا طاری ہونا۔	4	3	2	1	0
3۔ غیر ضروری سوچ، الفاظ یا خیالات جو آپ کے ذہن سے نہیں نکلتے۔	4	3	2	1	0
4۔ بے ہوشی یا چکر آنا۔	4	3	2	1	0
5۔ جنسی خواہش کا نہ ہونا۔	4	3	2	1	0
6۔ دوسروں کی تنقید کو محسوس کرنا۔	4	3	2	1	0
7 ۔ اس بات کا احساس کہ کوئی اور آپ کے خیالات پر قابو پا سکتا ہے۔	4	3	2	1	0
8۔ یہ احساس کے آپ کی زیادہ تر مشکلات کے ذمہ دار دوسرے لوگ ہیں۔	4	3	2	1	0
9۔ چیزیں یاد رکھنے میں مشکل ہونا۔	4	3	2	1	0
10۔ سستی اور لاپرواہی کے بارے میں پریشان ہونا۔	4	3	2	1	0
11۔ جلد غصے میں آجانا اور چڑچڑاپن محسوس کرنا۔	4	3	2	1	0
12۔ دل یا سینے میں درد۔	4	3	2	1	0
13۔ کھلی جگہوں یا گلیوں میں خوف محسوس کرنا۔	4	3	2	1	0
14۔ کمزوری اور سستی کا احساس ہونا۔	4	3	2	1	0
15۔ اپنی زندگی کو ختم کرنے کا خیال آنا۔	4	3	2	1	0
16۔ ایسی آوازیں سنائی دینا جو دوسروں کو سنائی نہ دیتی ہوں۔	4	3	2	1	0
17۔ کپکپی طاری ہونا۔	4	3	2	1	0
18۔ محسوس کرنا کہ زیادہ تر لوگوں پر اعتبار نہیں کیا جا سکتا۔	4	3	2	1	0
19۔ بھوک نہ لگنا۔	4	3	2	1	0

آپ نے کتنی بار ناگواری اور پریشانی محسوس کی۔	حد سے زیادہ	کافی حد تک	کم و بیش	تھوڑا بہت	بالکل نہیں
20۔ جلدی رو پڑنا۔	4	3	2	1	0
21۔ صنفِ مخالف کی موجودگی میں شرم اور ہچکچاہٹ کا احساس۔	4	3	2	1	0
22۔ پھنسے ہوئے یا جکڑے ہوئے محسوس ہونا۔	4	3	2	1	0
23۔ بغیر کسی وجہ سے اچانک خوفزدہ ہونا۔	4	3	2	1	0
24۔ غصے میں اپنے اوپر قابو نہ رکھ سکنا۔	4	3	2	1	0
25۔ اپنے گھر سے باہر اکیلے جاتے ہوئے خوف محسوس کرنا۔	4	3	2	1	0
26۔ اپنے آپ کو قصوروار ٹھہرانا۔	4	3	2	1	0
27۔ کمر کے نچلے حصے میں درد ہونا۔	4	3	2	1	0
28۔ کام کرتے وقت دماغ بند محسوس ہونا۔	4	3	2	1	0
29۔ اکیلا پن محسوس کرنا۔	4	3	2	1	0
30۔ اداسی محسوس ہونا۔	4	3	2	1	0
31۔ چیزوں کے بارے میں ضرورت سے زیادہ فکر مند ہونا۔	4	3	2	1	0
32۔ چیزوں میں دلچسپی محسوس نہ ہونا۔	4	3	2	1	0
33۔ خوف محسوس کرنا۔	4	3	2	1	0
34۔ آپکے احساسات کو آسانی سے تکلیف پہنچتی ہے۔	4	3	2	1	0
35۔ دوسرے لوگ آپکے ذاتی خیالات سے آگاہ ہیں۔	4	3	2	1	0
36۔ یہ احساس کہ دوسرے لوگ آپکو سمجھتے نہیں یا آپکے ہمدرد نہیں ہیں۔	4	3	2	1	0
37۔ ایسا محسوس ہونا کہ لوگ آپ سے دوستی نہیں رکھتے / یا آپ کو ناپسند کرتے ہیں۔	4	3	2	1	0

آپ نے کتنی بار ناگواری اور پریشانی محسوس کی۔	حد سے زیادہ	کافی حد تک	کم و بیش	تھوڑا بہت	بالکل نہیں
38۔ ہر کام کو بہت آہستہ آہستہ کرنا تاکہ ٹھیک سے ہو جائے۔	4	3	2	1	0
39۔ دل کی دھڑکن تیز ہو جانا۔	4	3	2	1	0
40۔ متلی یا معدہ خراب ہونا۔	4	3	2	1	0
41۔ خود کو دوسروں سے کم تر محسوس کرنا۔	4	3	2	1	0
42۔ پٹھوں میں کھچاؤ اور درد کا احساس۔	4	3	2	1	0
43۔ ایسا محسوس ہونا کہ دوسرے لوگ آپ کو دیکھ رہے ہیں یا آپ کے بارے میں باتیں کر رہے ہیں۔	4	3	2	1	0
44۔ نیند آنے میں مشکل ہونا۔	4	3	2	1	0
45۔ اپنے کئے ہوئے کام کو بار بار چیک کرنا۔	4	3	2	1	0
46۔ فیصلہ کرنے میں مشکل ہونا۔	4	3	2	1	0
47۔ بسوں، ویگنوں اور ریل گاڑی میں سفر کرتے ہوئے خوف محسوس کرنا۔	4	3	2	1	0
48۔ سانس لینے میں مشکل ہونا۔	4	3	2	1	0
49۔ ٹھنڈے یا گرم پسینے آنا۔	4	3	2	1	0
50۔ کچھ جگہوں، چیزوں اور کاموں کو گریز کرنا کیونکہ یہ آپ کو خوف زدہ کرتیں ہیں۔	4	3	2	1	0
51۔ دماغ ماؤف ہو جانا۔	4	3	2	1	0
52۔ جسم کے اعضاء کا سن ہو جانا اور سوئیاں چبھنا۔	4	3	2	1	0
53۔ آپ کے حلق میں رکاوٹ ہونا یا حلق خشک ہو جانا۔	4	3	2	1	0
54۔ مستقبل کے بارے میں مایوسی کا احساس ہونا۔	4	3	2	1	0
55۔ دھیان یا توجہ دینے میں مشکل ہونا۔	4	3	2	1	0

