

# Compliance with Treatment of Adult Epileptics in a Rural District of Thailand

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## Abstract

**Background :** Epilepsy, a disease when seizures can occur from antiepileptic drug withdrawal, requires regular drug taking. Non-compliance, therefore, is a major factor contributing to sub-optimal control of the seizures.

**Purpose :** To determine the factors associated with noncompliance in epileptics in rural Thailand.

**Method :** All epileptics, registered in the Pak Thong Chai District and their caregivers were invited to be interviewed and examined by a neurologist in their village.

**Results :** Of a total of 93 epileptics registered, 83 with their caregivers were interviewed and examined by the neurologist (T.A.) and of those 72 were adults. Of the 72 adult epileptics, 41 (56.9%) were 100 per cent compliant and factors found to be significantly associated with compliance were gender, household income and patient's health insurance ( $p$ -value  $< 0.05$ ). The major reasons for non-compliance were misunderstanding (48.4%), forgetfulness (16.1%) and economic problem (12.9%).

**Conclusion :** To improve patient-compliance, the real factors for non-compliance, which are unique to patients in a specific area, need to be identified.

**Key word :** Epilepsy, Compliance, Adult, Reason for Non-Compliance, Thailand

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Epilepsy is one of the commonest problems encountered in neurological clinics in developing countries<sup>(1)</sup> and needs long-term treatment<sup>(2)</sup>. Compliance, including attendance at appointments and adherence to antiepileptic drug regimens (AED) is very important in the management of epilepsy<sup>(3)</sup>. The reason being that neglect of medical treatment may cause epileptic seizures<sup>(4)</sup>, which, in turn, may result in increased direct medical costs<sup>(5)</sup>, physical injury to self and others<sup>(5)</sup> and a decrease in the quality of life<sup>(6)</sup>. The frequency of noncompliance with treatment in epileptics has been reported ranging from 19 per cent to 75 per cent<sup>(7-9)</sup>.

The problem of compliance with treatment in chronic diseases is not selective but rather is pervasive and affects a broad range of illnesses<sup>(10)</sup>. However, compliance in epilepsy has not been studied extensively<sup>(4)</sup>.

The objectives of this study were to determine the frequency of non-compliance and the factors associated with non-compliance in epileptics in a rural district of Thailand.

## MATERIAL AND METHOD

The study was conducted in Pak Thong Chai, one of the 26 districts of Nakhon Ratchasima Province, the principal province of Northeastern Thailand. The district is around 32 kilometers Southwest of the provincial capital and 286 kilometers from Bangkok. It covers 1,352 square kilometers with a population (in 1997) of 74,177 and is divided into 16 sub-districts with a total of 20 Sub-District Health Care Offices (SDHCO) and one Community Hospital.

In the district, like all districts in Nakhon Ratchasima Province, there is a Registry of Epileptics who have visited either the SDHCO or the Community Hospital; the Registry is updated yearly by sub-district health care officials. In 1997, 93 epileptics were registered in the district. All of the patients with their caregivers were informed of the study and invited, after informed consent, for an interview and examination by sub-district health care officials and a neurologist (T.A) from January-May 1998.

The data collected included: age; gender; socio-economic data; whether the patient had health care insurance which would entitle them to free health care including AEDs.

The data related to epilepsy included: age at first onset of epilepsy; duration of epilepsy and of treatment; frequency of seizures; the AED regimens;

alcoholic intake and the need to be escorted for treatment.

The outcome variable measured was whether the level of compliance with AED regimens over the past year was 100 per cent (defined as taking the AED on time, without fail and without manipulating their dosage)<sup>(5)</sup>, as determined during an in-depth interview of the patient and their caregiver. During the same interview, the major reason for non-compliance was determined.

The authors defined Epilepsy as two or more clinical afebrile seizures unrelated to acute metabolic derangements or to withdrawal from alcohol or drugs<sup>(11)</sup>. Seizures, which occur within a 24-hour period, were excluded<sup>(11)</sup>.

In the data analysis, the sample based upon the interview of the epileptic and of their caregivers, each group was further stratified into those considered compliance and non-compliance. The differences were, then, analyzed by univariate and multivariate analysis.

## RESULTS

Of the 93 epileptics registered in Pak Thong Chai District, only 83 (89.2%) and their caregivers were interviewed and examined. The gender and age response rate is shown in Table 1. The non-respondents of ten epileptics, although it could not be verified, were presumably less affected by their epilepsy.

