CHAPTER I

INTRODUCTION

Epilepsy is a chronic condition that affects an individual irrespective of age, sex, education and occupational status.

An epileptic seizure is a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain. Epilepsy is a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures and by the neurobiological, cognitive, psychological, and social consequences of this condition. The definition of epilepsy requires the occurrence of at least one epileptic seizure.

- ILAE

According to WHO around 50 million people worldwide are diagnosed with epilepsy and 80% of the patients having epilepsy are found in the developing countries. In some developing countries about 6 to 10 in 1000 are diagnosed and having epilepsy. The World Health Organization, International League Against Epilepsy and International Bureau Against Epilepsy began the global campaign against epilepsy in the year 1997 with the theme ‘Out of the shadows’ in order to improve acceptability, treatment, services and prevention of epilepsy around the world, in particular to reduce the treatment gap. According to the Epilepsy Atlas (2005) brought out during this campaign, among the 108 countries that participated contributing to 85.4% of the world’s population, the mean prevalence of epilepsy
was 8.93% per 1000 which was similar to that found in Bangalore Urban Rural Neuroepidemiological Survey (BURNS, 2004) covering a population of 102,557, the prevalence rate was 8.8 per 1,000 population, with a rural prevalence of 11.9 and in the urban areas it was 5.7. The prevalence was more in the rural areas than in the urban areas. The worldwide prevalence of active epilepsy was found to be 4 and 10 per thousand population. A comparison of studies done from 1988 to 1999 have identified the treatment gap to range from 29% to 74.5% with the cause for the treatment gap being cost of treatment, lack of identification of cases and failure to deliver treatment to the identified cases (Barucha, 2003).

Incidence of epilepsy was about 40-70 per 100,000 in the developed countries and 100-190 per 100,000 in the resource poor countries. (Aiden, 2011).

The prevalence rates of epilepsy in India obtained from a meta-analysis of 20 published and unpublished studies revealed that the overall prevalence per 1000 was 5.59, men 6.05, women 5.18, urban 6.34, and rural 4.94. (Sridharan, Murthy, 1999). Age-specific prevalence rates were higher in the younger age group, with the onset of epilepsy in the first three decades. There are 10 million people with epilepsy in India contributing to 1% of the Indian population.

As per the ICMR and National Institute of Mental Health and Neuro Sciences, Karnataka the statistics in India for epilepsy are

1. Bangalore; (Neuroepidemiology, 2004): Prevalence rate = 8.8 / 1,000
2. West Bengal (Kolkata; Epilepsia 2010): Prevalence rate = 5.7 / 1,000
3. Kerala (Trivandrum, Epilepsia 2000): Prevalence rate of 4.9/1,000
5. Maharashtra (Mumbai, Parsi community, 1988): Prevalence rate = 3.9/1,000

(Ministry of Health and Family Welfare, 29 December 2012)

Banerjee et al. (2010) determined the incidence, prevalence, and mortality rates of epilepsy in the city of Kolkata, India in a door-to-door survey among a population of 52,377, the prevalence was 309 and the incidence was 66 active cases of epilepsy, after standardization the Average Annual Incidence Rate (AAIR) was found to be 572.8 (509.79-641.54) per 100,000 and 27.27 (21.03-34.80) per 100,000 per year.

Saha et al. (2008) in a survey over 5 years to determine the incidence of epilepsy in rural community of West Bengal, India identified 38 cases in a population of 20,966. The age adjusted average annual incidence rate was 42.08 per 100,000 people per year. The common cause being cerebral infection.

Radhakrishnan et al. (2000), in a three-phased survey among a population of 238,102 in a semi-urban locality of central Kerala identified 1,175 cases (616 males and 559 females) with active epilepsy providing a crude point prevalence ratio of 4.9 cases per 1,000 people and an age-adjusted prevalence ratio of 4.7 cases per 1,000 people. The age-specific prevalence rate was highest between 10- to 19-years being 6.5 per 1,000. The proportion of generalized and localization-related epilepsies were 58.8% and 30.6% respectively.

Epilepsy accounts for 0.5% of global disease burden. This includes the Disability Adjusted Life Years (DALY’s) that accounts for the years of life lost due to premature mortality, number of days lost in less than normal, healthy social and
economically productive living, without taking into account that caused due to effects of stigma.

