DISCUSSION

In this study an attempt was made to study the impact of anxiety sensitivity, stressful life events, and family environment on subjective well being of epileptic patients. The correlation section of the study will deal with the explanations of different aspects of the results such as relationship between different variables, mean comparisons of clinical and control group and impact of different independent variables on dependent variable.

Relationship between Different Psychological Variables among Epileptic Patients and Normal Adults

On the various dimensions of family environment the relations for epileptics and normal adults appeared similar but on certain dimensions they differed from each other. It was found that among epileptics (Table 8) and normal adults (Table 10) competitive framework was positively related with organization, though the degree of the relationship was more intense among epileptics. This implies that when the competitiveness of the family increases then it results in greater perception of organization in the family set up. But increase or decrease in competitiveness does not affect cohesion, expression and independence. In pediatric epilepsy, these variables are related to aspects of the family environment, which have been found to influence the development of behavior problems in general population children (Cummings et al., 2000, Austin, 2004; Noeker et al., 2005).

The results further show that when both the groups have more cohesive family environment they experience more expressiveness and independence in the family and lay emphasis on rules and regulations. This shows that as the family members are more supportive and having feelings of togetherness they tend to be more expressive.
Epileptics were found to have intense relation between cohesion, expression and independence as compared to the normal adults, but they reported less intense relation between cohesion and organization compared to the normal adults. Austin, Risinger and Beckett (1992) discussed correlates of behavior problems in children with epilepsy. They found that five variables that contributed significantly to prediction of behavior problems: female gender, family stress, family mastery, extended family social support, and seizure frequency. These factors accounted for 29% of the variation in behavioral problems. Their findings suggest that family variables are important correlates of behavior problems and should be considered in clinical management of children with epilepsy. Krawetz et al. (2001) investigated family functioning in subjects with pseudo seizures and epilepsy. They found no differences between subjects with both pseudo seizures and epilepsy and subjects with pseudo seizures alone. The families of subjects with pseudo seizures displayed comparatively statistically significant elevations in their responses on the roles scale of Family Functioning Device and the responses did not differ in regard to the role they assumed within the family unit. In summary, individuals with pseudo seizures view their families as being more dysfunctional, particularly in the area of communication, whereas their family members perceived difficulties in defining roles.

It is also clear from the results that among both the groups when the expressiveness in the family increases independence and organization in the family also increases. The respondents who reported more expressiveness in their families laid more emphasis on rules and regulations and reported more independence in their family environment. But the degree of this relationship was found to be stronger among epileptics as compared to normal adults. Ferrari, Matthews and Barabas (1989) examined the family of the children with epilepsy. Their study consisted of 45
families focused on how children with epilepsy affect their family functioning relative to families with a child with diabetes and families with no chronically ill members. The results suggest several areas of (i.e. child self-concept, family communication, family cohesion) in which the families of epileptic children have great difficulty. In 1984 Nurchi, Loche, Pusceddu, and Corrias investigated psychological aspects of the epileptic child and his relationship to his family environment. They found that the intellectual development were good in 23.7%, when the subjects had positive family environment and when clinic disappearance of seizures was rapid. These aspects were compromised in 76.3%, when emotively positive family environment was deficient.

The present study also reveals that among epileptics when there is an increase in the perception of independence the individual is more organized that is the individual is likely to put more emphasis on rules and regulations (Table 8). But no significant relationship could be seen between these two variables among normal adults implying that variations in the degree of independence do not affect organization in any way among normal adults. McCusker, Kennedy, Anderson, Hicks and Hanrahan (2002) examined adjustment in children with intractable epilepsy in relation to importance of seizure duration and family factors. They found that intra familial relations (degree of conflict/cohesion and so on) were not only associated with adjustment difficulties in the child, but also with the frequency of seizures themselves. It is also evident from the researches that restrictions placed on epileptics by their families reduce their ability to perform traditional roles, affects their social value and excludes them from their communities (Allotey & Reidpath, 2007). Researchers have suggested that clinicians should consider both neurological and psychosocial factors, including the family system, when treating psychopathology in children with epilepsy (Rodenburg et al., 2005).
Further it was found that among epileptic patients competitive framework was not significantly related to subjective well being but among normal adults it was negatively related with subjective well being showing that high competitiveness results in lower subjective well being amongst normals. For epileptics competitive framework appears to play no role in their well being. Their well being depends upon the others factors like support from others etc. Therefore when cohesiveness and the support system in the family increases epileptics experience higher subjective well being (Table 8) as compared to normal adults (Table 10). Though normal adults are also affected by the changes in the cohesiveness in the family, but for epileptics the intensity of this association is much higher. Nurchi et al. (1984) reported a decrease in the number of seizures in the epileptics when they were exposed to a positive family environment. Another factor that affects the well being of the epileptics is expressiveness in the family. When the patients are given chance to express themselves in the family their well being gets better (Table 8).

Epileptics well being was affected by the independence given in their family. In comparison to normal adults epileptics reported less independence in their family (Table 12), it adversely affected their subjective well being also (Table 8). This implies that when the respondent experiences more independent family environment it results in the experience of higher subjective well being. Further it was found that normal adults (Table 10) perceive more cohesiveness and expressiveness in the family and therefore tend to experience higher subjective well being. This indicates that when the feelings of support and expression in the family increases, subjective well being of normal adults also increases. Reidpath (2007) in his study found that there is a decrease in the performance of epileptics if restrictions are imposed on them.
On the dimension of organization both the groups reported higher subjective well being. This relationship was found to be slightly stronger for epileptic patients. Ronen et al. (2003) also reported that family factors affected health related quality of life of epileptic patients. According to Pavlou, and Gkampeta (2011) a healthy family and school environment can help reduce its impact on the epileptic's quality of life.