Of the 83 epileptics examined, only 11 were children (age 0-14 years); so, further analyses was restricted to the adults. Of the 72 adult epileptics, the average age was 36.3 years (SD = 14.0; median = 36; range: 16-75 years) and 59.7 per cent were female. The patient's characteristics and clinical characteristics are shown in Table 2.

The patient-compliance (100%) over the past one-year was 56.9 per cent. The differences between those considered to be compliant or non-compliant by each of the demographic, socio-economic and clinical variables are shown in Table 2.

By univariate analysis, none of the analyzed variables were significantly associated with compliance. However, by multivariate analysis, gender, household income and patient's health insurance had a significant association with compliance (shown in Table 2).

The major reasons for non-compliance were misunderstanding of the need for long-term treatment (48.4%); forgetfulness (16.1%) and economic pro-

blem (12.8%). The other reasons were continuity of seizures despite treatment (9.7%); misbeliefs (6.5%) and not having a caregiver to escort them to hospital (6.5%).

## DISCUSSION

In this study, compliance with AED regimens over the past one year was measured by self-report of the patients or their caregivers. The data collection method and the cross-sectional design employed precluded the possibility of any pill counting procedures or blood level testing. Although, it was quite difficult for them to recall the degree of compliance with their physician's prescriptions, the authors used 100 per cent compliance rates; even though compliance of 80 per cent is sufficient for optimal treatment in patients with epilepsy(12). The frequency of the patients with 100 per cent compliance in the present study was only 56.9 per cent, which is similar to reports from other studies(6,13).

On multivariate analysis, gender, household income and patient's health insurance had a statistically significant relationship to compliance. The possible reasons for this finding is that, in Thailand any patient who holds any kind of health insurance card can get medical service including drugs free of charge at any level of government health care offices. In addition, most poor patients trust their physicians and strictly follow the physicians' suggestions. Economic status is still a major factor for patient compliance(10). Male gender is another variable because male patients usually work outside.

Other factors can affect compliance. However, the relationship of these factors to compliance has not been consistent. Age and number of AED

taken had a statistically significant relationship with compliance in Buck's study(14) but were not in Gopinath's study(5). Seizure frequency and duration of epilepsy were related to compliance in three studies (Kyngas(4), Gopinath(5) and Loiseau(15)) but were not in Buck's study(14). However, gender and seizure type have consistently been shown to have no relationship with compliance(5,14,15). The patient's education in Gopinath's study(5) and of age at first onset of epilepsy in Loiseau's study(15) showed no significant relationship to compliance. Alcoholic intake in Kyngas's study(4) and of higher income in Shope's study(16) revealed a significant association with compliance.

Not only the factors mentioned earlier but also several personal reasons may contribute to non-compliance including: patient's life style(14,17); patient's feeling of stigma(14); denial of their illness(18); individual's perception of causality(5); relationship between patient and health care staff(4,5,14); misconceptions regarding the goal of the treatment and the consequences of missing a prescribed drug dose(4); misunderstanding the doctor's instructions(18), fear of addiction(19); general dissatisfaction with treatment(5,19); trouble with remembering(18) and forgetfulness(18). Some studies have found that the following altered drug taking behavior: adverse side effects(4,18,19); patient's personal experience(14); family relationships(3); the support of parents(4).

Finally, no single measure represents a completely valid indicator of the risk of non-compliance. Mitchell *et al* stated in their paper that dealing with compliance in children that "It is multidimensional and includes related but somewhat distinct facets of socio-cultural, medical, behavioral, environmental

**Table 1. Gender and age specific response rates.**

Age group (year)	Males		Females		Both genders	
	n/N	%	n/N	%	n/N	%
0-4	1/1	100.0	0/0	-	1/1	100.0
5-9	2/2	100.0	2/2	100.0	4/4	100.0
10-14	3/3	100.0	3/3	100.0	6/6	100.0
15-24	9/11	81.8	7/7	100.0	16/18	88.9
25-34	7/10	70.0	10/11	90.9	17/21	80.9
35-44	6/10	60.0	18/18	100.0	24/28	85.7
45-54	5/5	100.0	2/2	100.0	7/7	100.0
55-64	1/1	100.0	4/4	100.0	5/5	100.0
65+	1/1	100.0	2/2	100.0	3/3	100.0
All age groups	35/44	79.5	48/49	97.9	83/93	89.2