آپ نے کتنی بار ناگواری اور پریشانی محسوس کی۔	حد سے زیادہ	کافی حد تک	کم و بیش	تھوڑا بہت	بالکل نہیں
56۔ جسمانی اعضاء میں کمزوری محسوس کرنا۔	4	3	2	1	0
57۔ ذہنی تناؤ محسوس کرنا۔	4	3	2	1	0
58۔ بازوؤں اور ٹانگوں میں بھاری پن محسوس کرنا۔	4	3	2	1	0
59۔ موت اور مرنے کے خیالات آنا۔	4	3	2	1	0
60۔ ضرورت سے زیادہ کھانا۔	4	3	2	1	0
61۔ اس خیال سے پریشان ہو جانا کہ لوگ آپکو دیکھ رہے ہیں یا آپ کے بارے میں باتیں کر رہے ہیں۔	4	3	2	1	0
62۔ ان خیالات کا آنا جو آپ کے اپنے نہیں ہیں۔	4	3	2	1	0
63۔ کسی کو مارنے، زخمی کرنے یا نقصان پہنچانے کی خواہش ہونا۔	4	3	2	1	0
64۔ صبح سویرے آنکھ کھل جانا۔	4	3	2	1	0
65۔ ایک کام کو بار بار کرنا جیسے چھونا، گننا، یاد ھونا۔	4	3	2	1	0
66۔ نیند میں خلل اور بے چینی۔	4	3	2	1	0
67۔ چیزوں کو توڑنا یا تباہ کرنے کی خواہش کرنا۔	4	3	2	1	0
68۔ ان خیالات اور اعتقادات کا ہونا، جو دوسرے نہیں رکھتے۔	4	3	2	1	0
69۔ دوسرے لوگوں کی موجودگی میں اپنے بارے میں بہت حساس ہونا۔	4	3	2	1	0
70۔ ہجوم میں خریداری یا فلم دیکھتے ہوئے بے چینی محسوس کرنا۔	4	3	2	1	0
71۔ ہر چیز میں مشقت محسوس کرنا۔	4	3	2	1	0
72۔ خوف اور پریشانی کے دورے پڑنا۔	4	3	2	1	0
73۔ لوگوں کے سامنے کھاتے پیتے ہوئے دشواری محسوس کرنا۔	4	3	2	1	0

آپ نے کتنی بار ناگواری اور پریشانی محسوس کی۔	حد سے زیادہ	کافی حد تک	کم و بیش	تھوڑا بہت	بالکل نہیں
74۔ اکثر اوقات بحث و تکرار میں پڑنا۔	4	3	2	1	0
75۔ تنہائی میں خود کو بے چین اور اوازار محسوس کرنا۔	4	3	2	1	0
76۔ دوسروں کا آپ کی کامیابیوں کے مطابق نہ سراہنا۔	4	3	2	1	0
77۔ لوگوں کے ساتھ ہوتے ہوئے بھی خود کو اکیلا محسوس کرنا۔	4	3	2	1	0
78۔ انتہائی بے چینی کا یہ عالم کہ آپ ایک جگہ ٹک کر بیٹھ نہ سکے۔	4	3	2	1	0
79۔ اپنے آپ کو ناکارہ سمجھنا۔	4	3	2	1	0
80۔ یہ احساس کہ جانی پہچانی چیزیں عجیب یا غیر حقیقی ہیں۔	4	3	2	1	0
81۔ چیخنا یا چیزیں پھینکنا۔	4	3	2	1	0
82۔ ہجوم میں بیہوش ہو جانے کا ڈر محسوس ہونا۔	4	3	2	1	0
83۔ یہ احساس کہ اگر آپ نے لوگوں کو ذرا ڈھیل دی تو وہ اس کو خوب فائدہ اٹھائیں گے۔	4	3	2	1	0
84۔ ایسے جنسی خیالات جو آپ کو بہت زیادہ پریشان کرتے ہیں۔	4	3	2	1	0
85۔ یہ خیال آنا کہ آپ کو اپنے گناہوں کی سزا ملنی چاہیئے۔	4	3	2	1	0
86۔ کام کرنے پر مجبور محسوس ہونا۔	4	3	2	1	0
87۔ یہ خیال کہ آپ کے جسم کے ساتھ کوئی شدید مسئلہ ہے۔	4	3	2	1	0
88۔ خود کو کسی دوسرے شخص کے قریب محسوس نہ کرنا۔	4	3	2	1	0
89۔ احساس گناہ / احساس ندامت۔	4	3	2	1	0
90۔ یہ خیال کہ آپ کو کوئی ذہنی مسئلہ ہے۔	4	3	2	1	0

Appendix H

Schema Mode Inventory

ہدایات: مندرجہ ذیل بیانات کی مدد سے لوگ اپنے بارے میں رائے قائم کر سکتے ہیں۔مندرجہ ذیل پیمانہ کے مطابق ہر بیان کے سامنے نمبر لگا کر بتائیں کہ یہ کیفیت کتنی کثرت سے آپ محسوس کرتے/کرتی ہیں۔