On anxiety sensitivity the findings of the present study show that among epileptic patients competitive framework has no relationship with anxiety sensitivity (Table 8) implying that increase or decrease in competitiveness does not affect the level of anxiety among epileptic patients. However competitive framework has a positive relationship with anxiety sensitivity among normal adults (Table 10) implying that when the competitiveness becomes stronger among normal adults, they tend to experience higher level of anxiety sensitivity. It appears that competitive family environment did not affect anxiety sensitivity amongst epileptics.

However, it was also found that when the cohesiveness in the family increases epileptics experience less anxiety sensitivity (Table 8). A recent study by Adewuya and Oya (2005) examined anxiety and depressive disorders amongst adolescents with epilepsy and reported that prevalence of anxiety disorders was about 31.7%. But among the normal adults there is no relationship between cohesion and anxiety sensitivity implying that variations in cohesion in the family environment does not affect anxiety sensitivity of normal adults. Unlike the above relationship it was found that both the groups have an inverse relationship between cohesion and stressful life events implying that cohesiveness in the family reduces the stress due to life events among both the groups. But this relationship is stronger among epileptics implying that they are more sensitive towards the family support.
Similarly it was also found that when the expressiveness and independence in the family increases, epileptics tend to experience less anxiety sensitivity. It shows that when the patients are given more chance to express themselves and liberty to take their decisions, their anxiety sensitivity is reduced. But these two variables have no significant relationship with anxiety sensitivity among normal adults. However, the anxiety sensitivity of normal adults was not affected by variation in expressiveness and independence in the family.

Furthermore it was seen that when the emphasis on rules and regulations becomes stronger that is organization is higher in the family environment it results in a decrease in anxiety sensitivity among epileptics (Table 8) but on the other hand increase in the organization in the family environment increases the level of anxiety sensitivity among normal adults. In this way it is clear that increase in the organization plays different role for both the groups in affecting anxiety sensitivity of the respondents. Similarly the results also indicate that greater organization in the family decreases the stress due to the life events among epileptic patients whereas it shows no significant effect on the stress due to the life events among normal adults.

Further the results show that when the competitiveness in the family increases perception of stress due to life events also increases among both the epileptic patients and normal adults. But the degree of this relationship is stronger in epileptic patients. It means that higher competitiveness has a stronger relationship with the stress due to the life events among epileptics as compared to the normal adults. Results also indicate a significant positive relationship between expression and stressful life events among both the groups. This relationship is found stronger among epileptic patients. On the other hand both the groups differed in the direction of relationship between independence and stressful life events. A positive relationship was seen among
epileptics between these two variables indicating that when the independence increases, stress due to the life events also increases. However among normal adults it was found that when the independence in the family increases, stress due to the life events decrease.

The results further reveal that among both the groups anxiety sensitivity has a significant negative relationship with subjective well being. This indicates that higher level of anxiety sensitivity decreases the subjective well being of the respondents but it affects epileptic patients more intensively as compared to the normal adults. Adesina, Afolabi, and Ohwojero (2007) reported that epileptics who perceived the illness, as highly stigmatizing exhibit higher level of anxiety disorder than those who either perceive it as moderately or less stigmatizing.

Similarly on analyzing the relationship between anxiety sensitivity and stressful life events it was found that both the groups have a positive relationship between these two variables. It means that higher level of anxiety sensitivity increases the perception of stress due to the life events among both the groups but in this case the degree of the association between these two variables is stronger for normals as compared to epileptic patients.

A significant inverse relationship was found between stressful life events and subjective well being among epileptics. It means that when the stress due to the life events increases epileptics tend to perceive less subjective well being. However, no relationship could be seen between these two variables among normal adults.
Relationship between Different Psychological and Demographic Variables among Epileptic Patients and Normal Adults

The present study also explains the relationship between different demographic variables and different psychological variables among epileptics and normal adults. Result shows that income played a critical role in affecting different psychological variables. It was found that when the family income is high, epileptics experience more cohesiveness in their family (Table 9) but the findings were quite different among normal adults. It was found that cohesion was negatively related with marital status among normal adults implying that married and unmarried respondents differ on this variable.

Results further indicate that epileptics with high family income tend to experience more expressiveness in their families implying that there is a positive relationship between these two variables. It was also found that when epileptics have high family income they experience more independence in the family and the patients with chronic epilepsy are freer to express themselves in the family (Table 9). But among normals there was no significant relationship between independence and income (Table 11).

Normal adults with high income were found to experience less stress due to life events indicating an inverse relationship between these two variables but no relationship was found between stressful life events and family income. It was also found that epileptics with low family income are more anxiety sensitive (Table 9). Khali and Aslam (2011) also found a negative relationship between psychological distress and low socioeconomic status in epileptic patients. Furthermore no significant relationship could be seen between these two variables among normal adults and both
the groups showed no significant relationship between anxiety sensitivity and gender, 
marital status, age, education and onset (only in case of epileptics).

Lastly it was also found that epileptics with high income experienced greater 
subjective well being. These findings were also supported by Alanis-Guevara et al. 
(2005). They reported that one of the predictors of low quality of life among epileptics 
was low socio economic status. Begley et al. (2010) also found that low socioeconomic 
epileptic patients had consistently higher use of the hospital emergency room and more 
visits to a general practitioner. Patients at the low socio economic status sites also had 
a greater likelihood of having uncontrolled seizures, and have a lower overall quality 
of life throughout the study period.

