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Impact of Pharmacist Assisted Patient Counselling in Improving Medication Adherence and Quality of Life in Epileptic Patients

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Abstract	Original Research Article

The objective was to assess the impact of patient counselling on quality of life and medication adherence. A prospective interventional observational study was conducted. Demographics and other relevant data were documented. Medication adherence and Quality of life were evaluated using the Medication adherence scale and Quality of life in epilepsy -31 questionnaire respectively. Multivariate analysis with a Chi-square test was used to observe the association between different variables and Antiepileptic drug adherence. We also evaluated the correlation coefficient between socio-demographic factors and Quality of life in epilepsy-31 sub-scales. Among 109 epilepsy patients, 17 patients had a high level of adherence, 52 patients with medium adherence, and 40 patients with low adherence to Anti-epileptic drug therapy. The mean (Standard deviation) score of the first and second follow-up of the Medication adherence scale was 4.50(1.80) and 5.23 (1.29) respectively which showed significant improvement in adherence. However, no significant difference was observed between adherence and gender, marital status, past medical history, family history, and social functioning. Significant changes were seen in the quality of life during follow-up. This study found that the majority of patients with epilepsy have optimal rates of Anti-epileptic drug therapy adherence and that forgetfulness is the primary reason for nonadherence among patients with epilepsy.
Keywords: Quality of life, Epilepsy, Medication adherence scale, Anti-Epileptic drugs.

INTRODUCTION

Epilepsy is a prevalent neurological illness that affects people of all ages and socio-economic backgrounds around the world. It is caused by abnormally high levels of synchronous or hyper-synchronous neuronal activity in the brain [1].

Epilepsy is defined by the International League against Epilepsy (ILAE) as a chronic brain illness characterized by an enduring proclivity to cause epileptic seizures, as well as the neurobiological, cognitive, psychological, and social repercussions of this condition [1]. Epilepsy is the second most frequent chronic neurological illness treated by a neurologist, and it has been linked to substantial social, behavioral, physical, and psychological problems. Suicide, anxiety, sadness, unexpected unexplained death, and accidental death are all more common in people with epilepsy [2, 6]. Prolonged seizures can result in physical harm, neuronal loss, and cognitive impairment, as well as being lethal [6].

Our study aimed to assess the level of medication adherence, patient perception of the medication and disease, and the impact of patient counselling on QOL. Adherence to Anti-epileptic drug (AED) therapy is important for controlling seizures. It is to identify the factors influencing adherence to AED therapy [3].

The difference in the rate of adherence may be due to unique characteristics of the study population (e.g.: difference in the patient attitude towards adherence due to cultural or educational influences or clinician's approach) and differences in the criteria used to measure medication adherence [4].

In epilepsy therapy, quality of life (QOL) is acknowledged as a significant outcome. According to the World Health Organization, quality of life is described as an individual's sense of their place in life about their goals, aspirations, standards, and concerns in the context of the culture and value systems in which they live [1].

Patients with epilepsy's quality of life have been negatively impacted by a variety of life-related issues, both directly and indirectly. Epilepsy stigmatization, co-morbidities, socioeconomic level, seizure severity, and frequency are all factors [8, 10]. Many people with epilepsy face limitations to their independence due to physical disabilities, and as a result, unemployment rates are high [5].

Education, work, independence, and social isolation are all important aspects of quality of life that are altered by epilepsy. Children with epilepsy frequently receive inadequate education [9]. Research assessing the QOL associated with successful treatment of epilepsy is far behind that of other chronic conditions such as cancer, diabetes, and cardiovascular disease [5, 12].

MATERIALS AND METHODS

The study population was recruited from the neurology department of a tertiary care hospital. The study was approved by the institutional ethics committee. The Patients with age between 18 to 80 years were included in the study after obtaining the informed consent. Pregnant and lactating women and psychiatric patients were excluded. A proforma was prepared to collect the baseline data which includes demographic details such as age, gender, marital status, family history, social history and occupation, economic status, past medical history, locality, and educational status [14, 15]. Medication adherence and the Quality of Life of the subjects were assessed at baseline and the end of the study. The subjects were counselled about their drug and diseases on every follow-up visit for six months.

Medication adherence was evaluated using MMAS-8 (Morisky Medication Adherence Scale). With a sum of scores equalling 8, 6-8, <6, patients can be categorized as having high, medium, or low adherence to therapy, respectively. The QOLIE-31(version 1.0) is a survey of health-related quality of life for adults (18 years or older) with epilepsy [16]. The QOLIE -31 overall score is obtained using a weighted average of the multi-item scale scores. The responses used the Likert rating scale which was later transformed into linear scales that ranged between 0 and 100. Higher the score, the better the QOL. The scoring and weightage of each item in QOLIE -31 were obtained from the guidelines in the QOLIE -31 manual [17].

