



Assessing Epilepsy Treatment Adherence and Factors Contributing to Adherence among People with Epilepsy in Paung Township

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Abstract

Objective This study evaluates medication adherence among epilepsy patients at public health facilities in Paung Township, Mon State, Myanmar, using both quantitative and qualitative methods to explore influencing factors.

Methodology This cross-sectional study in Paung Township involved 72 epilepsy patients aged 12 years and older, receiving antiseizure medications for at least 6 months. Quantitative data were collected through questionnaires and the Morisky Medication Adherence Scale (MMAS-8), while qualitative insights were obtained from three focus group discussions involving patients and family members.

Results The study involved 72 people with epilepsy (PWE) in Paung Township, Myanmar, examining baseline characteristics, treatment services, perceptions, and adherence. The majority were young adults, and 87.5% lived in rural areas. Phenobarbital was the primary medication, and 94.4% received free medications. Most reported >50% seizure reduction and 75% attended follow-ups regularly. Overall, 59.7% demonstrated high adherence. Negative attitudes toward missing medication were prevalent among 90.3% of patients, and this was significantly associated with high adherence ($p < 0.05$). Family support (97.2%) and the convenience of accessing health facilities for medication were widely reported but did not show a significant association with the level of medication adherence. The qualitative findings affirmed satisfaction with health care services, minimal transportation challenges, reduced seizures, manageable side effects, and strong family support. Regular follow-ups significantly predicted adherence.

Conclusion Medication adherence among epilepsy patients in Paung Township was assessed using the MMAS-8, revealing high adherence in nearly 60% of participants. Regular follow-up appointments were significantly correlated with adherence, while negative attitudes toward missed doses and side effects influenced adherence. Patients expressed satisfaction with free medication services, convenience, and reduced seizure frequency.

Keywords

- ▶ epilepsy
- ▶ seizures
- ▶ medication adherence
- ▶ Morisky Medication Adherence Scale

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Introduction

Epilepsy, as defined by the International League Against Epilepsy, is a brain disorder characterized by an enduring predisposition to generate epileptic seizures, accompanied by neurobiological, cognitive, psychological, and social consequences. Clinically, it is diagnosed when a person experiences either two unprovoked seizures more than 24 hours apart, one unprovoked seizure with a high risk (at least 60%) of recurrence over the next 10 years, or when an epilepsy syndrome is identified.¹ It accounts for nearly 1% of the world's total disease burden and is a prevalent neurological disorder globally, affecting people irrespective of age, sex, and social strata.^{2,3} The cause is unknown in approximately 50% of cases, and it is estimated that 75% of individuals with epilepsy in developing countries do not receive proper treatment, resulting in a treatment gap.^{4,5}

In Myanmar, around 500,000 people live with epilepsy, with a prevalence of 1.1 per 1,000 population.^{6,7} This condition poses a significant public health challenge, imposing physical, psychological, social, and economic burdens on individuals and their families. Widespread myths, misconceptions, and fears surrounding epilepsy contribute to stigma and discrimination in Myanmar.⁸ Despite effective treatments being available, epilepsy is not always considered a public health priority in many countries, including Myanmar, where competing priorities such as TB, malaria, and HIV/AIDS prevail.⁹

The Myanmar Epilepsy Initiative (MEI), launched in 2013, is a collaborative effort between the World Health Organization and the Ministry of Health and Sports. MEI aims to enhance the quality of life for people with epilepsy (PWE) and their families, reduce the treatment gap, and increase program coverage. A community-based approach, integrating epilepsy care into the primary health care system, focusing on rural areas, has been implemented. The initiative has successfully increased contact coverage from 2 to 47% in 12 townships by 2017.¹⁰

However, continuous care is essential for monitoring progress in seizure reduction and medication adherence. Adherence is challenging to measure during routine consultations, making regularity of follow-up a proxy indicator for adherence. A review of follow-up visits in 2017 revealed loss to follow-up rates ranging from 25.7 to 50% in project townships. While regularity of follow-up is operationalized as 75% attendance during 1 year, it does not necessarily indicate medication adherence.¹¹

Medication adherence is crucial for reducing seizures and improving quality of life. Poor adherence is associated with increased morbidity and injuries.^{12,13} Estimates of nonadherence vary widely,^{14,15} and the causes are multifactorial, involving patient-related factors, treatment regimen, health care provider-patient relationships, family support, and stigma.¹⁶⁻¹⁸ Therefore, measuring adherence and identifying contributing factors are necessary to enhance treatment outcomes and quality of life for PWE in Myanmar.