**Comparisons of Epileptics and Normal Adults**

On family environment epileptics and normal adults differed significantly on 
cohesion, expression and independence in the family (Table 12). Epileptics were 
found to experience less cohesiveness, expressiveness and independence in their 
families as compared to the normal adults. Kendall et al. (2009) reported that specific 
aspects of family well being are affected by childhood epilepsy and suggest the need 
for improved seizure management and further research exploring associations of 
chronic childhood illness and family well being. Rodenburg, Meijer, Decovic and 
Aldenkamp (2005) found that as compared to control groups, families of epileptic 
children generally fare worse on the whole range of family factors, indicating lower 
parent-child relationship quality, more depression in mothers and problems in family 
functioning. Significant associations were apparent between distinct family factors, 
especially parental psychological control, parental attributions about epilepsy, and 
family members’ satisfaction with family relationships and psychopathology in
children with epilepsy. The results further show that on competitive framework and organization both the groups did not differ significantly. Hence, the hypothesis that on various dimensions of family environment the patients of epilepsy will perceive it less supportive than the normal adults is partially accepted here.

In a study on families with epileptic children Devinsky (2001) reported that diagnosis of epilepsy in their child puts strain on parents that can result in poor relationships and psychological difficulties amongst family members. This also affects family cohesion and relations between the family and their community. Baum et al. (2007) conducted a study on temperament, family environment and behaviour problems in children with new onset seizures. They found that family adaptive resources moderated the relationships between temperament and internalizing and externalizing behaviour problems at school. Children with a difficult early temperament who live in a family environment with low family mastery are at the greatest risk for behaviour problems. Ferrari et al. (1983) also reported that families of epileptic children have difficulty in family cohesion. In another study, 51% of patients reported improvement in their satisfaction with family relationships after surgery (Mihara et al., 1994). However, this sample included family members of patients ranging in age from 9 to 50 years and depended entirely on retrospective recall of both pre- and postsurgical functioning. In a pediatric sample, improvements in family relationships were associated with reduced seizure frequency (Whittle, Ellis & Simpson (1981).

In a qualitative study by Elliott, Lach and Smith (2000), on adolescent and maternal perspectives of quality of life and neuropsychological status following epilepsy surgery adolescents reported improvements in family communication, cohesion, and a decrease in conflict after surgery. Their mothers' reports were more
mixed, in that they reported that some aspects of family life improved, but others either remained a challenge or new challenges were introduced. Mothers felt more able to promote and encourage the development of autonomy and independence, but this also generated new uncertainties and worries that challenged their previous parenting practices. They described feeling less worried about their child's safety and physical well-being after surgery. This preoperative limitation was significant in that it seemed to influence the dyadic relationships as well as the organization of family life.

Further the results indicated a significant difference between epileptics and normals on the perception of stress due to the life events (Table 12). Epileptics reported greater stress due to the life events than normals. This supports the hypothesis that epileptic patients will experience more stress due to the stressful life events than normal adults. Roth, Goode, Williams and Faught (1994) studied physical exercise, stressful life experience, and depression in adults with epilepsy. Structural equation analyses confirmed the fit of a path model that included significant direct effects of exercise and stressful life experience on depression. These effects were independent of each other, and independent of the influence of other predictor variables, such as seizure frequency, age, and gender. Stressful life experience also had a direct unique effect on seizure frequency in the multivariate models. These results suggest that problems with depression, which are common in adults with epilepsy, are significantly lower among those who exercise regularly and avoid stressful life change.

In a comparative study of trauma-related phenomenon in subjects with pseudo seizures and subjects with epilepsy Fleisher et al. (2002) found that subjects with pseudo seizures exhibited trauma-related profiles that differed significantly from
those of epileptic comparison subjects and closely resembled those individuals with a history of traumatic experiences. Haut, Vouyiouklis, and Shinnar (2003) investigated stress amongst epileptics and reported that 64% of their sample believed that stress increased the frequency of their seizures. This belief was significantly associated with a shorter duration of epilepsy. 32% of subjects had tried stress reduction modalities for epilepsy. Of those who had not, 53% were willing to try, and this willingness was significantly associated with seizures. Neufeld et al. (2005) studied stress and epilepsy in respect to the gulf war experience and found that stress is commonly believed to precipitate seizures in some patients with epilepsy. They concluded that epileptic seizures occurred weekly due to acute external emotional stress factor. In an investigation on seizure frequency and major life events in epilepsy in which group of 18 patients with chronic epilepsy were followed in an outpatient clinic for 1-6 years. Associations were found between life events and seizure frequency Most of the patients who showed an association experienced partial seizure (Webster & Mawer, 1989).

On the other hand Cyriac, Sureshkumar, Kunhikoyamu, and Girija (2002) reported that the difference in mean scores of presumptive stressful life events scale and disability assessment schedule between epileptics with and without psychiatric diagnosis was not statistically significant. But there are many anecdotal reports that stress increases the frequency of seizures (Mattson, 1991). Detailed studies of groups of patients with careful charting of life events and emotional states (Temkin & Davis, 1984, Webster & Mawer, 1989) show a definite relation between stress, emotional arousal, and frequency of seizures in some patients. For most patients greater stress leads to more seizures, although in a few the opposite is the case (Fenwick, 1991). In a study on psychosocial predictors of psychopathology in epilepsy it was found that
stressful life events along with financial stress emerged as independent predictors (Hermann, Whitman, Wyler, Anton & Vanderzwagg, 1990).