Global Epilepsy Awareness Day is observed on 26th March as initiated by the Epilepsy Association of Nova Scotia. It is observed as the purple day, the color lavender signifying isolation. The National Epilepsy Day in India is observed on November 17th every year as per the guidelines of Indian Epilepsy Association (IEA) which was decided during the general body meeting held at Indore, on 17th December 1990. This day is observed with the view of disseminating information and promoting awareness by holding lectures, audiovisual shows, exhibitions, seminars, paintings and competitions.

The causes, signs and symptoms, management and the impact of seizures vary across individuals. It is mostly idiopathic in onset and is seen in 6 out of 10 PWE, with an underlying genetic basis. Epilepsy has an impact on the physical, psychological, social and economic well-being of an individual. There is either overprotection from the family members or a sense of indifference that nothing can be done.

The difference between the other chronic conditions and epilepsy is its sudden occurrence that could cause injury to the individual and discomfort to those around him. Epilepsy is otherwise known as the hidden condition. This in turn causes prejudice about the condition and affects the individual in terms of education, employment, marriage and family. The level of knowledge and social acceptance has significantly improved but these need to be integrated into the day-to-day life of the PWE and their caregivers.
1.1 NEED FOR THE STUDY

Chronic illnesses as diabetes, hypertension and asthma have received a wide attention and have become conditions that patients talk about and clarify their doubts but epilepsy is one such condition that both the general public and the patients with epilepsy still have certain restrictions to talk about.

Information needs of individuals with epilepsy varies at different points of time and is based on the severity, frequency, age, impact of the condition, gender, marital status and social outlook of the problem.

Epilepsy had affected 65 million patients worldwide of whom 80% were from the lower middle income countries (Mbuba, 2009). The treatment gap in epilepsy is influenced by limited knowledge, poverty, cultural beliefs, stigma, poor health delivery infrastructure and shortage of trained healthcare workers. The indirect effects of epilepsy are more. The individuals with epilepsy do not necessarily have to cope with the condition alone but also with the effects of the medication that affects their day-to-day activities. Education and counseling of PWE is important.

In a qualitative study done by Prinjha, Chapple, Hexheimer and Mc Pherson (2005) among 35 patients with epilepsy and 3 carers of people with epilepsy in UK found that patients obtained information on epilepsy from health professionals, epilepsy organizations, leaflets, booklets, and through the internet. They wanted to know more about their condition, causes, treatment options, advantages and disadvantages of drugs.
The unmet needs of the patients ranged from information on the cause of epilepsy, investigation, findings, need for starting with a new drug or a change in the existing medication dosage, long term effects of the medications such as the need for more calcium intake, concerns about pregnancy and childbirth, impact of antiepileptic medication on the contraceptive pill intake and specific triggers. The authors concluded that one source of information alone cannot meet the needs of the patients.

Epilepsy has an impact on different areas of one’s life. It affects self and may lead to lower self esteem, anxiety and depression. The impact on family is stress, increase in divorce rates and poor relationships. The effects of AED’s as drowsiness, memory and attention problems can affect the education of an individual. The rate of unemployment is found to be 50% in the developed countries and 100% in the developing countries in uncontrolled epilepsy.

Social relationships are affected either by over dependency or overprotection. Low self esteem affects the sexual relationships. In women hormonal changes affects the frequency of seizures; women are also worried about pregnancy and childbirth due to the fear of genetic predisposition. It is found that epilepsy affects the overall Quality of Life. (Hills, 2007)

Thompson et al. (2008) in a qualitative study in UK among 15 women found that women reported of inadequate information or delayed information for appropriate action.

Bell, Nashef, Kendall, et al. (2002) in a questionnaire study among 795 women with epilepsy and women of child bearing age identified that 38.48% had
received information about contraception, pregnancy, folic acid and teratogenicity. 24% had received information about vitamin K, child care and breast feeding.

In another study done by Poole et al. (2000) determined the patients perspectives of services for epilepsy in UK among 4620 PWE, 2394 responses were received to the questionnaires stating high level of satisfaction with the primary care and the hospital care both for overall and for specific aspects with two major shortcomings, the first being few respondents felt that their care was shared between hospital and GP. Secondly, provision of information about epilepsy was perceived to be poor, particularly by the elderly. The older age group were more satisfied with and preferred primary care. The reasons for preferring primary care were that they were more personal and the GP was more familiar with them. The secondary care was preferred because the hospital doctor knew more about epilepsy.