(Never / Almost Never) کبھی نہیں 1 (Rarely) بہت کم 2 (Occasionally) کبھی کبھی 3

(Frequently) عموماً 4 (Most of the Time) اکثر اوقات 5 (All of the Time) ہمیشہ 6

نمبر شمار	بیانات	کبھی نہیں	بہت کم	کبھی کبھی	عموما	اکثر اوقات	ہمیشہ
1	میں چاہتی/چاہتا ہوں ک دوسرے لوگ مجھ پر مسلط ہونے کی بجائے میری عزت کریں۔	1	2	3	4	5	6
2	میں محسوس کرتی/کرتا ہوں کہ لوگ مجھ سے پیار کرتے ہیں۔	1	2	3	4	5	6
3	میں خوشیوں سے خود ہی انحراف کرتی/کرتا ہوں کیونکہ میں اس کے قابل نہیں۔	1	2	3	4	5	6
4	میں اپنے آپ کو بنیادی طور پر نا اہل سمجھتا/سمجھتی ہوں۔	1	2	3	4	5	6
5	اپنے آپ کو سزا دینے کے لئے میں بے سوچے سمجھے خود کو زخمی کرنے پر مائل ہوتی/ہوتا ہوں۔	1	2	3	4	5	6
6	میں اپنے آپ کو بے حس محسوس کرتی/کرتا ہوں۔	1	2	3	4	5	6
7	اپنے بارے میں رویہ سخت ہوتا ہے۔	1	2	3	4	5	6
8	کسی تصادم یا جھگڑے سے بچنے کے لئے میں ہر ممکن کوشش کرتی/کرتا ہوں کہ دوسروں کو خوش رکھوں۔	1	2	3	4	5	6
9	میں خود کو معاف نہیں کر سکتی/سکتا ہوں۔	1	2	3	4	5	6
10	میں ایسے کام کرتی/کرتا ہوں جن سے میں توبہ کر مرکز بن جاؤں۔	1	2	3	4	5	6
11	جب لوگ میری بات پر عمل نہیں کرتے تو مجھے غصہ آجاتا ہے۔	1	2	3	4	5	6
12	اپنے جذبات کو قابو میں رکھنا میرے لیے مشکل ہوتا ہے۔	1	2	3	4	5	6
13	اگر میں اپنا مقصد حاصل نہ کر سکوں تو دل برداشتہ ہو کر اس کام سے دستبردار ہو جاتی/جاتا ہوں۔	1	2	3	4	5	6
14	میں غصے سے آگ بگولہ ہو جاتی/جاتا ہوں۔	1	2	3	4	5	6
15	جلد بازی میں شدت جذبات کا بے جا اظہار مجھے مصیبت میں ڈال دیتا ہے یا دوسروں کو تکلیف پہنچاتا ہے۔	1	2	3	4	5	6

نمبر شمار	بیانات	کبھی نہیں	بہت کم	کبھی کبھی	عموما	اکثر اوقات	ہمیشہ
16	جب کوئی کام بگڑ جاتا ہے تو اس میں میری غلطی ہوتی ہے۔	1	2	3	4	5	6
17	میں خود کو مطمئن اور پرسکون محسوس کرتی رکرتا ہوں۔	1	2	3	4	5	6
18	میں اپنے آپ کو ساتھیوں کے مطابق ڈھال لیتی رلیتا ہوں تا کہ وہ مجھے پسند کریں۔	1	2	3	4	5	6
19	میں اپنے آپ کو دوسرے لوگوں کے ساتھ مربوط (جڑا ہوا) محسوس کرتی ر کرتا ہوں۔	1	2	3	4	5	6
20	میں پوری کوشش کرتی رکرتا ہوں کہ اپنے مسائل کو خود ہی حل کروں۔	1	2	3	4	5	6
21	میں خود کو روزمرہ کے امور یا اکتا دینے والے کاموں کے لیے نظم وضبط کا پابند نہیں کرتی رکرتا ہوں۔	1	2	3	4	5	6
22	اگر میں مقابلہ نہ کروں تو مجھ سے برا سلوک کیا جائے گا یا مجھے نظر انداز کیا جائے گا۔	1	2	3	4	5	6
23	میرے لیے اپنے اردگرد کے لوگوں کا خیال رکھنا ضروری ہے۔	1	2	3	4	5	6
24	دوسرے لوگوں کو مذاق اڑانے یا رعب جمانے کا موقع دینا آپ کی شکست ہے۔	1	2	3	4	5	6
25	مجھے جب لوگوں پر غصہ آتا ہے تو ان پر حملہ کر دیتی ر دیتا ہوں۔	1	2	3	4	5	6
26	جونہی مجھے غصہ آتا ہے اکثر اس پر قابو نہیں کر پاتی ر پاتا اور آپے سے باہر ہو جاتی ر جاتا ہوں۔	1	2	3	4	5	6
27	میرے لیے اہم ہے کہ میں صف اول میں شامل ہوں (جیسے مشہور ترین، کامیاب ترین، دولت مند ترین، طاقتور ترین)۔	1	2	3	4	5	6
28	میں اکثر امور میں اپنے آپ کو لاتعلق محسوس کرتی رکرتا ہوں۔	1	2	3	4	5	6
29	میں اپنے جذبات پر قابو پا کر مسائل کو عقل وفہم سے حل کر سکتی رسکتا ہوں۔	1	2	3	4	5	6
30	حالات سے نمٹنے کی منصوبہ بندی کرنا حماقت ہے۔	1	2	3	4	5	6
31	میں بہترین سے کم پر اکتفا نہیں کروں گی رگا۔	1	2	3	4	5	6
32	حملہ کرنا بہترین دفاع ہے۔	1	2	3	4	5	6
33	میں دوسرے لوگوں کے بارے میں سرد مہر، بے حس اور سنگدل ہوں۔	1	2	3	4	5	6