Comparison on anxiety sensitivity amongst patients of epilepsy and normal adults reveal a significant difference with epileptics experiencing more anxiety sensitivity than normal adults (Table 12). This supports the hypothesis that the level of anxiety sensitivity will be high amongst patients of epilepsy in comparison to normal adults. Kimiskidis et al. (2007) reported that high seizure frequency, symptomatic focal epilepsy were independent determinants of trait anxiety. Ettinger, Weisbrot, Nolan, Gadow, Vitale, Andriola, Lenn, Novak, and Hermann (1998) conducted a study on symptoms of depression and anxiety in pediatric epilepsy patients where no patients were identified with anxiety prior to the onset. However, 16% met criteria for significant anxiety symptomatology after the onset.

Anxiety is another common psychiatric comorbidity in chronic epilepsy (Manchanda 2002; Piazzi et al., 2001). Swinkels, Kuyk, DeGraaf et al. (2001) detected a 25% prevalence rate of anxiety in a Dutch sample of persons with epilepsy. Despite the frequency with which depression and anxiety occur among persons with chronic epilepsy, it has been shown repeatedly that these and other psychiatric disorders are underrecognized and undertreated in both children and adults with epilepsy (Ettinger et al., 1998; Kanner & Palec, 2000). Oquz, Kurul and Dirik (2002) evaluated anxiety and depression in epileptic children and compared their results with that of a healthy control group to determine the relationship of anxiety and depression scores to epilepsy related factors. They reported that symptoms of depression and anxiety are common among epileptic children, especially during puberty.
In an evaluation of treatment of anxiety in epilepsy Scicutella and Ettinger (2002) found that the association of anxiety with epilepsy has been noted for centuries. Anxiety can occur at different phases of a seizure event and present with diverse clinical symptoms similar to those seen in panic, obsessive compulsive and generalized anxiety disorder. Johnson et al. (2004) conducted a study in the related impact of anxiety, depression and clinical seizure features on health related quality of life in epilepsy in which he found that the interictal anxiety and depression exert independent adverse effects on health related quality of life. Recognition and treatment of co morbid depression and anxiety is an important consideration in improving quality of life in epilepsy. Cramer and Brandeburg (2005) investigated differentiating anxiety and depression symptoms in patients with partial epilepsy and found that all health related quality of life domains worsen significantly with increasing levels of anxiety and depression. Regression analysis showed that anxiety and depression account for different properties of variance as predictors of health related quality of life. The data suggested that the patients may benefit from increased attention to the role of anxiety separately from depression.

In an examination of the symptoms of anxiety in pediatric epilepsy patients Ettinger et al. (1998) administered the revised Child Manifest Anxiety Scale on 44 epileptic patients aged 7-18 years. 16% met the criterion for significant anxiety symptomatology. They concluded that the symptoms of anxiety are common among pediatric patients with epilepsy and appear to be overlooked by care providers. But some studies report that anxiety is more frequent compared with normal controls and patients with other chronic diseases (Perini et al., 1996; Kanner 2002; Gaitatzis et al. 2004). Researches reveal that epileptics suffer with greater anxiety (Astejada, Jamora, Ledesma & Bacsal, 2004). Beyenburg, Mitchell, Schmidt, Elger and Reuber (2005)
also supported presence of anxiety among epileptics. Gomez et al. (2008) conducted a study on Clinical presentation of anxiety among patients with epilepsy and found that epileptics had a high score on anxious mood. The studies also show that in general, children with epilepsy display more anxiety symptoms than other problems such as acting out and conduct problems (Ott et al., 2001; Caplan et al., 2004).

Adesina et al. (2007) found that the level of anxiety among younger epileptics was higher than among older epileptics and those who perceived the illness, as highly stigmatizing exhibit higher level of anxiety disorder than those who either perceives it as moderately or less stigmatizing. Goldstein and Harden (2000) concluded that co morbid anxiety and epilepsy offers a potentially rich nexus for theoretical and empiric investigation of the neurocircuitry and psychological mechanisms underlying each phenomenon.

Findings of the present study also report that epileptic patients have low subjective well being as compared to the normal adults (Table 12). This supports the hypothesis that subjective well being of epileptic patients will be low in comparison to the normal adults. Collings (1990) reported that epileptic patients have low well being in general. Baker et al. (1997) conducted a study on current issues in the management of epilepsy and indicated that a common clinical factor, seizure frequency, is closely associated with quality of life, and mortality.

Studies reporting outcomes after epilepsy indicate positive treatment effects in broad areas of function and well being. Although few trials of epilepsy drugs have included health outcome instruments, available studies suggest that greater than 50% seizure reduction is associated with improved quality of life (Gilliam, 2003). On the other hand when Norrby (2003) investigated self assessment of well being in a group
of children with epilepsy he found that the group of children with controlled epilepsy did not differ significantly from the age matched controlled groups. Thus the well-being of children with controlled epilepsy seems to be similar to that of children from the control populations.

Further studies on psychological well-being of people with epilepsy revealed that people with no co morbidity (no additional diagnoses) reported less psychological distress and greater satisfaction with life than those who reported additional diagnoses and the factor having the strongest impact on the psychological well-being of these people was medication side effects (Naess et al., 2007). Smith, Kelly, Kadis, Elliott, Olds, Whiting and Snyder (2011) examined self-reported symptoms of psychological well-being in young adults who underwent respective epilepsy surgery in childhood. They reported that forty-eight percent of all participants reported a history of psychological problems.

