

Comorbidities, Medication Use, and Proportion of Household Members With Reported Epilepsy or Seizure Disorder

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ABSTRACT

RATIONALE: This study describes the proportion of household members with epilepsy or seizure disorder from a large US cross-sectional survey as well as their patterns of medication use and comorbidities. **METHODS:** An 11-item survey was mailed between January-April 2008 to approximately 150,000 households from a panel of households selected to be representative of the US population. Surveys from 74,858 households were returned (approximately 50% response) providing data for 167,844 household members. Data on occurrence of seizures or convulsions, medication use, and comorbidities diagnosed by a health professional were collected from a total of 147,769 individuals (20,075 did not respond to the epilepsy questions and therefore were excluded; one respondent per household provided data on him or herself and up to three others). These data were used to estimate the proportion of members with epilepsy or seizure disorder and describe demographics, comorbidities, and medication use for these household members. **RESULTS:** Survey respondents reported that 2,747 (1.9%) household members had ever been told that they had epilepsy or seizure disorder. Among these household members (n = 2,747) the average age was 45 ± 19 (SD) years, 55% were female, and 90% (n = 2,473) were taking prescription medications for epilepsy or seizures; 39% (n = 1,079) had seizure or convulsion activity in the past 12 months while 26% (n = 722) had a seizure or convulsion caused by high fever as a child. Each of the following comorbidities was reported in more than 10% of household members with epilepsy or seizure disorder: high blood pressure (31.4%), depression (28.1%), migraine (23.8%), asthma (21.1%), chronic pain (19.4%), anxiety disorder (19.1%), sleep disorder (16.5%), diabetes (14.5%), severe head injury (13.4%), and stroke (10.1%). Prescription medication use for each of the following conditions was also reported in more than 10% of household members with epilepsy or seizure disorder: high blood pressure (25.8%), depression (18.8%), asthma (14.7%), chronic pain (14.2%), migraine (13.8%), anxiety disorder (13.0%), and diabetes (11.5%). **CONCLUSIONS:** In this study, epilepsy or seizure disorder was reported in 1.9% of the population. Comorbidities and medications used to treat these conditions were frequently reported and may be important considerations in the management of patients with epilepsy or seizure disorder. Further research is warranted to examine the impact of comorbidities and medication use on treatment outcomes in patients with epilepsy.

INTRODUCTION

- Epilepsy is a common neurologic condition
 - In a previous survey of 19 US states, 1.65% of adults reported that they had ever been told that they had epilepsy or seizure disorder¹
 - Previous studies have found an increased prevalence of psychiatric comorbidities in individuals with epilepsy²
 - Information is limited on patterns of comorbidities and medication use in epilepsy
- This study describes the results of a large US cross-sectional mailed survey of households selected to be representative of the US population
- Prevalence of self-reported epilepsy or seizure disorder and patterns of self-reported comorbidities and medication use were examined

OBJECTIVES

- This study describes the results of a large US cross-sectional mailed survey of households selected to be representative of the US population
- Prevalence of self-reported epilepsy or seizure disorder and patterns of self-reported comorbidities and medication use were examined

METHODS

Data Source

- 11-item cross-sectional survey of approximately 150,000 US households (January-April 2008)

Study Population

- A sampling frame was constructed to match US census data on head of household age/gender, household income/size, urban/rural location, and census region
- Surveys from 74,858 households were returned (approximately 50% response rate), providing data for 167,844 individuals. The return sample matched US census data
- One respondent per household provided data on himself/herself and up to 3 other household members
- Occurrence of seizures or convulsions, comorbidities, and medication use were collected for 147,769 people
 - 20,075 individuals did not respond to the epilepsy questions and therefore were excluded

Analysis

- Survey responses were examined among those who said “yes” to “Have you ever been told that you have a seizure disorder or epilepsy?” (Table 1)

Table 1. Responses to Epilepsy or Seizure Disorder Screening Questions*

Have you or anyone in your household...	Self only† (n = 1,455)	Other only† (n = 1,292)	Total† (n = 2,747)
Ever had a seizure or convulsion under any circumstances?	91.1%	92.6%	91.8%
Had a seizure or convulsion caused by high fever as a child?	27.1%	25.4%	26.3%
Ever taken Rx medication for seizures or epilepsy?	89.1%	91.1%	90.0%
Had a seizure or convulsion in the past 12 months?	37.4%	41.4%	39.3%

*Responses to survey questions among respondents who said “yes” to “Have you ever been told that you have a seizure disorder or epilepsy?”
†Self Only includes responses from survey respondents answering for him/herself; Other Only includes responses from survey respondents answering for another household member; and Total includes the combined responses from both the Self Only and Other Only groups.