Moran et al. (2004) in a study on Epilepsy, the seizure frequency and severity, anti-epileptic drug utilization and its impact on life using a postal questionnaire for 3455 patients with epilepsy on AED’s in the UK, found that among 1652 completed replies the mean age of first seizure was 25.1 years, mean duration was 19.7 years, there was a significant decrease in seizure frequency with increase in age, 68% of PWE received monotherapy. Those taking multiple AED’s reported more adverse effects and worse seizure control. The major effects of epilepsy on life were work, school difficulties, driving prohibitions, psychological and social life. This varied with age and severity of the seizures.

Kobau (2007) on analysis of the data from adults ≥ 18 years (n = 41494) who participated in the California Health Interview Survey (CHIS, 2003) found that 1.2%
were not told that they had a seizure disorder, 0.7% were classified as having active epilepsy. The patients with epilepsy were found to have worse general health status. They were more likely to be unemployed and live in lower-income households. Adults with active epilepsy with recent seizures reported two weeks of poor physical on mental health and activity limitation days were higher than those compared to individuals without epilepsy. Among adults who had suffered a seizure within three months, about one-quarter reported of not taking any medication for their disorder. 1/3rd reported physical disability / inability to work compared to the general population but majority had a regular source of medical care. The authors concluded that patients with epilepsy had unmet physical and mental health needs, and stress on interventions as improved access to mental health care, job training and self-management programs in order to improve health outcomes in patients with epilepsy.

A follow-up of the CHIS on assessment of the diet exercise, health behaviors and risk factors found that PWE were less (physically) active, drink more soda and eat less salad. Health promotion behaviors have to be encouraged among PWE.

Meyer, Dua, Saxena, & Birbeck (2009) in a systematic review of global disparities in epilepsy from 1st January 1987 to 1st September 2007 found that the treatment gap in India ranged from 22% in the urban middle income population to 90% in the rural villages.

Educational programmes that were found to have an impact on the PWE included the Modular Service Package Epilepsy (MOSES, 2002) program which was a controlled randomized study among 242 patients which found that there was a
significant improvement in epilepsy knowledge and the coping with epilepsy. There was an improvement in seizure outcome, ability to express emotions, information seeking, and tolerability of AED treatment.

Sepulveda Epilepsy Education (SEE, 1990) found that a psycho educational approach had reduced the fear of seizures, misinformation, misconception and caused a decrease in hazardous self-medication.

Ridsdale, Kwan and Cryer (2000) identified the effect of a nurse specialist on patients knowledge about epilepsy and satisfaction with the advice provided and psychological well-being among 90 people with new epilepsy. The findings revealed that lower knowledge of epilepsy was seen in those PWE who had a lack of school leaving examination pass. Fewer than half the patients reported of having been given enough advice on epilepsy, and there were important differences in patients’ knowledge about epilepsy at baseline. There were significant differences in the group who, at baseline, had knowledge scores in the lowest quartile; those randomized to the nurse had higher level of knowledge scores (42.7 vs. 37.2; p < 0.01). The nurse was highly rated for providing clear explanations.

Bradley (2008) in a review of 13 trials and 16 reports in UK with seven papers on five trials of epilepsy specialist nurse found that the care delivery and health management strategies or the interventions that were reported to have some benefits were the presence of an epilepsy specialist nurse and self-management education.
Helde (2005) in a study on a structured nurse led educational intervention among PWE found that there was an improvement in the QoL and in dimensions as health discouragement, medication effects, physical role limitation and depression.

The International scenario and the Indian scenario were not very different in terms of the needs of PWE.

**INDIAN SCENARIO**

In India PWE have encountered varied needs and problems. They ranged from social, economical, legal, health, family, accessibility and appropriate use of health care resources.

**Legal**

In India the laws as that of marriage and grounds for divorce, employment restrictions, driving restrictions are significant in PWE. The marriage law amendment act of 1999 has given the rights of marriage for PWE. An individual with epilepsy had constraints regarding eligibility for marriage. A marriage could be annulled on the basis of the presence of epilepsy. This act had undergone amendment in 1999 due to the efforts by the Indian Epilepsy Association.