McLachlan, Rose, Derry, Bonnar, Blume, and Girvin (1997) examined health-related quality of life and seizure control in temporal lobe epilepsy. Pretreatment seizures and health-related quality of life were comparable in the two groups. Seizure outcome was significantly better at 6, 12, and 24 months after surgery. At 24 months, seizure-free patients and those with at least a 90% reduction in seizure frequency reported significant improvements in health-related quality of life (on 5 of 10 subscales and overall Epilepsy Surgery Inventory 55 scale). Deterioration in quality of life occurred with less than 90% seizure reduction. Patients with good seizure outcome experience improved health-related quality of life after treatment.

While constructing a health related quality of life instrument for patients evaluated for epilepsy surgery Vickrey et al. (1992) found that the patients who were
seizure-free following surgery scored higher than the patients who continued to have seizures. Patients having seizures without loss of consciousness scored in between. However, Vickrey, Hays, Rausch, Sutherland, Engel and Brook (1994) while evaluating quality of life of epilepsy surgery patients as compared with outpatients with hypertension, diabetes, heart disease, and/or depressive symptoms, they found 55 completely seizure-free patients scored higher (i.e., better health) than patients with hypertension in 6 of 9 domains, higher than diabetic patients in 8 of 9, higher than those with heart disease in all 9, and higher than those with depressive symptoms in all 9.

Several studies have found that depression or psychological distress may be the strongest predictors of health-related quality of life, even including seizure frequency and severity, employment, or driving status (Gilliam, Hecimovic & Sheline, 2003). Guekht, Mitrokhina, Lebedeva, Dzugaeva, Milchakova, Lokshina, Feygina, Gusev (2007) also found that frequency of seizures was the most significant parameter related to quality of life. Duration of disease also correlated with quality of life total score. Birbeck, Hays, Cui, and Vickrey (2002) carried out a study on seizure reduction and quality of life improvements in people with epilepsy. Subjects who became seizure free reported significantly more positive change than those who did not. Davies, Heyman, and Goodman (2003) reported emotional, behavioural, and relationship difficulties are common in children with epilepsy, and this constitutes a significant burden to the children and their families, indicating the need for effective mental health services for these children.
**Differential Impact of Income, Education, Family Environment, Anxiety Sensitivity and Stressful Life Events on Subjective Well being of Epileptic Patients and Normal Adults**

The mean comparison between epileptic patients and normal adults on stressful life events, anxiety sensitivity and dimensions of family environment provided us with an insight that both the groups had reported crucial information on these variables, especially on those dimensions of family environment that were related to the affective/emotional aspect (i.e. cohesion, expressiveness and independence). On the dimensions of competitiveness and organization, both the groups had similar perceptions. Moreover among demographic variables family income (Table 9) and education (Table 22) were found to play a significant role in subjective well being of the respondents. It was this picture which made us explore the nature of well being of both the groups on different levels of income, education, family environment, anxiety sensitivity and stressful life events.

For this purpose intra group comparisons of well being were made on family environment, anxiety sensitivity, and stressful life events. Two subgroups were created on the basis of the 50th percentile for both epileptic and normal group. This was done by taking first percentile as low and the other one as high.

When the normals were divided on the basis of income (Table 13) it was found that adults with low income were found to have lower subjective well being and adults with high income were found to have higher subjective well being whereas no significant difference in subjective well being was found amongst the epileptic groups coming from different socio-economic background. Researches did highlight that the family environment is greatly influenced by economic pressure (Yoder & Hoyt,
Duncan and Brooks-Gunn (1997), reported that children in families with low incomes (less than 200 percent of the federal poverty thresholds) are at greater risk of poor cognitive, health, and social outcomes than children in families with higher incomes. However according to Diener, Sandvik, Seidlitz and Diener (1993) there is no evidence regarding the influence of relative standards of income. It appears that income helps individuals meet certain universal needs and therefore, at lower levels income is important for subjective well being (Veenhoven, 1988). Horwitz (1984) also reported that lower income and loss of income both have sometimes been related to psychopathology.

Furthermore when epileptic patients were divided on the basis of education (Table 14) no significant difference was found in the experience of subjective well being implying that both the groups have almost similar scores on these variables. Similar findings were found in case of normal adults.

Subjective well being of respondents was not only affected by various aspects of the family environment but it varied as a result of the degree to which it was perceived as high or low on various aspects. In case of epileptics, when the group was divided on the basis of competitive framework no significant differences were found on subjective well being (Table 15). Similarly no significant difference on subjective well being was seen in case of normal adults, implying that the subjective well being of both the groups was not much affected differentially by the level of competitiveness in the family.

On the other hand when the cohesiveness in the family environment was tested a significant difference was found between the two groups on subjective well being (Table 16) among epileptics. Patients from low cohesive families reported lower
subjective well being as compared to the patients with higher cohesive families. Similar findings were reported by the normal adults, that is adults with less cohesiveness experienced less subjective well being as compared to the adults with high cohesiveness in the family.