نمبر شمار	بیانات	کبھی نہیں	بہت کم	کبھی کبھی	عموما	اکثر اوقات	ہمیشہ
34	میں اپنے آپ کو الگ تھلگ سمجھتی رسمجھتا ہوں (اپنے آپ سے جذبات اور دوسرے لوگوں سے میرا کوئی رابطہ نہیں)۔	1	2	3	4	5	6
35	میں اپنے جذبات کو اندھا دھند پیروی کرتی رکرتا ہوں۔	1	2	3	4	5	6
36	میں خود کو دل برداشتہ محسوس کرتی رکرتا ہوں۔	1	2	3	4	5	6
37	میں دوسرے لوگوں کو حق دیتی ردیتا ہوں کہ وہ مجھ پر تنقید کریں یا مجھے نیچا دکھائیں۔	1	2	3	4	5	6
38	تعلقات میں دوسرے شخص کو غالب آنے کا موقع دیتی ردیتا ہوں۔	1	2	3	4	5	6
39	میں اپنے آپ کو دوسرے لوگوں سے لاتعلق محسوس کرتی رکرتا ہوں۔	1	2	3	4	5	6
40	میرے بے اختیارانہ فعل یا جذبات کا اظہار مجھے مشکل میں ڈال دیتا ہے یا دوسروں کو دکھ پہنچاتا ہے۔	1	2	3	4	5	6
41	میں کام یا کھیل میں خود کو اس قدر مصروف کرتی رکرتا ہوں کہ مجھے پریشان کن باتوں کا خیال نہ آئے۔	1	2	3	4	5	6
42	میں غصہ میں ہوں کیونکہ لوگ میری آزادی اور خودمختاری چھیننے کی کوشش کر رہے ہیں۔	1	2	3	4	5	6
43	میں کچھ بھی محسوس نہیں کرتا رکرتی ہوں۔	1	2	3	4	5	6
44	دوسرے لوگوں کی ضرورت اور احساسات کی پرواہ کیئے بغیر میں وہی کرتی رکرتا ہوں جو میرا دل چاہتا ہے۔	1	2	3	4	5	6
45	میں اس وقت تک آرام اور چین سے نہیں بیٹھتی رہیٹھتا جب تک وہ تمام کام نہ کرلوں جو مجھے کرنے ہیں۔	1	2	3	4	5	6
46	میں غصہ میں چیزیں اٹھا کر پھینکتی رپھینکتا ہوں۔	1	2	3	4	5	6
47	مجھے دوسرے لوگوں پر غصہ آتا ہے۔	1	2	3	4	5	6
48	میں محسوس کرتی رکرتا ہوں کہ میرے دوسرے لوگوں سے گھل مل جاتی رجاتا ہوں۔	1	2	3	4	5	6
49	میرے اندر بہت سارا غصہ ہے جس کو باہر نکالنے کی ضرورت ہے۔	1	2	3	4	5	6
50	میں خود کو تنہا محسوس کرتی رکرتا ہوں۔	1	2	3	4	5	6
51	میں ہر کام بخوبی سرانجام دینے کے لئے اپنی پھرپور کوشش کرتی رکرتا ہوں	1	2	3	4	5	6

نمبر شمار	بیانات	کبھی نہیں	بہت کم	کبھی کبھی	عموما	اکثر اوقات	ہمیشہ
52	اپنے جذبات سے دور رہنے کے لیے میں کوئی جوش یا تسکین بہم پہنچانے والا کام کرنا چاہتی/چاہتا ہوں ۔(مثلاً جوا کھیلنا، کھانا پینا، خریداری، جنسی عمل، ٹی وی دیکھنا)۔	1	2	3	4	5	6
53	برابری کا کوئی وجود نہیں اس لیے بہتر یہی ہے کہ آپ دوسروں سے برتر ہوں۔	1	2	3	4	5	6
54	جب مجھے غصہ آتا ہے تو اکثر آپے سے باہر ہو جاتی/جاتا ہوں اور دوسرے لوگوں کو دھمکیاں دیتی/دیتا ہوں۔	1	2	3	4	5	6
55	میں دوسروں کے اپنی خواہشات کی بجائے ان کی مرضی کے مطابق چلنے کا موقع دیتی/دیتا ہوں۔	1	2	3	4	5	6
56	جو کوئی میرا ساتھ نہیں دیتا وہ میرا مخالف ہے۔	1	2	3	4	5	6
57	پریشان کن خیالات اور جذبات سے بچنے کے لیے میں اپنے آپ کو ہمیشہ مصروف رکھتی/رکھتا ہوں۔	1	2	3	4	5	6
58	اگر مجھے دوسرے لوگوں پر غصہ آئے تو (اس کا مطلب یہ ہے) میں ایک بُری/بُرا انسان ہوں۔	1	2	3	4	5	6
59	میں لوگوں میں گھلنا ملنا نہیں چاہتی/چاہتا۔	1	2	3	4	5	6
60	میں اس قدر شدید غصے میں تھی/تھا کہ میں نے کسی کو زخمی کر دیا یا قتل کر دیا۔	1	2	3	4	5	6
61	میں محسوس کرتی/کرتا ہوں کہ میری زندگی میں بہت استحکام اور اطمینان ہے	1	2	3	4	5	6
62	میں جانتی/جانتا ہوں کہ مجھے کب اپنے جذبات کا اظہار کرنا ہے اور کب نہیں۔	1	2	3	4	5	6
63	جس شخص نے میرا ساتھ چھوڑ کر مجھے تنہا کر دیا اس سے میں سخت ناراض ہوں۔	1	2	3	4	5	6
64	میں خود کو دوسروں کے ساتھ مربوط (جڑا ہوا) نہیں سمجھتی/سمجھتا۔	1	2	3	4	5	6
65	میں وہ کام کرنے پہ خود کو مجبور نہیں کر سکتا جو مجھے ناگوار ہوں یا ناپسند ہوں، چاہے مجھے معلوم ہو کہ اس میں میرا فائدہ ہے۔	1	2	3	4	5	6
66	میں قانون توڑتا/توڑتی ہوں بعد میں ندامت محسوس کرتی/کرتا ہوں۔	1	2	3	4	5	6
67	مجھے اپنی ذلت کا احساس ہوتی/ہوتا ہے۔	1	2	3	4	5	6