– Proportion of individuals with epilepsy or seizure disorder was estimated and their demographics, comorbidities, and medication use were described (Tables 2 and 3)

Table 2. Self-reported Comorbidities Among Those With Epilepsy or Seizures (n = 2,747)

Have you or other household members ever been told by a health professional that you have...*	Self only† (n = 1,455)	Other only† (n = 1,292)	Total† (n = 2,747)
High blood pressure	40.0%	21.7%	31.4%
Depression	35.4%	20.0%	28.1%
Migraine	30.4%	16.3%	23.8%
Asthma	24.5%	17.3%	21.1%
Chronic pain	25.0%	13.2%	19.4%
Anxiety disorder	23.6%	14.0%	19.1%
Sleep disorder	19.7%	12.8%	16.5%
Diabetes	17.9%	10.6%	14.5%
Severe head injury	16.4%	10.1%	13.4%
Stroke	11.7%	8.3%	10.1%

*Comorbidities reported in more than 10% of household members in the total category with epilepsy or seizure disorder.
†Self Only includes responses from survey respondents answering for him/herself; Other Only includes responses from survey respondents answering for another household member; and Total includes the combined responses from both the Self Only and Other Only groups.

Table 3. Self-reported Medication Use Among Those With Epilepsy or Seizures (n = 2,747)

Are you or other household members taking Rx medication for any of these conditions...*	Self only† (n = 1,455)	Other only† (n = 1,292)	Total† (n = 2,747)
High blood pressure	32.7%	18.1%	25.8%
Depression	22.6%	14.5%	18.8%
Asthma	16.9%	12.2%	14.7%
Chronic pain	19.0%	8.8%	14.2%
Migraine	17.5%	9.6%	13.8%
Anxiety disorder	16.2%	9.4%	13.0%
Diabetes	14.4%	8.4%	11.5%

*Medication use reported in more than 10% of household members in the total category with epilepsy or seizure disorder.
†Self Only includes responses from survey respondents answering for him/herself; Other Only includes responses from survey respondents answering for another household member; and Total includes the combined responses from both the Self Only and Other Only groups.

RESULTS

- 2,747 of 147,769 (1.9%) household members were reported by respondents to have had epilepsy or seizure disorder (when respondents with missing epilepsy questions were included in the sample, our estimate was 1.64% or 2,747/167,844)
- Of these members, mean age ± standard deviation was 45 ± 19 years and 55% were female
- 90% (n = 2,473) had ever taken prescription medication for epilepsy or seizures
- 39% (n = 1,079) had seizure or convulsion activity in the past 12 months; 26% (n = 722) had a seizure or convulsion caused by high fever as a child
- When describing survey responses across self-only, other only, and total groups
 - Responses to the epilepsy or seizure disorder questions appeared to be similar (Table 1)
 - Responses to self-reported comorbidities and medication use tended to be reported higher in the self-only group (Tables 2 and 3)

LIMITATIONS

- The sampling frame was balanced to US census data; however, over- or underreporting of epilepsy might have occurred
- Not all epilepsy questions were validated against clinical exams; however, some of these questions are similar to those used in other surveys (Behavioral Risk Factor Surveillance System)
- Data on epilepsy or seizure disorder status and comorbidities are from self-reports and are not from structured clinical diagnostic interviews
- Self-reported medication use is subject to recall bias
- Causality cannot be inferred since data are collected from a cross-sectional survey
- No comparisons were made between those with self-reported epilepsy or seizure disorder and those without

CONCLUSIONS

- Epilepsy or seizure disorder was reported in 1.9% of the survey population. This figure is consistent with other self-reported data from national surveys¹
- Comorbidities and medications used to treat these conditions were frequently reported and tended to be reported higher in household members reporting on themselves
- Further research is warranted to examine the impact of comorbidities and medication use on treatment outcomes in epilepsy

References

1. Kobau R, et al. *MMWR Surveill Summ*. 2008;57(6):1-20.
2. Kobau R, et al. *Epilepsia*. 2006;47(11):1915-1921.

Acknowledgments

The study was funded and supported by Ortho-McNeil Janssen Scientific Affairs, LLC. Nancy Bella, PharmD, of MedErgy provided editorial assistance.

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**POSTER PRESENTED AT THE 62ND ANNUAL MEETING OF THE AMERICAN EPILEPSY SOCIETY (AES),
DECEMBER 5-9, 2008, SEATTLE, WASHINGTON.**