On dividing the epileptic group on the basis of expressiveness in the family (Table 17) it was found that the patients coming from less expressive family environment experienced lower level of subjective well being as compared to those coming from more expressive families. Similar findings were obtained in case of normal adults, that is, a decrease in the expressiveness in the family environment resulted in a lower subjective well being of the respondents. McCusker et al. (2002) investigated the adjustment in children with intractable epilepsy in relation to the importance of seizure duration and family factors. Intra familial relations were not only found to be associated with adjustment difficulties in the child, but also with frequency of seizures themselves. Zeigler (1982) concluded that seizure may distort negotiations in the family by affecting the parent’s and child’s transaction over issues related to the child’s autonomy and competence. This alteration of the familial process creates a skewed context for the epileptic’s development. Sensitive family treatment may often be necessary to restore comfortable parental management and help the individual and the family deal more adequately with life and specific disability. Austin, Dunn, Perkins and Shen (2006) found that, greater family mastery, child seizure was related to more positive attitudes in epileptic patients. Austin, Perkins, Johnson, Fastenau, Byars, deGrauw, and Dunn (2010), in their study revealed that better family functioning and greater parental support protected against decline in self-esteem.
Results also suggest that the patients who are given less independence in their families experience less subjective well being. However those who are given more independence in the family experience higher level of subjective well being (Table 18). But when the control was compared on the basis of high and low independence in the family environment it was found that the both groups did not differ on subjective well being (Table 18).

Furthermore on the dimension organization it was found that epileptics with less organization in the family environment reported lower subjective well being as compared to those with more organized family environments (Table 19). Similar trend of findings were reported in case of normal adults. Austin, Dunn, Johnson, and Perkins (2004) studied the behavioural issues involving children and adolescents with epilepsy and the impact of their families. Deficient family mastery and parents’ confidence in managing their child’s discipline were associated with behaviour problems at baseline and at 24 months; they also predict child behaviour problems over time. Decreasing parent confidence in disciplining their child was associated with increasing child behaviour problems. Decrease in the parent emotional support of the child was associated with increase in child internalizing problems. Baun et al. (2007) reported that children who live in a family environment with low family mastery are at the greater risk for behavior problems.

In a study on family functioning in cognitively normal children with epilepsy in relation to impact of competence on problem behavior in which 82 epileptic children were compared with their normal siblings. It was concluded that in families functioning at the highest level both cohorts did well. In those at the lowest level approximately half of the children in either cohort had problems. For average functioning families behavior and competence issues were more frequent in children
with epilepsy then their siblings (Thornton et al., 2008). Ellis, Upton, & Thompson (2000) while explaining epilepsy and the family indicated that epilepsy may cause high levels of psychosocial difficulties for all family members, including stigmatization, stress, psychiatric morbidity, marital problems, poor self esteem and restriction of social activities.

Looking at anxiety sensitivity of normal adults no significant difference was found between both the groups (Table 20) whereas amongst epileptic patients a significant difference was found between high and low anxiety sensitive patients on subjective well being (Table 20). Less anxiety sensitive patients were found to experience higher level of subjective well being as compared to the high anxiety sensitive patients. Researchers have reported that epileptics experience greater anxiety (Gomez et al., 2008; Ott et al., 2001; Caplan et al., 2004). Cramer et al. (2005) found that all health related quality of life domains worsened significantly with increasing levels of anxiety. Frequency of anxiety in epileptics as compared with normal controls and patients with other chronic diseases was also reported by various researchers (Perini et al., 1996; Kanner, 2002; Gaitatzis et al., 2004; Beyenburg et al., 2005).

Available evidence suggests that comorbid anxiety disorders are frequent among patients with epilepsy but that neither the interrelationships between them nor the impact of anxiety disorders on functional outcome is well studied. The study and management of anxiety disorders are further complicated by the occurrence of seizures, the temporal relationship between seizures and anxiety symptoms/syndromes, and the influence of antiepileptic drugs. Increased recognition of anxiety disorders among patients with epilepsy and evaluation of the potential impact of these disorders on functional outcome and the beneficial and detrimental
effects of antiepileptic drugs in clinical practice are needed (Vazquez & Devinsky, 2003).

In a case study of 12-yr-old boy with epilepsy systemic desensitization treatment for anxiety associated with recurrent seizures, a combination of relaxation training and association of a cue word with the calm body state was employed to eliminate seizures. This resulted in avoidance of the onset of seizures and complete elimination of both grand mal and petit mal seizures. Long term follow-up showed no recurrence of seizures (Ince, 1976). Despite the wealth of epidemiological evidence showing the comorbidity of epilepsy with various forms of psychopathology, there has been little systematic investigation of its relationship with affective disorders. Survey data have suggested that patients commonly fear death and/or brain damage as a result of their seizures, but documented cases of seizure phobia are rare and infrequently address issues of treatment (Newsom-Davis, Goldstein, & Fitzpatrick, 1988). Haut, Hall, Masur and Lipton (2007) conducted a study on seizure occurrence of epileptic patients. They concluded that lack of sleep and higher self-reported stress and anxiety levels were associated with seizure occurrence. They also found that one-unit increments of stress and anxiety were associated with an increased risk of seizure the following day.