نمبر شمار	بیانات	کبھی نہیں	بہت کم	کبھی کبھی	عموما	اکثر اوقات	ہمیشہ
68	میں اکثر لوگوں پر اعتماد کرتی ر کرتا ہوں۔	1	2	3	4	5	6
69	میں کام کرنے کے بعد اس کے بارے میں سوچتی ر سوچتا ہوں۔	1	2	3	4	5	6
70	میں جلد اکتا جاتا ہوں اور چیزوں میں میری دلچسپی ختم ہو جاتی ہے۔	1	2	3	4	5	6
71	میں بھیڑ میں خود کو تنہا محسوس کرتی ر کرتا ہوں۔	1	2	3	4	5	6
72	کیونکہ میں ایک بُری ر بُرا انسان ہوں اس لیے اپنے آپ کو ان مسرت بخش کاموں سے محروم رکھتی ر رکھتا ہوں جو دوسرے لوگ کرتے ہیں۔	1	2	3	4	5	6
73	حد سے تجاوز کیے بنا میں وہ کہہ دیتا ہوں جو مجھے چاہیے ہوتا ہے۔	1	2	3	4	5	6
74	میں اکثر لوگوں کے مقابلہ میں اپنے آپ کو بہتر اور منفرد سمجھتی ر سمجھتا ہوں۔	1	2	3	4	5	6
75	میں کسی بات کی پرواہ نہیں کرتی ر کرتا اور کسی بات سے مجھے فرق نہیں پڑتا۔	1	2	3	4	5	6
76	جب کوئی یہ کہ کہ مجھے کیا محسوس کرنا چاہیے اور کیا کرنا چاہیے اور مجھے غصہ آجاتا ہے۔	1	2	3	4	5	6
77	اگر آپ دوسروں پر غالب نہیں آئیں گے تو وہ آپ پر غالب آجائیں گے۔	1	2	3	4	5	6
78	میں نتائج کے بارے میں سوچے سمجھے بغیر جو کچھ محسوس کرتی ر کرتا ہوں وہ کہہ دیتی ر دیتا ہوں۔	1	2	3	4	5	6
79	میں محسوس کرتی ر کرتا ہوں کہ لوگوں کو اینٹ کا جواب پتھر سے دوں	1	2	3	4	5	6
80	میں اس قابل ہوں کہ خود اپنا خیال رکھ سکوں۔	1	2	3	4	5	6
81	میں دوسرے لوگوں پر اکثر تنقید کرتی ر کرتا ہوں۔	1	2	3	4	5	6
82	مقاصد کے حصول اور کام کی تکمیل کے لیے مجھ پر مستقل دباؤ ہے۔	1	2	3	4	5	6
83	میری کوشش ہے کہ میں غلطی نہ کروں ورنہ میں اپنی نظروں میں خود گر جاؤں گی ر گا۔	1	2	3	4	5	6
84	میں سزا کی ر کا مستحق ہوں۔	1	2	3	4	5	6
85	مجھ میں سیکھنے، پڑھنے اور تبدیل ہونے کی صلاحیت ہے۔	1	2	3	4	5	6
86	میں پریشان کن خیالات اور احساسات سے اپنی توجہ ہٹانا چاہتی ر چاہتا ہوں۔	1	2	3	4	5	6
87	مجھے اپنے آپ پر غصہ ہے۔	1	2	3	4	5	6

نمبر شمار	بیانات	کبھی نہیں	بہت کم	کبھی کبھی	عموما	اکثر اوقات	ہمیشہ
88	میں محسوسات سے عاری ہوں۔	1	2	3	4	5	6
89	مجھے ہر کام میں بہترین کارکردگی دکھانی چاہیے۔	1	2	3	4	5	6
90	اپنا معیار برقرار رکھنے کے لیے میں اپنی خوشی، صحت اور آرام قربان کر دیتی رہتا ہوں۔	1	2	3	4	5	6
91	میں دوسرے لوگوں سے توقعات رکھتی رکھتا ہوں۔	1	2	3	4	5	6
92	اگر مجھے غصہ آجائے تو آپے سے باہر ہو کر میں دوسرے لوگوں کو زخمی کر دیتی رہتا ہوں۔	1	2	3	4	5	6
93	مجھے کوئی نقصان نہیں پہنچا سکتا۔	1	2	3	4	5	6
94	میں بُرا انسان ہوں۔	1	2	3	4	5	6
95	میں اپنے آپ کو محفوظ سمجھتی رسمجھتا ہوں۔	1	2	3	4	5	6
96	میں چاہتی رچاہتا ہوں کہ لوگ میری بات سنیں، سمجھیں اور اسے درست قرار دیں۔	1	2	3	4	5	6
97	اپنے جذبات پر قابو رکھنا میرے لیے ناممکن ہے۔	1	2	3	4	5	6
98	میں غصے میں چیزوں کو توڑ پھوڑ دیتی رہتا ہوں۔	1	2	3	4	5	6
99	دوسرے لوگوں پر غلبہ پانے سے آپ کو کوئی نقصان نہیں پہنچتا۔	1	2	3	4	5	6
100	اگر حالات میری پسند کے موافق نہ ہوں تب بھی تحمل سے کام لیتی رلیتا ہوں	1	2	3	4	5	6
101	میرا غصہ قابو سے باہر ہو جاتا ہے۔	1	2	3	4	5	6
102	میں دوسرے لوگوں کا مذاق اڑاتی راڑاتا ہوں۔	1	2	3	4	5	6
103	میرا جی چاہتا ہے کہ دوسروں نے جو کچھ میرے ساتھ کیا اس کے بدلے میں ان کو ویسی ہی تکلیف پہنچاؤں۔	1	2	3	4	5	6
104	مجھے معلوم ہے کہ ہر کام کرنے کا ایک صحیح اور ایک غلط طریقہ ہوتا ہے میں صحیح طریقہ سے کام کرنے کی بھرپور کوشش کرتی رکرتا ہوں ورنہ اپنے آپ پہ تنقید شروع کر دیتا رہتی ہوں۔	1	2	3	4	5	6
105	میں اکثر خود دنیا کو تنہا محسوس کرتی رکرتا ہوں۔	1	2	3	4	5	6
106	میں خود کو کمزور اور بے یارومددگار محسوس کرتی رکرتا ہوں۔	1	2	3	4	5	6

