



Association of knowledge about epilepsy with mood and self-efficacy in Korean people with epilepsy



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ABSTRACT

Purpose: We determined the level of knowledge about epilepsy in Korean people with epilepsy (PWE) and evaluated whether this is associated with self-efficacy, perceived stigma, anxiety, and depressive mood in these patients.

Methods: This was a cross-sectional multicenter study. A total of 530 PWE participated from 31 secondary or tertiary hospitals in Korea. Knowledge about epilepsy was assessed using 34 medical items (EKP-M) of the Epilepsy Knowledge Profile—General. Additional questionnaires included the Epilepsy Self-Efficacy Scale (ESES), Stigma Scale, and Hospital Anxiety and Depression Scale (HADS). Multiple linear regression analyses were used.

Results: The mean EKP-M score was 22.2 (SD: 4.1). By univariate analyses, the EKP-M was related to ESES ($r = 0.220$, $p < 0.001$) and HADS-D ($r = -0.154$, $p < 0.001$) scores but not to the Stigma Scale or HADS-A. By linear regression analyses, after adjusting for the confounding variables, the higher EKP-M scores were independently related to both higher ESES ($p < 0.001$) and lower HADS-D scores ($p < 0.05$).

Conclusion: Korean PWE have a relatively low level of knowledge about their condition. Knowledge about epilepsy is associated with a high level of self-efficacy and less depressive symptoms in affected individuals.

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1. Introduction

Epilepsy is associated with significant psychosocial difficulties and stigma, which in turn affects quality of life in people with epilepsy (PWE) [1]. Knowledge about epilepsy is important in coping successfully with this condition by reducing its impact on psychosocial functioning. Previous studies have shown that PWE lack knowledge about their condition [2] and frequently report dissatisfaction with information provided for its management [3,4]. One previous study has reported that PWE did not have greater knowledge about epilepsy than nonaffected individuals [5]. Levels of knowledge about epilepsy among PWE differ by country [6]; in general, affected individuals living in developing countries have less knowledge because of fewer educational programs on this disease compared with developed nations.

Improving the knowledge of epilepsy among PWE would improve the levels of self-efficacy in managing their condition, which consequently may decrease seizure frequency and improve psychological functioning, i.e., perceived stigma, depression, and anxiety. Doughty et al. [6] have reported that PWE with less knowledge about epilepsy had a higher level of perceived stigma and perceived impact of this

disease. May and Pfafflin [7] reported that an educational program improved both epilepsy-specific knowledge and relevant aspects of coping with epilepsy and decreased seizure frequency but had no significant effect on depressive mood. However, the association between increased knowledge about epilepsy and perceived stigma and mood in PWE needs to be clarified further as there have been few studies on this topic to date.

The aims of this study were twofold: (1) to determine the level of knowledge about epilepsy in Korean PWE and (2) to determine whether knowledge about epilepsy is directly associated with perceived stigma, anxiety, and depressive mood in PWE.

2. Methods

2.1. Subjects

This multicenter cross-sectional study was conducted on an adult epilepsy cohort, the members of which had all attended the outpatient clinics of 31 secondary or tertiary hospitals in Korea. Individuals >18 years of age who had been diagnosed with any type of epilepsy and had been treated for >1 year were eligible to participate in this study. Epilepsy was defined as a history of two or more unprovoked seizures or a single seizure with evidence of epileptiform activity recorded by electroencephalogram or structural lesions documented by brain imaging. Epilepsy and seizures were classified using the International

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League Against Epilepsy (ILAE) classification [8,9]. Subjects were excluded if 1) they experienced a seizure in the 48 h before being requested to fill out the questionnaires, 2) they had a neurological deficit that affected daily living activities, 3) they had received treatment for active psychiatric or medical disorders that would impair their judgment or have a negative impact on their quality of life beyond the effects caused by epilepsy, or 4) they were unable to read or understand the questionnaires.

A final total of 530 PWE participated in this study. They were recruited nonrandomly between September 2012 and November 2012. These subjects were each asked to fill out questionnaires on the day they visited their neurologist at the outpatient clinic. All questionnaires were filled in by the PWE themselves. Demographic and clinical data were collected by interview and by reviewing medical files. The participant characteristics are listed in Table 1. The mean age was 37.4 years (SD = 10.7), and the mean age at seizure onset was 21.9 years (SD = 11.8). Hospital Anxiety and Depression Scale–Depression (HADS-D) and HADS–Anxiety (HADS-A) [10] scores were ≥ 8 in 196 (34.0%) and 212 (40.0%) patients, respectively. Of the 530 participants, 157 (29.6%) reported feelings of stigma, with 57 (10.8%) answering “yes” to all three items on the Stigma Scale [11], indicating that they felt highly stigmatized by their condition. Written informed consent was obtained from all participants. This study was reviewed and approved by the Institutional Review Board of the Asan Medical Center (No. 2015-0888).

2.2. Questionnaires

Knowledge of epilepsy was assessed using the medical knowledge items (EKP-M) of the Epilepsy Knowledge Profile–General [12]. The EKP-M consists of 34 items that require a simple true/false response, including knowledge of features of epilepsy, etiology, medication, and management. The total possible score ranges from 0 to 34. A higher score indicates that the participant has more knowledge of epilepsy. The 21 social knowledge items of the EKP-G were not used in our

Table 1
Patient characteristics (n = 530).