The findings of the present study also show that epileptic patients perceiving less stress from life events experience higher level of subjective well being as compared to those who perceive more stress due to life events (Table 21). However among normal adults no significant difference was found between high and low stressed groups.
Cyriac, Sureshkumar, Kunhikoyamu and Girija (2002) reported that the difference in mean scores of presumptive stressful life events scale and disability assessment schedule between epileptics with and without psychiatric diagnosis was not statistically significant. But there are many anecdotal reports that stress increases the frequency of seizures (Mattson, 1991). Detailed studies of groups of patients with careful charting of life events and emotional states show a definite relation between stress, emotional arousal, and frequency of seizures in some patients (Webster & Mawer, 1989). Temkin and Davis (1984) undertook a study on stress as a risk factor for seizures among adults with epilepsy. This study examined the effects of major life events, daily hassles and uplifts, and daily stress levels as they increase or decrease the risks of having seizures and estimates risk ratios for specific stressors and perceived stress levels. They reported that high stress levels and stressful events were associated with more frequent seizures for most participants. The association between higher stress levels and increased seizures was confirmed. Similarly Roth, Goode, Williams and Faught (1994) had also highlighted that life events did influence psychological well being and social functioning of epileptics. Fenwick (1991) also reported that for most patients more stress leads to more seizures, although in a few the opposite is the case.

**Predictors of Subjective Well being among Epileptic Patients and Normal Adults**

The overall objective of this study was to find out the impact of anxiety sensitivity, stressful life events and family environment on subjective well being of epileptic patients and normal adults. The findings show that anxiety sensitivity along with the extent to which family environment was organized played a crucial role in determining the well being of epileptic patients. Apart from the psychological variables education also emerged as a significant predictor. On the other hand
amongst normal adults the well being was affected by anxiety sensitivity, stressful life events and family dimensions of organization and cohesion. Gender emerged as a significant predictor for normals.

Engelberts, Klein, Ploeg, Heimans, Ader, Boxtel, Jolles, Nolst and Trenite (2002) conducted a study on health-related quality of life in a well-defined subgroup of patients with partial epilepsy and were compared with matched healthy controls. They did not report any significant relationship of gender and education with health related quality of life. Mosaku, Fatoye, Komolafe, Lawal and Ola (2006) in their study reported that the factors significantly associated with overall quality of life included being female, seizure frequency, using more than 1 anti-epileptic drugs, high anxiety, and high depression score.

Further the results show that the epileptic patients from more organized family environment or those in whose family rules and regulations are given more importance experience greater subjective well being. Similar results were found in case of normal adults. But organization in the family environment is a stronger predictor of subjective well being of normal adults as compared to the epileptic patients. The results further show that subjective well being of normal adults is also significantly predicted by cohesion in the family unlike the epileptic patients. Krawetz, Fleisher, Pillay, Staley, Arnett and Maher (2001) investigated family functioning in subjects with pseudo seizures and epilepsy. Individuals with pseudo seizures view their families as being more dysfunctional, particularly in the area of communication, whereas their family members perceived difficulties in defining roles. This suggests that family education and interventions focusing on these areas may be an important aspect of the treatment of patients with pseudo seizures. Curt LaFrance, Alosco, Davis, Tremont, Ryan, Keitner, Miller, and Blum (2011) examined
impact of family functioning on quality of life in patients with psychogenic nonepileptic seizures versus epilepsy. Mean family general functioning fell in the unhealthy range in participants with epileptic seizures or psychogenic non epileptic seizures. On further analysis, male participants in each group endorsed unhealthy levels of family functioning compared to female participants. It is suggested that the family environment may be an important intervening factor between the condition and the outcome for the family unit (Ellis, Upton & Thompson, 2000). Austin, Dunn, Perkins and Shen (2006) while developing a model on youth with epilepsy found that less child worry, greater family mastery, and greater child seizure self-efficacy was directly related to more child positive attitudes. Further, Austin, Risinger and Beckett (1992) discussed correlates of behavior problems in children with epilepsy. They found that five variables that contributed significantly to prediction of behavior problems: female gender, family stress, family mastery, extended family social support, and seizure frequency. These factors accounted for 29% of the variation in behavioral problems. Their findings suggest that family variables are important correlates of behavior problems and should be considered in clinical management of children with epilepsy.

It is also clear from the findings that greater anxiety sensitivity decreases the subjective well being of both epileptic patients and normal adults (Table 22). But among epileptic patients anxiety sensitivity was a stronger predictor of subjective well being as compared to the normal adults. Fiordelli et al. (1993) conducted a cross sectional study on epilepsy and psychiatric patients and reported that anxiety and depression were the predominant diagnosis in both groups. Johnson et al. (2004) conducted a study in the related impact of anxiety, depression and clinical seizure features on health related quality of life in epilepsy in which he found that the
interictal anxiety and depression exert independent adverse effects on health related quality of life. Recognition and treatment of comorbid depression and anxiety is an important consideration in improving quality of life in epilepsy. Baki et al. (2004) investigated anxiety and depression in children with epilepsy and revealed that the children and adolescents with epilepsy have higher frequency of depressive symptom in comparison to anxiety symptoms in the general population of healthy children.

Caplan, Siddharth, Gurbanis, Hanson and Shields (2005) studied depression and anxiety disorders in pediatric epilepsy and showed that significantly more patients had affective and anxiety disorder diagnosis (33%) as well as suicidal ideation (20%) than did the normal group. Anxiety disorder was the most frequent diagnosis among patients with a diagnosis of affective or anxiety disorders, and combined affective/anxiety and disruptive disorder diagnosis. This finding highlights the importance of early detection and treatment of anxiety disorders in children with complex partial seizures and childhood absence epilepsy. Beyenburg, et al. (2005) also investigated anxiety in patients with epilepsy and found that the relationship between anxiety disorders and epilepsy is complex. Despite the high prevalence of anxiety disorders in patients with epilepsy, there are no systematic treatment studies or evidence base guidelines for best treatment practice. Nevertheless, a practical approach based on the temporal relationship between anxiety and epileptic seizures allows clinicians to consider appropriate treatment strategies to reduce the psychiatric co-morbidity in patients with epilepsy. Bilqic, Yilmaz, Tiras, Deda, and Kilic, (2006) investigated depression and severity of anxiety symptoms in a group of children with epilepsy and related factors in which he compared 30 epileptic children with healthy controls and found that state anxiety scores of epileptic group were significantly
higher. No significant relationships were found between patients and controls in terms of trait anxiety and depression scores.