The study will employ indirect methods, such as patients' self-reports and interviews, to measure medication adherence and associated factors among patients with epilepsy.

Methods

Study Design and Setting

A cross-sectional study using quantitative and qualitative methods was conducted at health facilities in rural and urban areas in Paung Township, Mon State, where the Myanmar Epilepsy Program was launched in 2018.

Participants

Eligible participants diagnosed with epilepsy must be officially registered at health facilities (township, station, and rural health centers) in Paung Township. All individuals aged 12 years or older who had been actively receiving antiseizure medications at these facilities for at least 6 months were included. Exclusion criteria encompassed individuals with neurological or mental impairment and those unwilling to participate in the study.

Data Collection

Health assistants, public health officers, and medical officers with experience in the research were trained by the MEI team members in the respective townships to conduct the study.

Quantitative Methods

The quantitative component consisted of four sections covering general characteristics, seizure-related history, perceptions about antiepileptic drugs (AEDs), and adherence measurement using the Morisky Medication Adherence Scale (MMAS-8). The MMAS-8 scores were categorized as <6 for low adherence, 6 to <8 for medium adherence, and 8 for high adherence. The tool was pretested on 25 individuals living with epilepsy in Hlegu and finalized.

Qualitative Methods

The qualitative component of the study involved three focus group discussions (FGDs) to explore factors influencing adherence or nonadherence among individuals with epilepsy.

Two FGD sessions were conducted explicitly with registered individuals diagnosed with epilepsy ($n = 15$), while one session involved family members of individuals with epilepsy ($n = 8$). This diverse representation allowed for comprehensive insights into patients' and their families' perspectives and experiences regarding epilepsy treatment adherence.

A pretested discussion guide was utilized to guide the FGDs effectively. This guide covered various topics, including patient-related, disease-related, medication-related, and side effects-related issues influencing adherence. The discussions were structured to encourage open dialog and facilitate the exploration of various aspects related to medication adherence among individuals with epilepsy.

Data collection for the qualitative component occurred over 1 month in July 2020. This time frame provided ample opportunity to conduct thorough discussions and capture a rich dataset that could be analyzed to identify key themes and factors influencing adherence behavior.

Sample Size

The sample size was calculated using the SurveyMonkey Sample Size Calculator (<https://www.surveymonkey.com/mp/sample-size-calculator/>) with a confidence level of 95% and an error of 5% and was found to be 75.

Statistical Analysis

Statistical analysis was performed using IBM SPSS version 20.0. Variables were analyzed using Pearson's chi-square test and expressed as mean and percentage. A nominal p -value of <0.05 was considered statistically significant. Univariate and bivariate analyses were conducted to highlight the association between MMAS-8 scores and questionnaire variables.

For FGDs, the framework approach was applied to analyze qualitative data, involving familiarization, constructing the thematic framework, data summary, and interpretation. Direct quotes from patients supported themes related to medication adherence, triangulating with findings from the quantitative component to draw conclusions from the study.

Ethics and Informed Consent

Ethical clearance was obtained from the Institutional Review Board, Ministry of Health and Sports, Naypyitaw. Written informed consent was received from the patient and their guardian (a family member) after a detailed explanation of the study's aim and methods. Participation was voluntary, without coercion, and participants had the right to refuse or withdraw from the study at any time. Confidentiality and privacy were maintained throughout the study.

Results

Patients' Baseline Characteristics

Among the 72 PWE who met the eligibility criteria, 51% were female, and 49% were male (► **Table 1**). The average age of the patients was 28.6 (standard deviation [SD] \pm 11.06) years. Regarding age distribution, the majority (62.5%) were young adults, followed by 19.4% adolescents and 18.1% adults. Marital status varied, with 69.4% being single, 23.6% married, and 7% divorced. The predominant ethnic groups in the study population were 34.7% Burmese, 27.8% Mon, and 13.8% Kayin. Regarding residency, a significant proportion (87.5%) lived in rural areas, while only 12.5% resided in urban areas.