نمبر شمار	بیانات	کبھی نہیں	بہت کم	کبھی کبھی	عموما	اکثر اوقات	ہمیشہ
107	میں کاہل ہوں۔	1	2	3	4	5	6
108	جو لوگ میرے نزدیک اہم ہے مجھے ان کی ہر بات گوارہ ہے۔	1	2	3	4	5	6
109	مجھے دھوکا دیا گیا یا مجھ سے غیر منصفانہ برتاؤ کیا گیا۔	1	2	3	4	5	6
110	جب میرا دل چاہتا ہے کہ میں کچھ کروں تو میں کر گزرتا/گزرتی ہوں۔	1	2	3	4	5	6
111	مجھے یوں محسوس ہوتا ہے جیسے مجھے تنہا کر دیا گیا ہے۔	1	2	3	4	5	6
112	میں دوسروں کو حقیر سمجھتی/سمجھتا ہوں۔	1	2	3	4	5	6
113	میں پر امید ہوں۔	1	2	3	4	5	6
114	میرا خیال ہے مجھے ان اصولوں کی تائید کرنی چاہیے جن کی تائید دوسرے لوگ کرتے ہیں۔	1	2	3	4	5	6
115	اس وقت میری زندگی کا محور امور کی تکمیل اور انہیں صحیح طریقے سے انجام دینا ہے۔	1	2	3	4	5	6
116	میں اپنی پوری کوشش کرتا/کرتی ہوں کہ میں اکثر دوسرے لوگوں سے زیادہ ذمہ داری کا مظاہرہ کروں۔	1	2	3	4	5	6
117	جب میں محسوس کروں کہ ہر ناجائز تنقید کی جا رہی ہے یا مجھ سے ناجائز فائدہ اٹھایا جا رہا ہے تو میں اپنا دفاع کر سکتی/سکتا ہوں۔	1	2	3	4	5	6
118	اگر مجھ پر کوئی مصیبت آئے تو میں ہمدردی کی/کا مستحق نہیں۔	1	2	3	4	5	6
119	مجھے محسوس ہوتا ہے جیسے مجھ سے کوئی پیار نہیں کرتا۔	1	2	3	4	5	6
120	میں خود کو بنیادی طور پر ایک اچھا آدمی سمجھتا ہوں۔	1	2	3	4	5	6
121	اگر ضروری ہو تو میں روزمرہ کے غیر دلچسپ/اکتا دینے والے کام بھی سر انجام دیتی/دیتا ہوں۔	1	2	3	4	5	6
122	میں طبعاً شوخ مزاج ہوں/میری طبعیت میں بے ساختگی اور خوش مزاجی ہے۔	1	2	3	4	5	6
123	غصے میں آپے سے باہر آ کر میں کسی کو جان سے مار سکتی/سکتا ہوں۔	1	2	3	4	5	6
124	مجھے بخوبی اندازہ ہے کہ میں کون ہوں اور مجھے خوش رہنے کے لیے کیا چاہیے۔	1	2	3	4	5	6

Appendix I

The Symptom Checklist-90

Below is a list of problems and complaints that people sometimes have. Please read each one carefully. After you have done so, select one of the numbered descriptors that best describes HOW MUCH THAT PROBLEM HAS BOTHERED OR DISTRESSED YOU DURING THE PAST WEEK, INCLUDING TODAY. Circle the number in the space to the right of the problem and do not skip any items. Use the following key to guide how you respond:

Circle 0 if your answer is NOT AT ALL
Circle 1 if A LITTLE BIT
Circle 2 if MODERATELY
Circle 3 if QUITE A BIT
Circle 4 if EXTREMELY

Please read the following example before beginning:

Example: In the previous week, how much were you bothered by:

Backaches 0 1 2 3 4

HOW MUCH WERE YOU BOTHERED BY:

S.No	Items	0	1	2	3	4
1	Headaches	0	1	2	3	4
2	Nervousness or shakiness inside	0	1	2	3	4
3	Unwanted thoughts, words, or ideas that won't leave your mind	0	1	2	3	4
4	Faintness or dizziness	0	1	2	3	4
5	Loss of sexual interest or pleasure	0	1	2	3	4
6	Feeling critical of others	0	1	2	3	4
7	The idea that someone else can control your thoughts	0	1	2	3	4
8	Feeling others are to blame for most of your troubles	0	1	2	3	4
9	Trouble remembering things	0	1	2	3	4
10	Worried about sloppiness or carelessness	0	1	2	3	4
11	Feeling easily annoyed or irritated	0	1	2	3	4
12	Pains in heart or chest	0	1	2	3	4
13	Feeling afraid in open spaces or on the streets	0	1	2	3	4
14	Feeling low in energy or slowed down	0	1	2	3	4
15	Thoughts of ending your life	0	1	2	3	4
16	Hearing voices that other people do not hear	0	1	2	3	4