Kobau, Gilliam and Thurman (2006) investigated prevalence of self reported epilepsy or seizure disorder and its associations with self reported depression and anxiety and the finding highlights the burden of self reported depression and anxiety among adults with self reported epilepsy or seizure disorder and suggest that health care providers should attempt to determine whether adult patients with epilepsy have any psychiatric co morbidity potentially to improve health outcomes. Schuler and Kalb (1994), in their study on anxiety attacks and epileptic seizures also reported that panic attacks may have an epileptogenic background and should be taken into account in differential diagnosis. Altshuler, Devinsky, Post and Theodore (1990) explored the association between anxiety, depression, and lateralization of an epileptogenic focus in 18 adult patients with a left temporal lobe focus, 21 with a right focus, 20 with bilateral temporal foci, and 16 individuals with absence seizures. No significant difference in the level of anxiety was found among the groups. However, Torta and Keller (1999), Munthe-Kaas and Strandjord (1973), Adewuuya and Ola (2005) and Malmgren, Sullivan, Ekstedt, Kullberg, and Kumlien (1997) reported the presence of anxiety symptoms in epileptic patients. Devinsky, Barr, Vickrey, Berg, Bazil, Pacia, Langfitt, Walczak, Sperling, Shinnar and Spencer (2005) conducted a study on changes in depression and anxiety after resective surgery for epilepsy. They reported moderate and severe levels of anxiety in 24.7% of their sample. Studies also show that measures of anxiety are higher in patients with uncontrolled epilepsy (Dalrymple & Appleby, 2000).

There has been remarkably little research into the mechanism of depression and anxiety in epilepsy, and even less of its treatment. Most epilepsy clinics are
overloaded with referrals and the consultation naturally tends to focus on the patient’s seizures and treatment thereof; but it is vitally important that doctors treating people with epilepsy are able to recognize the symptoms of anxiety (Jackson and Turkington, 2005). While working on everyday memory failures in people with epilepsy Thompson and Corcoran (1992) reported associations of failures with anxiety and depression. Biraben, Taussig, Thomas, Even, Vignal, Scarabin and Chauve (2001) conducted a study on as the main feature of epileptic seizures. They reported that diagnosis of epileptic seizures could be associated with the symptoms of fear sensation and coordinated behavior suggests disturbance of a particular system. According to Kannar (2004) anxiety is among the frequent co morbid psychiatric disorder identified in patients with epilepsy. They also postulated that the clinical manifestations of this disorder vary according to their temporal relation relative to seizure occurrence. Williams et al. (2003) also found mild to moderate symptoms of anxiety in 23% of the patients of epilepsy. It is now recognized that anxiety can have a profound influence on the quality of life of patients with epilepsy.

Conclusions and Implications of the Study

The main findings of the study very clearly highlight that anxiety sensitivity along with family environment plays an important role in determining the well being of epileptics as well as normals. Looking at the results it appears that cohesion, independence and level of organization in the family had positive impact on well being of patients while expressiveness had reverse impact. For normals expression was not significantly related to well being but cohesion, independence and organization was positively and significantly related to well being. In case of normals competitive framework was negatively related to well being but it was not significantly related to well being of epileptics. This highlights the fact that no doubt
the nature of family environment affects well being of its inmates, but different aspects are important for different family inmates. The nature of expressiveness in family having an epileptic patient may get affected differently or become more emotionally affected which may be disturbing for the patient. Future research needs to explore this angle. It also needs to be investigated as to how the family environment acts as a buffer for patients against fear and stressors of life.

Of all the predictors anxiety sensitivity emerged as a powerful predictor for well being. As epilepsy is a neuropsychological disorder the major shortcoming of intervention and treatment programs are that their main attention is more on the neurological aspect and often the psychological aspect gets neglected. This finding highlights the fact that the psychological domain is also very important. Management of anxiety sensitivity through various desensitization programs will go a long way in the treatment of epileptic patients.

Limitations of the Study

Though the present study contains crucial information about epileptic patients, it has some limitations. One major drawback of the study was that no attempt was made to distinguish the different types of epilepsy. Those patients who were simply diagnosed of epilepsy were taken in the sample. As epileptic patients suffer from both generalized and partial seizures this difference could have been incorporated to see whether it accounted for difference in well being of these patients.

An attempt was made to study the impact of family environment on well-being. The perception of the patients as well as normals was taken but in future one needs to explore the family dynamics more comprehensively to get a clear picture. Also the attitude of family members towards the patient should also be measured.
The present study had 150 epileptic patients and 150 normal adults but on various demographic backgrounds there were not comparable as variations were seen in background details. Further it became difficult to explore the nature of linkages between variables due to the small sample. As the association between anxiety sensitivity and well-being appears complex one need to explore the role of intervening variables.

Epilepsy is a neurological disorder and it would be interesting to explore how the neurological functioning affects the psychological aspects of epileptics and in turn gets affected by it. In this study no attempt was made to address the neurological aspects. In order to get a holistic picture one needs to measure the neurological problems along with the psychological state of epileptic patients.