Treatment Services for Epilepsy

In this study, the mean age of epilepsy onset was determined to be 13.7 years (SD \pm 11.34), with a minimum onset age of <1 year, a maximum of 55 years, and a median of 11 years. The mean duration of illness was 15.4 years (SD \pm 9.34), with a minimum of 1 year, a maximum of 41 years, and a median of 15 years. Among the enrolled patients, 88.9% were solely

using phenobarbital, 4.2% were on carbamazepine as a single drug, 2.7% were on a combination of phenobarbital and carbamazepine, and 4.2% were using other AEDs.

Of the enrolled patients, 94.4% reported receiving free medications, while only 5.6% reported not receiving them (► **Table 2**). Transportation to health facilities was noted as problematic for 26.4% of patients, while 73.6% faced no issues. Additionally, 87.5% of respondents reported a $>50\%$ reduction in seizures (over a 4-week duration) compared with pretreatment. Regarding side effects, 61% of PWE did not experience any, while 39% reported side effects. However, no significant association with the level of adherence was observed.

It was found that 75% of PWE seeking treatment attended follow-up appointments regularly without missing any. On the other hand, 16.7% missed appointments occasionally, and 8.3% frequently missed appointments. Those who were consistent in their follow-up demonstrated significantly higher adherence ($p < 0.01$).

Perceptions/Attitudes on AED Treatment, Psychosocial Factors, and Adherence

All patients perceived taking medications as crucial to prevent seizures, with 97% expressing concerns that epilepsy could worsen without treatment (► **Table 3**). Adherence levels varied, with 59.7% exhibiting high adherence, 21% medium adherence, and 19% low adherence. Negative attitudes toward missing medication were prevalent among 90.3% of patients, and this was significantly associated with high adherence ($p < 0.05$). Similarly, 86.1% held negative attitudes toward discontinuing medication due to unpleasant side effects, showing a significant association with high MMAS-8 scores ($p < 0.05$).

Feelings of depression were acknowledged by 72.2% of respondents, and 76.4% reported experiencing stigma at times. However, these factors did not exhibit a significant association with the level of medication adherence. Additionally, 38.8% preferred not to disclose their antiepileptic medication usage, while 61.2% were comfortable sharing this information. Family support (97.2%) and the convenience of accessing health facilities for medication were widely reported but did not show a significant association with the level of medication adherence.

Adherence to Medication

The mean MMAS-8-item score for medication adherence was 6.8 (SD \pm 1.94), with a minimum score of 1, a maximum of 8, and a median of 8. Applying the defined cutoff points, 59.7% (43 out of 72) were categorized as having high adherence, 20.8% (15 out of 72) had medium adherence, and 19.4% (14 out of 72) had low adherence (► **Table 3**). The Myanmar MMAS-8 score demonstrated high internal consistency, as reflected by a Cronbach's α of 0.844, indicating the scale's reliability in measuring medication adherence among registered epilepsy patients in Paung Township.

Among the scale items, numbers (3) and (5) received the highest favorable scores for adherence. Most respondents did not discontinue their medication due to side effects or

Table 1 Baseline demographic characteristics of the patients

Variables	Total (n = 72)	High adherence (n = 43)	Medium adherence (n = 15)	Low adherence (n = 14)	Chi-square	p-Value
Age group	Adolescent (13–19 y)	11 (78.57)	3 (21.43)	–	6.64	0.16
	Young adult (20–39 y)	26 (57.78)	10 (22.22)	9 (20.00)		
	Adult (≥ 40 y)	6 (46.15)	2 (15.38)	5 (38.46)		
Gender	Male	22 (62.86)	8 (22.86)	5 (14.29)	1.18	0.56
	Female	21 (56.76)	7 (18.92)	9 (24.32)		
Marital status	Single	31 (62.00)	9 (18.00)	10 (20.00)	2.43	0.66
	Married	9 (52.94)	4 (23.53)	4 (23.53)		
	Separated	3 (60.00)	2 (40.00)	–		
Resident	Urban	5 (55.56)	4 (44.44)	–	4.78	0.09
	Rural	38 (60.32)	11 (17.46)	14 (22.22)		
Education status	Illiterate	13 (65.00)	3 (15.00)	4 (20.00)	4.28	0.37
	Up to primary level	24 (60.00)	7 (17.50)	9 (22.50)		
	Middle and higher	6 (50.00)	5 (41.67)	1 (8.33)		
Employment status	Currently employed	13 (56.52)	8 (34.78)	2 (8.70)	5.22	0.07
	Currently not employed	30 (61.22)	7 (14.29)	12 (24.49)		
Family income	Above average	11 (55.00)	7 (35.00)	2 (10.00)	4.04	0.13
	Below average	32 (61.54)	8 (15.38)	12 (23.08)		
Family size	Above average > 4.4	31 (60.78)	10 (19.61)	10 (19.61)	0.16	0.92
	Below average < 4.4	12 (57.14)	5 (23.81)	4 (19.05)		
Family history of epilepsy	Yes	11 (68.75)	4 (25.00)	1 (6.25)	2.29	0.32
	No	32 (57.14)	11 (19.64)	13 (23.21)		
Duration of receiving treatment	< 1 y	8 (61.54)	2 (15.38)	3 (3.08)	0.34	0.84