STATISTICAL ANALYSIS

The data were entered into Microsoft Excel 2016 and further analyzed using statistical software SPSS version 26.0. The categorized variables were presented as frequency and percentage and the continuous variables were reported using mean and standard deviation. The student's t-test was used to compare the variables at a 95% confidence interval and the chi-square test was used to find the correlation between the variables. A P-value less than 0.05 was considered the statistically significant mean difference.

RESULT AND DISCUSSION

During the study period, a total of 150 patients who fulfilled the inclusion criteria were included in our study. Of these, 109 patients completed the follow-up. Reasons for dropout include loss to follow-up and death.

The age group of patients was categorized into <40, 40-60, and>60 years. The study contains 56.9 % males and 39.4 % subjects were illiterate (Table-1).

Table 1: Socio-Demographic Factors (n=109)

Socio-demographic factors	Frequency	Percentage (%)
Age		
<40	38	34.9
40-60	32	29.4
>60	39	35.8
Gender		
Male	62	56.9
Female	47	43.1
Past-medical history		
Yes	23	21.1
No	86	78.9
Educational status		
Illiterate	43	39.4
Primary	28	25.7
Secondary	20	18.3
Tertiary	18	16.5

Levetiracetam (47.7%) was the most frequently prescribed drug followed by Carbamazepine (17.4) and Phenytoin (12.8%). The choice of AED following a new diagnosis of epilepsy can be complex

and is affected by age, co-morbidity, concomitant medication, the possibility of pregnancy, and type of epilepsy.

Table 2: Anti-epileptic drugs used by patients

Sl No	Drug	Frequency	Percentage (%)
1.	Levetiracetam	52	47.7
2.	Carbamazepine	19	17.4
3.	Phenytoin	14	12.8
4.	Sodium valproate	9	8.3
5.	Clobazam	5	4.6
6.	Clonazepam	5	4.6
7.	Lobazam	5	4.6

The mean (SD) score of baseline was 4.50(1.80) and for follow up was 5.23 (1.29). Subjects who had MMAS-8 scores <6, we called as low

adherent, 6-<8 medium adherent, and 8 as high adherents.

Table 3: Comparison of medication adherence

Sl. No	MMAS-8	Mean	Std deviation
1.	Baseline	4.50	1.80
2.	Follow up	5.23	1.29

Results from paired T-test showed statistically significant improvement in the Medication effect, social functioning, and Overall QOL at the end of the study.

The measures of cognitive functioning and emotional well-being showed a negative impact.

Table 4: Comparison of Quality of Life

Sl. No	Parameters	Baseline	End of Study
1.	Seizure worry	3.38 ± 1.60	3.54 ± 1.63*
2.	Medication effect	1.95 ± 0.75	2.01 ± 0.76*
3.	Energy	4.29 ± 2.26	4.84 ± 2.25*
4.	Overall QOL	6.17 ± 2.26	6.35 ± 2.28*
5.	Social functioning	4.91 ± 0.55	9.54 ± 3.51*
6.	Cognitive functioning	14.50 ± 5.48	12.41 ± 4.53*
7.	Emotional well being	8.57 ± 0.92	7.00 ± 2.54*

*P<0.05

Medication adherence in the past 6 months was found to be significantly correlated with age, educational background, economic status, occupation, and living group. Educational background is positively correlated with medication effect, seizure worry, energy/fatigue, quality of life, emotional wellbeing, and social functioning. We found a significant association between AED adherence and economic status. All these findings were supported by the study done by Subham Mehta *et al*., [5]. This is in contrast to the findings of Asadi-Pooya who found no significant association between AED adherence and socioeconomic status measured based on parental smoking, place of residence, and educational level [7]. The main reason for unintentional medication non-adherence as highlighted by our patients was forgetfulness. This is consistent with findings of cross-sectional studies done in the US and Brazil. In the present study, we did not find any significant difference in the rate of non-adherence between the genders, marital status, past

medical history, social functioning, and, family history. The findings of the present study suggest that PWE who are of a lower socioeconomic class may be at higher risk of non-adherence. The educational group shows a positive correlation with all the subscales of QOLIE-31. Economic status shows a negative correlation with seizure worry and medication effects but a positive correlation with QOL, energy/fatigue, and social functioning. A study by Ranjana Gurumurthy et alshows a similar result [13].

CONCLUSION

Study results reveal that living conditions, economic status, social habits, and occupational status are the important predictors of QOL in epilepsy patients. Medication adherence is known to have a profound effect on the QOL of epilepsy patients. Improving medication adherence is not just about improving seizure control but ultimately improving the

QOL of people with epilepsy as that is expected in epilepsy management. Age, living conditions, educational status, and economic status are the factors that influence medication adherence in epilepsy patients in this study.

Conflict of Interest: No potential conflict of interest relevant to this article was reported.

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