17	Trembling	0	1	2	3	4
18	Feeling that most people cannot be trusted	0	1	2	3	4
19	Poor appetite	0	1	2	3	4
20	Crying easily	0	1	2	3	4
21	Feeling shy or uneasy with the opposite sex	0	1	2	3	4
22	Feeling of being trapped or caught	0	1	2	3	4
23	Suddenly scared for no reason	0	1	2	3	4
24	Temper outbursts that you could not control	0	1	2	3	4
25	Feeling afraid to go out of your house alone	0	1	2	3	4
26	Blaming yourself for things	0	1	2	3	4
27	Pains in lower back	0	1	2	3	4
28	Feeling blocked in getting things done	0	1	2	3	4
29	Feeling lonely	0	1	2	3	4
30	Feeling blue	0	1	2	3	4
31	Worrying too much about things	0	1	2	3	4
32	Feeling no interest in things	0	1	2	3	4
33	Feeling fearful	0	1	2	3	4
34	Your feelings being easily hurt	0	1	2	3	4
35	Other people being aware of your private thoughts	0	1	2	3	4
36	Feeling others do not understand you or are unsympathetic	0	1	2	3	4
37	Feeling that people are unfriendly or dislike you	0	1	2	3	4
38	Having to do things very slowly to insure correctness	0	1	2	3	4
39	Heart pounding or racing	0	1	2	3	4
40	Nausea or upset stomach	0	1	2	3	4
41	Feeling inferior to others	0	1	2	3	4
42	Soreness of your muscles	0	1	2	3	4
43	Feeling that you are watched or talked about by others	0	1	2	3	4
44	Trouble falling asleep	0	1	2	3	4
45	Having to check and double-check what you do	0	1	2	3	4
46	Difficulty making decisions	0	1	2	3	4
47	Feeling afraid to travel on buses, subways, trains	0	1	2	3	4
48	Trouble getting your breath	0	1	2	3	4

49	Hot or cold spells	0	1	2	3	4
50	Having to avoid certain things, places, or activities because they frighten you	0	1	2	3	4
51	Your mind going blank	0	1	2	3	4
52	Numbness or tingling in parts of your body	0	1	2	3	4
53	A lump in your throat	0	1	2	3	4
54	Feeling hopeless about the future	0	1	2	3	4
55	Trouble concentrating	0	1	2	3	4
56	Feeling weak in parts of your body	0	1	2	3	4
57	Feeling tense or keyed up	0	1	2	3	4
58	Heavy feelings in your arms or legs	0	1	2	3	4
59	Thoughts of death or dying	0	1	2	3	4
60	Overeating	0	1	2	3	4
61	Feeling uneasy when people are watching or talking about you	0	1	2	3	4
62	Having thoughts that are not your own	0	1	2	3	4
63	Having urges to beat, injure, or harm someone	0	1	2	3	4
64	Awakening in the early morning	0	1	2	3	4
65	Having to repeat the same actions such as touching, counting, washing	0	1	2	3	4
66	Sleep that is restless or disturbed	0	1	2	3	4
67	Having urges to break or smash things	0	1	2	3	4
68	Having ideas or beliefs that others do not share	0	1	2	3	4
69	Feeling very self-conscious with others	0	1	2	3	4
70	Feeling uneasy in crowds, such as shopping or at a movie	0	1	2	3	4
71	Feeling everything is an effort	0	1	2	3	4
72	Spells of terror or panic	0	1	2	3	4
73	Feeling uncomfortable about eating or drinking in public	0	1	2	3	4
74	Getting into frequent arguments	0	1	2	3	4
75	Feeling nervous when you are left alone	0	1	2	3	4
76	Others not giving you proper credit for your achievements	0	1	2	3	4
77	Feeling lonely even when you are with people	0	1	2	3	4
78	Feeling so restless you couldn’t sit still	0	1	2	3	4
79	Feelings of worthlessness	0	1	2	3	4

80	Feeling that familiar things are strange or unreal	0	1	2	3	4
81	Shouting or throwing things	0	1	2	3	4
82	Feeling afraid you will faint in public	0	1	2	3	4
83	Feeling that people will take advantage of you if you let them	0	1	2	3	4
84	Having thoughts about sex that bother you a lot	0	1	2	3	4
85	The idea that you should be punished for your sins	0	1	2	3	4
86	Feeling pushed to get things done	0	1	2	3	4
87	The idea that something serious is wrong with your body	0	1	2	3	4
88	Never feeling close to another person	0	1	2	3	4
89	Feelings of guilt	0	1	2	3	4
90	The idea that something is wrong with your mind	0	1	2	3	4

Appendix J

The Schema Mode Inventory

INSTRUCTIONS

Listed below are statements that people might use to describe themselves. Please rate each item based on how often you believe or feel each statement in general using the frequency scale.

FREQUENCY: 1= Never or Almost Never 4= Frequently

2= Rarely 5= Most of the time

3= Occasionally 6= All of the time

Frequency	**Items**
	1. I demand respect by not letting other people push me around.
	2. I feel loved and accepted.
	3. I deny myself pleasure because I don't deserve it.
	4. I feel fundamentally inadequate, flawed, or defective.
	5. I have impulses to punish myself by hurting myself (e.g., cutting myself)
	6. I feel lost.
	7. I'm hard on myself.
	8. I try very hard to please other people in order to avoid conflict, or confrontation
	9. I can't forgive myself.
	10. I do things to make myself the center of attention.
	11. I get irritated when people don't do what I ask them to do.
	12. I have trouble controlling my impulses.
	13. If I can't reach a goal, I become easily frustrated and give up.
	14. I have rage outbursts.
	15. I act impulsively or express emotions that get me into trouble or hurt other people
	16. It's my fault when something bad happens.
	17. I feel content and at ease.
	18. I change myself depending on the people I'm with, so they'll like me or approve of me.
	19. I feel connected to other people.