Male/female, n	260/270
Age, years, mean (SD)	35.6 (10.8)
Education level, n (%)	
Middle school or below	68 (12.8)
High school	184 (34.7)
University or above	278 (52.5)
Economic status, n (%)	
Low	145 (27.4)
Middle	365 (68.8)
High	20 (3.8)
Married, n (%)	243 (45.8)
Unemployed, n (%)	139 (26.2)
Seizure onset, years, mean (SD)	21.9 (11.8)
Duration, years, mean (SD)	13.7 (10.5)
Epilepsy syndrome, n (%)	
Idiopathic generalized/undetermined	110 (20.8)
Symptomatic partial	162 (30.6)
Cryptogenic partial	258 (48.6)
Seizure frequency, n (%)	
Seizure freedom in the last year	247 (46.6)
1–11 per year	194 (36.6)
One or more per month	89 (16.8)
No GTC seizures in the last year, n (%)	346 (65.3)
Monotherapy, n (%)	227 (42.8)
Questionnaire measures	
EKP-M, mean (SD)	22.2 (4.1)
HADS-D subscale, mean (SD)	6.4 (3.9)
HADS-A subscale, mean (SD)	6.9 (4.0)
Epilepsy Self-Efficacy Scale, mean (SD)	104.4 (33.4)
Presence of perceived stigma, n (%)	157 (29.6)

SD, standard deviation; GTC, generalized tonic-clonic; EKP-M, Epilepsy Knowledge Profile–Medical; HADS-D, Hospital Anxiety Depression Scale–Depression subscale; HADS-A, Hospital Anxiety Depression Scale–Anxiety subscale.

assessment. Translation of EKP-M into Korean was done by the corresponding author (Lee SA).

Anxiety and depressive symptoms were assessed using the HADS, which consists of 14 items, 7 related to anxiety (HADS-A subscale) and 7 related to depression (HADS-D subscale) [10]. Higher scores represent a higher level of depression and anxiety. We used the Korean versions of HADS [13]. Perceived stigma was measured using the Stigma Scale for epilepsy [11], which consists of three items and requires simple yes/no responses. People with epilepsy were asked to say if they felt that other people were uncomfortable with them, treated them as inferior, or preferred to avoid them because of their condition. Subjects were categorized as ‘stigmatized’ if they said ‘yes’ to at least one of these questions. Perceived self-efficacy in successfully performing tasks related to epilepsy such as managing medications, control over seizures, and management of the disease in general was assessed using the 25-item Epilepsy Self-Efficacy Scale (ESES) [14]. Higher scores on this scale reflect stronger self-efficacy beliefs. We used the Korean version of ESES [15].

2.3. Statistical analysis

Pearson correlation analyses were used to explore correlations among numeric variables, and a Student t-test or one-way ANOVA was used to compare the group mean values. We used multiple linear regression analysis to determine whether knowledge about epilepsy (EKP-M) was associated with perceived stigma (Stigma Scale), anxiety (HADS-A), depressive symptoms (HADS-D), or epilepsy self-efficacy (ESES) independent of demographic and epilepsy-related variables. The demographic and epilepsy-related variables that showed p-values < 0.05 in the univariate analysis were included in the multiple regression analysis. The demographic variables included in this analysis were age, sex, education level, economic status, marital status, and employment status (Table 1). The economic status was categorized into low-, middle-, and high-class depending on the household income. The epilepsy-related factors were age at seizure onset, epilepsy duration, type of epilepsy, seizure frequency, recurrence of generalized tonic-clonic seizure in the last several years, and antiepileptic drug treatment. The significance level was set at $p < 0.05$. Data were analyzed using SPSS version 21.0 (SPSS Inc., Chicago, IL).

3. Results

3.1. Knowledge about epilepsy

The mean EKP-M score in our current PWE cohort was 22.2 (SD: 4.1). Of the total current study population of 530 participants, 356 (67.2%) scored < 25 on the EKP-M, and only 12 (2.2%) scored ≥ 30 . The percentage of correct answers in the EKP-M was 65.3% (SD: 16.3). Among the 34 EKP-M items, 27 were incorrectly answered by $\geq 25\%$ of the PWE subjects. Five were correctly answered by $\leq 50\%$ of these participants, and six items were correctly answered by $\geq 80\%$ of the PWE cohort (Table 2). The higher EKP-M scores were found to be significantly related to younger age ($r = -0.216$, $p < 0.001$) and a higher education level ($p < 0.001$) but not to sex, seizure frequency, or epilepsy duration.

3.2. Associations of knowledge about epilepsy with stigma, mood, and self-efficacy in PWE

By univariate analyses, EKP-M was related to the ESES scores ($r = 0.220$, $p < 0.001$) and HADS-D ($r = -0.154$, $p < 0.001$) but not to the Stigma Scale or HADS-A. In the linear regression analyses, the EKP-M scores were identified as an independent factor associated with both ESES ($p < 0.001$) and HADS-D scores ($p < 0.05$), after adjusting for the confounding variables with p-values < 0.05 in the univariate analysis (Table 3). The higher EKP-M levels were related to a higher level of epilepsy self-efficacy and lower depressive symptoms. Hospital Anxiety and Depression Scale–Depression scores were

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