The meta analysis by Sridharan (2002) brought out the psychosocial outcome of poor schooling, unemployment and being unmarried which was more prevalent among PWE. Radhakrishnan et al. (2000) in a community survey at Kerala identified that 40% of the people felt that PWE could not be properly educated or employed.
The issuance of driving license to individuals with epilepsy was restricted, as per the Motor Vehicle Act of 1939 the individuals with epilepsy were not given the driving license, even if a person had a seizure only once in his entire lifetime. In 1994 the word epilepsy was rescinded from this act, yet there are no proper guidelines regarding epilepsy and driving in India. The Indian Epilepsy Association (IEA) tries to bring amendments for the safety of the PWE and the public. The persons with epilepsy should not drive commercial vehicles. In order to have a drivers license or leaner permit the seizures must be well controlled. The Delhi Traffic Police have stated that the individuals should have a seizure free period of two years, but this varies with the type of seizures and individual circumstances the details of which are given in http://www.delhitrafficpolice.nic.in.

**Management**

Sinha et al. (2012) identified that among 315 PWE attending a tertiary care hospital at Kolkata the healthcare-seeking behaviors revealed that more than 90% sought healthcare after the onset of a seizure, majority of them opted for allopathic medicine and the cause for not seeking initial care from allopaths were ignorance, faith in another system and constraints of money. The mean treatment gap was 2.98 ± 10.49 months and the chief motivators were the family members.

Pal et al. (2008) determined the psychosocial, demographic, and treatment-seeking strategic behavior, including faith healing practices, among patients with epilepsy in northwest India using an interview schedule from 400 patients at PGIMER, Chandigarh and found that socio-economic status did not affect epilepsy and early onset of epilepsy <20 years reduced the chances of finding a spouse
especially if condition was disclosed, 80% of the patients sought medical treatment on the very same day or within a week of onset of seizures, 94% of the affected families did not hide the condition from others, only 7.5% admitted that they consulted a faith healer. The fear of having a child with epilepsy or other abnormalities discouraged married patients from becoming pregnant after developing epilepsy.

Das et al. (2007) identified the socio-economic factors causing discontinuation of the treatment of epilepsy among 1450 patients, in a duration of one year 42.75% (620) PWE discontinued their treatment resulting in recurrence of seizures. The causes attributed were cost of treatment in 90%, unemployment in 29.09%, frustration and despair in 20%, non availability of medicines locally in 20.09%, spiritual illusional thoughts about epilepsy 17.27% and marital disharmony in 10%.

Thomas et al. (2001) identified the epilepsy management practices and utilization of various medical services for epilepsy at six cities in India among 285 PWE which revealed that the epilepsy services were urban based. Very few patients received services from clinical psychologist or social worker. The mean age of onset of epilepsy was 14.8+11.1. The mean delay in diagnosis was 1.5 +/- 4 years. Mean distance from place of residence to the consulting neurologist was 70 +/- 82 km. 75.5% were on monotherapy.

Thomas et al. (1996) determined the management and referral pattern of epilepsy using a structured questionnaire among 100 epilepsy patients in Kerala, India which showed that 61.4% of them were living in villages; 65% had a monthly income less than Rs.1000. 75% of the patients had generalized seizures. The mean delay in diagnosis was more for those from villages (13.5 months) as compared to those from
urban areas (6.4 months). 39% of the patients required hospitalization for control of seizures that was significantly (P = 0.036) higher among those living in an urban area. 75% of the patients were collecting drugs from private pharmacies. Though government hospitals provide AED’s free of cost no patient was collecting antiepileptic drugs from government institutions even though such a facility was available within 5 kms of their residence.

Economic

Thomas et al. (2001) evaluated the economic burden of epilepsy among 285 patients from 6 centers attached to University hospitals and found that the direct cost was INR Rs.3,725 and the indirect cost was Rs.10,031. The direct costs include consultations, investigations, sickness, hospitalization and cost of travel to clinics. The indirect costs include the working/wage days lost both for the individual and family, complications and attendance to clinics. The economic burden imposed by epilepsy for the nation is 68.75 billion INR. The annual economic burden of epilepsy in India is 88.2% of GNP per capita and 0.5% of the GNP.