Note: High adherence, MMAS score > 8; medium adherence, MMAS score 6–8; low adherence, MMAS score < 6. ^ap ≤ 0.05 is considered significant.

Table 2 Epilepsy treatment and adherence characteristics in patients

Variables	Total (n = 72)	High adherence (n = 43)	Medium adherence (n = 15)	Low adherence (n = 14)	Chi-square	p-Value
Receiving free medication	Yes	41 (60.29)	14 (20.59)	13 (19.12)	0.17	0.92
	No	4 (5.6)	1 (25)	1 (25)		
Transportation problem to go to hospital	Yes	19 (26.4)	7 (36.84)	1 (5.26)	5.86	0.05 ^a
	No	53 (73.6)	8 (15.09)	13 (24.53)		
Regularity of follow-up	Regular (not missing appointments)	54 (75)	38 (70.37)	13 (24.07)	29.62	< 0.01 ^a
	Nonregular (sometimes miss appointments)	12 (16.7)	4 (33.33)	6 (50)		
	Frequently	6 (8.3)	1 (16.67)	–		
Reduction of seizure frequency by 50	Yes	63 (87.5)	37 (58.73)	13 (20.63)	0.46	0.79
	No	9 (12.5)	6 (66.67)	1 (11.11)		
Experienced side effects of antiepileptic medications	Yes	28 (38.9)	15 (53.57)	6 (21.43)	1.03	0.60
	No	44 (61.1)	18 (40.91)	7 (15.91)		
Received explanation on treatment regimen	Yes	71 (98.6)	43 (58.82)	15 (21.13)	2.04	0.36
	No	1 (1.4)	–	1 (100)		
Received necessary information from health care provider	Yes	–	40 (57.97)	14 (20.29)	2.11	0.35
	No	3 (4.2)	3 (100)	–		
Satisfaction with the service	Yes	70 (97.2)	42 (60)	13 (18.57)	1.45	0.48
	No	2 (2.8)	1 (50)	1 (50)		

^ap ≤ 0.05 is considered significant.

Table 3 Attitudes, perceptions, and psychosocial factors influencing adherence to epilepsy treatment

Variables	Total (n = 72)		High adherence (n = 43)		Medium adherence (n = 15)		Low adherence (n = 14)		Chi-square.	p-Value
	Agreed	Not agreed	Agreed	Not agreed	Agreed	Not agreed	Agreed	Not agreed		
Imperative to take epilepsy medication	72 (100)	-	43 (59.72)	-	15 (20.83)	-	14 (19.44)	-	-	-
Feeling that without epilepsy medication, the condition would be worse	70 (97.2)	2 (2.8)	42 (60)	1 (50)	15 (21.43)	0 (0)	13 (18.57)	1 (100)	1.45	0.48
Missing to take medication once in a while is alright	7 (9.7)	65 (90.3)	2 (28.57)	41 (63.08)	1 (14.29)	14 (21.54)	4 (57.14)	10 (15.38)	7.09	0.03 ^a
Want to stop taking drugs due to unpleasant side effects	10 (13.9)	62 (86.1)	3(30)	40 (64.52)	2 (20)	13 (20.97)	5 (50)	9 (14.52)	9.1	0.01 ^a
Feeling depressed sometimes	52 (72.2)	20 (27.8)	27 (51.92)	16 (80.00)	14 (26.92)	1 (5.00)	11 (21.15)	3 (15.00)	5.52	0.06
Feelings of stigma (felt stigma)	55 (76.4)	17 (23.6)	30 (54.55)	13 (76.47)	15 (27.27)	0 (0)	10 (18.18)	4 (23.53)	5.87	0.05 ^a
Does not want to let other people know	28 (38.9)	44 (61.1)	17 (60.71)	26 (59.09)	8 (28.57)	7 (15.91)	3 (10.71)	11 (25)	3.12	0.21
Having supportive families	70 (97.2)	2 (2.8)	42 (60)	1 (50)	15 (21.43)	0 (0)	13 (18.57)	1 (50)	1.45	0.49
Convenient to go to health facilities to get medication	70 (97.2)	2 (2.8)	43 (61.43)	0 (0)	14 (20)	1 (50)	13 (18.57)	1 (50)	3.79	0.15