n = Respondents, N = Registered epileptics

**Table 2. Factors and their relationship with patient-compliance in adult epileptics.**

Factors	C (41)	NC (31)	Total		P-value (Univariate)	P-value (Multivariate)
			n	%		
Gender						
Male	16	13	29	40.3	0.99	< 0.05
Female	25	18	43	59.7		
Patient's education					1.00	0.68
≤ 6 yrs	36	28	64	88.9		
> 6 yrs	5	3	8	11.1		
Caregiver's education					0.50	0.89
≤ 6 yrs	39	31	70	97.2		
> 6 yrs	2	0	2	2.8		
Patient's employment					0.89	0.91
Unemployed	19	13	32	44.4		
Employed	22	18	40	55.6		
Household income (monthly) in Baht					0.14	< 0.05
≤ 2,800	28	15	43	59.7		
> 2,800	13	16	29	40.3		
Alcohol intake					0.34	0.49
Regular or occasional	8	10	18	25.0		
Not at all or quit	33	21	54	75.0		
Need to be escorted					0.78	0.23
Yes	16	14	30	41.7		
No	25	17	42	58.3		
AED regimens					0.55	0.45
Monotherapy	28	24	52	72.2		
Multiple AED regimens	13	7	20	27.8		
Patient's health insurance					0.07	< 0.05
Yes (one or more cards)	36	21	57	79.2		
No	5	10	15	20.8		
Age at first onset of epilepsy					0.99	0.66
< 20 yrs	25	18	43	59.7		
≥ 20 yrs	16	13	29	40.3		
Duration of epilepsy					0.69	0.77
≤ 6 yrs	5	2	7	9.7		
> 6 yrs	36	29	65	90.3		
Duration of treatment					0.39	0.79
≤ 6 yrs	5	7	12	16.7		
> 6 yrs	36	24	60	83.3		
Seizure frequency					0.39	0.06
< once a week	36	24	60	83.3		
≥ once a week	5	7	12	16.7		

C = Compliance, NC = Non-compliance

(i.e. family), and individual characteristics"<sup>(10)</sup>. In the present study, the reasons for non-compliance with AED regimens; misunderstanding, forgetfulness and economic problem were compatible with the results reported by other studies<sup>(15,16,18)</sup>. This suggests how patient-compliance can be improved.

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## การรับประทานยาตามแพทย์สั่งของผู้ป่วยโรคลมชักในชุมชน

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โรคลมชักเป็นโรคชนิดหนึ่งที่อาการชักจะเกิดขึ้นได้จากการลืมนับรับประทานยาป้องกันชัก การรับประทานยาตามแพทย์สั่งจึงมีความจำเป็น

**วัตถุประสงค์ :** เพื่อหาปัจจัยที่มีส่วนเกี่ยวข้องกับการไม่รับประทานยาตามแพทย์สั่งของผู้ป่วยโรคลมชักในชุมชน

**ผู้ป่วยและวิธีการ :** โดยการเชิญญาติและผู้ป่วยโรคลมชักที่ได้ขึ้นทะเบียนที่อำเภอปทุมธานี จังหวัดนครราชสีมาเพื่อที่จะสัมภาษณ์และตรวจโดยประสาทแพทย์ที่หมู่บ้านของผู้ป่วย

**ผล :** ผู้ป่วย 83 รายจากทั้งหมด 93 รายที่ได้ขึ้นทะเบียนที่อำเภอปทุมธานีและญาติได้รับการสัมภาษณ์และตรวจโดยประสาทแพทย์ ในจำนวน 83 รายนี้ 72 รายเป็นผู้ป่วยที่มีอายุตั้งแต่ 15 ปีขึ้นไป และมีเพียง 41 ราย (ร้อยละ 56.9) ที่รับประทานยาตามแพทย์สั่ง ปัจจัยที่มีส่วนเกี่ยวข้องกับการรับประทานยาของผู้ป่วยได้แก่ เพศ รายได้ของครอบครัว และการมีบุตรสุขภาพ ส่วนเหตุผลหลักที่ผู้ป่วยไม่รับประทานยาได้แก่ การขาดความรู้ความเข้าใจในเรื่องการรักษา (48.4%) การลืมนับรับประทานยา (16.1%) และปัญหาทางการเงิน (12.9%)

**สรุป :** การที่จะทำให้ผู้ป่วยรับประทานยาตามแพทย์สั่งเพื่อผลการรักษา จำเป็นที่จะต้องทราบถึงเหตุผลที่แท้จริงของผู้ป่วยซึ่งจะแตกต่างกันไปตามพื้นที่

**คำสำคัญ :** โรคลมชัก, การรับประทานยาตามแพทย์สั่ง, ผู้ป่วยที่อายุตั้งแต่ 15 ปีขึ้นไป, เหตุผลของการไม่รับประทานยา, ประเทศไทย

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