The impact of epilepsy is also seen on the employment. Varma et al. (2007) found that among 202 PWE at Kerala compared with 19% of the general population, 58% of persons with epilepsy were unemployed. The causes for unemployment among PWE ranged from seizure related falls 34%, fatigue and drowsiness due to AED’s 46%, fear of seizures in the workplace 44%, low education because of epilepsy 41%, frequent seizures 36%, denied job 32%, lack of motivation 32%. Remission of seizures for ≥ 2 years, monotherapy, better education, ability to travel alone, and ability to drive were significantly associated with being employed.
Disclosure of epilepsy to employers and co-workers did not adversely affect employment for the majority. The researchers suggest that optimum seizure control, support in job seeking, reduction of fear of seizures and falls, identifying individual abilities and limitations may reduce employment concerns.

**Knowledge of epilepsy**

Gourie-Devi, Vijander & Kiran (2010) determined knowledge, attitude and practices among PWE who attended a tertiary hospital in Delhi, India identified that among 120 PWE, though majority of PWE belonged to low socio-economic strata, the literacy rate was high 70%. 94% had heard about epilepsy 91% knew that epilepsy could be treated by modern drugs, there was a positive attitude towards education, employment, marriage and having children. Negative attitudes were seen in the belief that epilepsy was due to supernatural powers and previous sins. Comparison with 7 other studies done in India it was found that it is essential to reduce the misconceptions, promote awareness and understanding of the nature of illness, and give importance to issues as schooling, marriage and having children among PWE.

On assessment of the needs among women with epilepsy in Chennai, India by Lakshmi Narasimhan et al. (2007) among 85 women, majority were illiterate, had lesser education, more school stigma and less scholastic performance. Intake of AED’s was associated with reduction in scholastic performance. More women with epilepsy were unemployed and had problems at the workplace due to seizures. 25% of the women with epilepsy had problems in getting married as against 1% in controls. 70% of the women concealed epilepsy from their husbands, 28% had marital problems with increased incidence of divorce. More women with epilepsy were
infertile. Only 35% of women with epilepsy took AED’s and 12% had complications during pregnancy. Women with epilepsy had significant problems in breast-feeding, child rearing and fear of transmission to offspring.

Gopinath et al. (2000) in a questionnaire survey about doctor-patient communication, compliance and locus of control among South Indian people with epilepsy among 200 PWE, 113 males and 87 females, mean age 30.5 (range 18-67) years, over 1/3rd reported of insufficient information about epilepsy and its treatment, there was a significant positive correlation between better communication and compliance. The locus of control was found to be external hence it is essential to provide an appropriate and comprehensive communication to enable individuals to make informed choices, achieve better compliance and have a personal control of their problems.

The following studies indicate the need for education and continuous reinforcement on different facets of epilepsy based on the age, gender, type of seizures and the specific needs of the PWE.

**Quality of Life in epilepsy**

Shetty (2011) in a cross-sectional prospective study among patients with epilepsy at Belgaum, India of 60 patients; of whom 37 were males and 23 were females with age ranging from 18 to 56 (mean: 26.73 ± 10.81) years. Majority of the patients were younger than 30 years (<20 years = 26.7%, and 20–30 years = 38.3%). Eighteen study subjects were skilled workers, 16 did household work, 14 were students, 7 did business, 3 were professionals, and 2 were unskilled labourers. 53
respondents had formal education while 7 were uneducated. 45.65% of the study subjects were married. The mean duration of epilepsy was 7.44 ± 7.71 years. 38 patients had generalized tonic clonic seizures (GTCS), 9 had simple partial seizures, 8 had complex partial seizures, and 5 had juvenile myoclonic epilepsy (JME). 24 patients (40%) had up to five seizures till the time of interview; 19 had six to 25 seizures (31.7%) and 17 had more than 25 seizures (18.3%). Patients with complex partial seizures and JME had higher number of seizures. Majority had seizures during 10 months preceding the interview (n = 46; 76.7%) and 10 patients had seizures more than 20 months before the interview. 37 (61.67%) were on monotherapy, 18 were on two drugs and 5 patients received more than two drugs. Antiepileptic medication included phenobarbitone in 33 (55%), phenytoin in 20 (33.3%), valproate in 15 (25%), carbamazepine in 10 (16.7%), oxcarbazepine and clobazam in 4 each (6.7%), topiramate and lamotrigine in 2 each (3.3%).