^ap ≤ 0.05 is considered significant.

Table 4 Association between treatment-related factors and adherence

	Pearson's correlation	p-Value	OR	95% CI		p-Value
				LL	UL	
Regularity of follow-up appointments	0.608	0.000	26.714	5.953	119.877	0.000
Not experiencing side effects	0.112	0.349	1.517	0.579	3.976	0.273
50% reduction in the frequency of seizures	0.080	0.506	1.405	0.322	6.136	0.471
Receiving free medication	0.034	0.776	1.519	0.202	11.439	0.532
No transportation problems to get treatment	0.215	0.070	1.108	0.382	3.212	0.531
Satisfaction with the services	0.131	0.275	1.5	0.09	24.984	0.647
> 1-y duration of treatment in the project	0.043	0.719	1.3	0.308	5.564	0.487
Family support	0.131	0.275	4.385	0.257	74.785	0.353

Abbreviations: CI, confidence interval; LL, lower limit; OR, odds ratio; UL, upper limit.

without informing their health care provider. Moreover, most participants reported not neglecting to take their medication the day before the interview.

Regular follow-up appointments emerge as a highly significant predictor in assessing treatment-related factors and their association with adherence, displaying a strong positive association with adherence, $p < 0.01$, and a notable odds ratio of 26.71 (95% confidence interval: 5.95–119.87), as shown in ►Table 4. However, other factors such as not experiencing side effects, 50% reduction in the frequency of seizures, receiving free medication, no transportation problems to get treatment, satisfaction with the services, >1-year duration of therapy in the project, and family support do not exhibit statistical significance based on their p -values and odds ratios.

Qualitative Assessment (Focus Group Discussion)

The qualitative data obtained from the FGDs are summarized in ►Table 5. A total of 15 PWE and 8 family members actively participated in the FGDs.

Analyzing the qualitative data under the theme of “individual-related factors,” despite most patients residing in rural areas, accessing health facilities for treatment posed no significant challenges. Some patients reported difficulties in transportation due to the cost of a cycle taxi, but all patients stated that they received medications free of charge.

In the context of “disease-related factors” and “treatment/provider-related factors,” individuals living with epilepsy participating in FGDs reported a significant reduction in seizures after treatment at health care facilities. Some experienced manageable side effects, such as slight sleepiness, lethargy, and forgetfulness, without discontinuing their medication.

During the focus group sessions, some patients expressed that they did not feel stigmatized, while others admitted to having felt stigma (psychosocial theme). However, the stigma did not deter them from seeking treatment. Most patients also indicated that they did not mind others knowing about their epilepsy treatment. All patients reported strong support from family members and friends.

Regarding follow-up treatment, most PWE and their family members reported regular adherence; however,

some discontinued follow-up after a period without seizures. Family members emphasized the ease of obtaining medication and praised the health staff for providing proper instructions. The provision of free medicines was a source of satisfaction for both PWE and their family members.