Frequency	Items
	20. When there are problems, I try hard to solve them myself.
	21. I don't discipline myself to complete routine or boring tasks.
	22. If I don't fight, I will be abused or ignored.
	23. I have to take care of the people around me.
	24. If you let other people mock or bully you, you're a loser.
	25. I physically attack people when I'm angry at them.
	26. Once I start to feel angry, I often don't control it and lose my temper.
	27. It's important for me to be Number One (e.g., the most popular, most successful, most wealthy, most powerful).
	28. I feel indifferent about most things.
	29. I can solve problems rationally without letting my emotions overwhelm me.
	30. It's ridiculous to plan how you'll handle situations.
	31. I won't settle for second best.
	32. Attacking is the best defense.
	33. I feel cold and heartless toward other people.
	34. I feel detached (no contact with myself, my emotions or other people).
	35. I blindly follow my emotions.
	36. I feel desperate.
	37. I allow other people to criticize me or put me down.
	38. In relationships, I let the other person have the upper hand.
	39. I feel distant from other people.
	40. I don't think about what I say, and it gets me into trouble or hurts other people.
	41. I work or play sports intensively so that I don't have to think about upsetting things.
	42. I'm angry that people are trying to take away my freedom or independence.
	43. I feel nothing.
	44. I do what I want to do, regardless of other people's needs and feelings.
	45. I don't let myself relax or have fun until I've finished everything I'm supposed to do.
	46. I throw things around when I'm angry.
	47. I feel enraged toward other people.
	48. I feel that I fit in with other people

Frequency	Items
	49. I have a lot of anger built up inside of me that I need to let out
	50. I feel lonely.
	51. I try to do my best at everything.
	52. I like doing something exciting or soothing to avoid my feelings (e.g., working, gambling, eating, shopping, sexual activities, watching TV).
	53. Equality doesn't exist, so it's better to be superior to other people.
	54. When I'm angry, I often lose control and threaten other people.
	55. I let other people get their own way instead of expressing my own needs.
	56. If someone is not with me, he or she is against me.
	57. In order to be bothered less by my annoying thoughts or feelings, I make sure that I'm always busy.
	58. I'm a bad person if I get angry at other people.
	59. I don't want to get involved with people.
	60. I have been so angry that I have hurt someone or killed someone.
	61. I feel that I have plenty of stability and security in my life.
	62. I know when to express my emotions and when not to.
	63. I'm angry with someone for leaving me alone or abandoning me.
	64. I don't feel connected to other people.
	65. I can't bring myself to do things that I find unpleasant, even if I know it's for my own good.
	66. I break rules and regret it later.
	67. I feel humiliated.
	68. I trust most other people.
	69. I act first and think later.
	70. I get bored easily and lose interest in things.
	71. Even if there are people around me, I feel lonely.
	72. I don't allow myself to do pleasurable things that other people do because I'm bad.
	73. I assert what I need without going overboard.
	74. I feel special and better than most other people.
	75. I don't care about anything; nothing matters to me.
	76. It makes me angry when someone tells me how I should feel or behave.

Frequency	Items
	77. If you don't dominate other people, they will dominate you.
	78. I say what I feel, or do things impulsively, without thinking of the consequences
	79. I feel like telling people off for the way they have treated me.
	80. I'm capable of taking care of myself.
	81. I'm quite critical of other people.
	82. I'm under constant pressure to achieve and get things done.
	83. I'm trying not to make mistakes; otherwise, I'll get down on myself.
	84. I deserve to be punished.
	85. I can learn, grow, and change.
	86. I want to distract myself from upsetting thoughts and feelings.
	87. I'm angry at myself.
	88. I feel flat.
	89. I have to be the best in whatever I do.
	90. I sacrifice pleasure, health, or happiness to meet my own standards.
	91. I'm demanding of other people.
	92. If I get angry, I can get so out of control that I injure other people.
	93. I am invulnerable.
	94. I'm a bad person.
	95. I feel safe.
	96. I feel listened to, understood, and validated.
	97. It is impossible for me to control my impulses.
	98. I destroy things when I'm angry
	99. By dominating other people, nothing can happen to you.
	100. I act in a passive way, even when I don't like the way things are.
	101. My anger gets out of control.
	102. I mock or bully other people.
	103. I feel like lashing out or hurting someone for what he/she did to me.
	104. I know that there is a 'right' and a 'wrong' way to do things; I try hard to do things the right way, or else I start criticizing myself.
	105. I often feel alone in the world.
	106. I feel weak and helpless.
	107. I'm lazy.

Frequency	Items
	108. I can put up with anything from people who are important to me
	109. I've been cheated or treated unfairly.
	110. If I feel the urge to do something, I just do it.
	111. I feel left out or excluded.
	112. I belittle others.
	113. I feel optimistic.
	114. I feel I shouldn't have to follow the same rules that other people do.
	115. My life right now revolves around getting things done and doing them right.
	116. I'm pushing myself to be more responsible than most other people.
	117. I can stand up for myself when I feel unfairly criticized, abused, or taken advantage of.
	118. I don't deserve sympathy when something bad happens to me.
	119. I feel that nobody loves me.
	120. I feel that I'm basically a good person.
	121. When necessary, I complete boring and routine tasks in order to accomplish things I value.
	122. I feel spontaneous and playful.
	123. I can become so angry that I feel
	124. I have a good sense of who I am and what I need to make myself happy.