The QoL scores ranged between 62.79 ± 22.27 to 86.62 ± 5.45. There was a negative correlation with increasing age and the QoL scores with significant correlations in bodily pain, emotional well-being, memory and language (P < 0.05). Overall mean QoL score revealed lower scores in female patients who had lower scores in health perception, physical, and emotional role limitation of daily living, bodily pain work/social function, attention/concentration, health discouragement, seizure worry, medication effects, social support, and social isolation. Married patients had lower quality of health score in all the subgroups of evaluation when compared with the unmarried patients of marriageable age. Patients with simple partial seizures had lowest overall QoL mean score followed by generalized tonic clonic seizure patients. Patients on monotherapy had better QoL than patients on
polytherapy. There was a reduction in the overall QoLIE scores with increasing duration of epilepsy. Control of seizure, monotherapy, and educating people regarding epilepsy would help in improving the QoL in patients with epilepsy.

Kumari et al. (2009) on evaluating whether exposure to treatment was associated with a decrease in the level of stigma in individuals with epilepsy and its relationship to Quality of Life among 15 newly registered PWE at Jharkhand, India, found that perception of stigma was strongly associated with epilepsy, but there was no difference between the treated and untreated groups with epilepsy. Stigma and Quality of Life were negatively correlated.

Research on the Quality of Life associated with successful treatment of epilepsy is far behind other chronic conditions. The research done on QoL is descriptive in nature and is mostly associated with impact of surgical management or medications as monotherapy or polytherapy. Self management among PWE in India has not received the due attention.

The researcher during interaction with patients with epilepsy found that they had varied information needs as how long to take the medications, the reason for drowsiness, bone pain, impact of the condition on marriage and child birth, reduced or sluggish activities, memory problems, frequent anger and irritability. The burden was also found to be high among the caregivers of PWE. The PWE were not only coping with the condition and its effects but also with the treatment and its effects which were significant.

It is therefore imperative that the PWE be given a chance to talk through their problems and get pertinent answers that may enable them to improve their lifestyles.
so that they become masters of their condition. This in turn prompted the researcher to take up the current study.

1.2 STATEMENT OF THE PROBLEM

A study to assess the effectiveness of a nurse executed epilepsy education program on Knowledge, Self-management and Quality of Life among patients with epilepsy.

1.3 OPERATIONAL DEFINITIONS

Epilepsy education program

Inculcating awareness of epilepsy by explanation, discussion and clarification on the nature of illness using an information booklet to 3-5 patients at a time for 25 minutes at neurology OPD followed by reinforcement.

Knowledge

Assessment of the awareness of epilepsy in terms of the condition, investigations, medications and activities as determined by the Epilepsy Knowledge Scale (EKS).

Self-management

Individual care-ability on the activities of daily living, appropriate use of information, medications, avoiding stimuli that cause an episode, management of seizures and lifestyle modification as determined by the Epilepsy Self management Scale (ESMS).
Quality of Life in epilepsy

Subjective feelings of the individual with epilepsy in terms of seizure worry, Quality of Life, emotional well-being, energy and/or fatigue, cognitive functioning, medication effects, social functioning and the overall life style as determined by the QoLIE31 and elicit seizure frequency from the seizure diary.

Patients with Epilepsy (PWE)

Individuals with history of at least one seizure during the last 6 months, regularly attending Neurology OPD at SRH.

1.4 OBJECTIVES

1. Evaluate the effectiveness of a nurse executed Epilepsy Education Program on Knowledge among patients with epilepsy.

2. Assess the effectiveness of a nurse executed Epilepsy Education Program on Self-management among patients with epilepsy.

3. Determine the effectiveness of a nurse executed Epilepsy Education Program on Quality of Life among patients with epilepsy.

1.5 HYPOTHESES

The alternative hypothesis formulated for the current study is:

H1: There is a significant difference in the knowledge among patients with epilepsy who participate in the nurse executed epilepsy education program than those who do not.
**H₂:** There is a significant difference in the Self management among patients with epilepsy who participate in the nurse executed epilepsy education program than those who do not.

**H₃:** There is a significant difference in the Quality of Life among the patients with epilepsy who participate in the nurse executed epilepsy education program than those who do not.

### 1.6 ASSUMPTIONS

- Individuals with chronic condition monitors own health.
- Long term medication influences health.
- Reinforcement promotes treatment adherence.
- Adaptation varies with health continuum.