Discussion

The rates of adherence or nonadherence to medication measured using various methods and in different settings vary significantly among countries worldwide. Nonadherence to medication among PWE ranged from 36.4% in the UK primary care to 67% in rural communities of Kaduna State in Nigeria.^{19,20} In countries of the same region as Myanmar (Southeast Asia region), studies using the MMAS-8 score to measure adherence among epilepsy patients showed that 21.2% achieved a high adherence level in Malaysia and an adherence rate of 58.2% (one high adherence case plus medium adherence) in a study in Indonesia.^{21,22} In comparison with the findings from the validation study of the Chinese version of the MMAS-8 score, it was found that low adherence was 20.7%,²³ which was similar to our findings (19.4%) in Paung Township. However, the rates for high adherence 32.4% and medium adherence 46.8%²³ differ from the findings in Paung Township, where it was much higher for high adherence and lower 20.8% for medium adherence. This may be due to differing characteristics in the study populations, such as AED regimen, duration of illness, types and frequency of seizures, etc. Similarly, in a study among Palestinian patients and Ethiopian patients, high rate of medication adherence was found to be 36 and 32%, respectively.^{24,25}

In this study, no significant differences were observed in adherence levels or general characteristics such as age, sex, education status, income, and place of residence, consistent with findings from a study in Nigeria.²⁰ Huber and Weber, in a systematic review, reported that caregivers' socioeconomic factors, particularly education level, annual income, and marital status, significantly influenced outcomes and adherence to anticonvulsants in children with epilepsy.²⁶ Additionally, Gurumurthy et al found that patients with focal

Table 5 Summary of themes derived from the data ($n = 23$)

Theme	Subtheme	Supporting data
Treatment services for epilepsy	Individual-related factors	PWE: I live far away from the health center and have to take a cycle taxi to get there. It cost me about 2,000 Kyats to go and return. Sometimes, I have to borrow the money for the fare. However, I get the medications free of charge from the health center.
		PWE: Obtaining medication from health centers is hassle-free, mainly due to our proximity to the facility. The process is convenient, and there are no challenges in taking the medicine as we administer it ourselves.
	Disease-related factors	PWE: I am regularly taking the medication from the health center. My condition has improved markedly, the frequency of seizures has been drastically reduced, and I feel much better. I think the current medication will be helpful, and even if I have to take it for life, I will accept it.
	Treatment/provider factors	PWE: I experienced slight sleepiness at the beginning after starting treatment, but this did not prevent me from taking medication.
		PWE: I tend to forget where I put my things and have difficulty remembering names. I do not know whether it is due to the medication. I think I had this problem before I took the medication, but now it is more pronounced.
		PWE: After taking the medication, I feel lethargic but continue taking my medication.
		PWE: Although I have to take two drugs, it is not a problem. I am taking my medications regularly.
		PWE: I have been taking treatment regularly for over 1 year, and as I no longer had seizures, I stopped going for follow-up and taking the medication. But the seizures reoccurred, so now I dare not stop my medications.
		Family members: He takes medicines regularly without missing a day. But once he reduced his medication on his own as he could not sleep due to heat. He tried to take the medication on alternate days, but his seizures recurred.
		Family members: We strictly adhere to the medication instructions provided by the health staff—neither more nor less. We are pleased that the seizures are under control and that there are no issues in accessing treatment.
Family members: There is no shortage of drugs in the health center, and we get our medicines free of charge. It is convenient for us to obtain the medicine, and we are happy that it is given free.		
Perceptions/attitudes on AED treatment, psychosocial factors, and adherence	Psychosocial factors and adherence	PWE: People made fun of me at the beginning. They said I won't be able to speak. I felt dejected. Now, they no longer make fun of me, and when they see me improve as a result of treatment, they praise me. The health staff takes good care of me.
		PWE: I don't feel ashamed about having epilepsy. I don't mind people knowing about my illness. The most important thing is for me to get medicines to cure my illness.
	Support by family and friends	PWE: My family is very supportive. They accompany me to the health facilities and remind me to take my medications on time.
		PWE: Friends are very supportive of us. Our family members and relatives also treat us well.
		Family members: I prepare his meals for him and see that he eats his food. After he finished his meal, I gave him his medication so he would not miss his dose of drugs.

Abbreviations: AED, antiepileptic drug; PWE, people with epilepsy.

epilepsy and those from middle or lower-middle socioeconomic classes were more likely to adhere to their medication regimen²⁷ supporting these findings.

There was no significant association between the duration of epilepsy and the level of adherence, which contrasts with

the findings of a study in India.²⁷ The present study showed that having family support was 4.3 times more likely to be medication adherence and had a positive correlation with adherence but was not significant. It was the same as that found in a study in Ethiopia,²⁸ which showed that PWE with

family support are more likely to be adherent. However, in this study, those with over 1-year duration of treatment were found to be 1.3 times more adherent to medication, which contradicts the findings in Ethiopia, which found that with increasing treatment duration, there is a reduction in adherence.²⁸ The reason may be due to the relatively short period since the services were introduced in Paung, that is, 2 years.

In our study, we found that regularity of follow-up appointments emerged as a highly significant predictor of adherence, exhibiting a strong positive association with adherence ($p < 0.01$), reflecting the importance of educating people about the critical role of follow-up visits in maintaining medication adherence. Additionally, the systemic issues related to providing consistent care and follow-up support must be addressed to ensure that patients have adequate access to necessary services, ultimately improving adherence outcomes. However, other factors such as not experiencing side effects, a 50% reduction in the frequency of seizures, receiving free medication, no transportation problems to get treatment, satisfaction with the services, >1-year duration of treatment in the project, and family support did not show statistical significance based on their p -values and odds ratios. The divergence in findings emphasizes the need for a nuanced understanding of treatment-related factors and their association with adherence, considering the specific context and characteristics of the studied population.

Drawing insights from Shumet et al, the discussion identifies being single as negatively associated with adherence, attributed to the perceived lack of social support.²⁹ Social support from family and friends is emphasized as pivotal in enhancing patient's confidence and positively influencing adherence. Another significant predictor variable, the occurrence of seizure episodes within a month, is discussed, revealing a potential paradoxical relationship where uncontrolled seizures may lead to nonadherence.^{30,31} Higher perceived epilepsy-related stigma, comorbid depression, anxiety symptoms, and experiencing side effects are discussed as negatively impacting adherence, aligning with existing research.³²⁻³⁵

Despite these significant findings, it is crucial to acknowledge the limitations of the study. This study was conducted among PWE 13 years and older who were registered for treatment in the public health facilities in Paung Township, where the Myanmar Epilepsy Program was launched in 2018. Less statistically significant findings may be due to the relatively small sample size, which limits the generalizability. Additionally, patients seeking treatment with other health care providers, either with allopathic or alternative, were not covered; thus, the findings may not be representative of all PWE in the township. However, it provides valuable insights into the epilepsy services offered by the public health sector and areas that need to be reinforced or further improved, such as support for transportation to health facilities. Moreover, the inclusion of validated tools for the assessment of stigma and depression would have enriched the understanding of their potential influences on medication adherence. Another limitation is the lack of detailed

exploration into gender-specific factors influencing treatment adherence. While marital status and place of residence were assessed collectively, the study did not delve into how these factors might affect men and women differently. For instance, women may face distinct adherence challenges depending on their marital status or whether they live in their parental home or marital home.

It is recommended studies with larger sample sizes must be conducted to generate robust evidence. Furthermore, considering the high impact of follow-up regularity on adherence, it is essential to promote and prioritize regular follow-up visits within the health care system.

Conclusion

Adherence to medication among epilepsy patients seeking treatment at public health facilities was measured using a validated tool (MMAS-8-item score). It was found to be high, as nearly 60% had high adherence, and 21% had medium adherence. MMAS-8 was a highly reliable scale to measure medication adherence in the study population (Cronbach's $\alpha = 0.844$). Regularity of follow-up appointments was highly significantly associated with medication adherence. PWE having negative attitudes toward missing their medications and wanting to stop medicines due to side effects were significantly associated with medication adherence. The qualitative assessment also supported the quantitative findings. In the quantitative and the FGDs, almost all patients revealed it was convenient to get the medications free of charge and expressed satisfaction with the services. A reduction of more than 50% in seizures was also achieved in 87.5% of the cases. However, few had constraints with the transportation cost to access the facilities.

Disclosure

The MMAS-8 score, content, name, and trademarks are protected by the U.S. copyright and trademark laws. Permission for the use of the scale and its coding is required. A license agreement is available from MMAR, LLC., Donald E. Morisky, ScD, ScM, MSPH, 294 Lindura Ct., United States; dmorisky@gmail.com.

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Conflict of Interest

None declared.

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