



## Descriptive Survey to Assess Knowledge of Women Issues and Epilepsy among Obstetrician and Family Medicine Doctors in Saudi Arabia

Riyam Al Anazi<sup>1\*</sup>, Roaa Al Sharif<sup>2</sup>, Kholod Mohammed Alhafean<sup>3</sup>, Gehan Mohammed Atef<sup>3</sup> and Alawi A Al-Attas<sup>4</sup>

<sup>1</sup>Department of Pediatric Neurology, Al Yamama Hospital, KSA

<sup>2</sup>Department of Neuroscience Research, King Fahad Medical City, KSA

<sup>3</sup>Department of Obstetrics and Gynaecology, King Abdul Aziz Hospital, KSA

<sup>4</sup>Department of Adult Neurology, National Neuroscience Institute, King Fahad Medical City, KSA

### Abstract

**Background:** There is wide agreement that females have a slightly lower prevalence of epilepsy and unprovoked seizures than males, however women with epilepsy have several exceptional dilemmas include the use of Antiepileptic Drugs (AEDs), as well as the affect AEDs on sexual function, contraception, pregnancy, childbirth, fetal congenital malformation, and breastfeeding.

**Objectives:** To assess the knowledge of obstetricians and primary care physicians about the relevant topics and concerns of WWE in Saudi Arabia.

**Subjects and Methods:** Cross-sectional study was conducted in Saudi Arabia using a 10 item survey "KOWIE II" questionnaire includes items specific to issues that affect Women with Epilepsy (WWE). Data were collected through an online survey (Google form). The questionnaire was distributed through what's up significant groups for family medicine and obstetrics/gynecology in the western, northern and south areas in Saudi Arabia.

**Results:** Out of 108 participants recruited for the study, it was found that the largest percentage comprised of residents (62%) while 17.6% of the participants were consultants. In terms of specialty, 61.1% of the participants were obstetricians while the remaining 38.9% were family medicine specialists. The participants showed varied levels of knowledge about health issues of importance to woman with epilepsy ranging from 71.3% (antiepileptic medication and breastfeeding) to 11.5% (percent of children at risk for major birth defects). Knowledge score of health issues for women with Epilepsy was significantly higher among obstetricians compared to family physicians (6.16 ± 2.75 vs. 4.29 ± 1.95), p<0.001. Similarly, it was significantly higher among consultants/fellows compared to residents/specialists (7.27 ± 1.62 vs. 4.65 ± 2.56), p<0.001.

**Conclusion:** Inadequate level of knowledge in several vital issues concerning WWE was observed; particularly the hormonal influence of estrogen and progesterone on control of convulsions, the high likelihood of osteomalacia among WWE, and the high rate of sexual dysfunction among them. This defective knowledge among healthcare providers could negatively influence counseling for WWE.

**Keywords:** Epilepsy; Women; Obstetricians; Primary care physicians; Knowledge; Saudi Arabia

### Introduction

Epilepsy is a heterogeneous condition characterized by recurrent seizures that are not provoked by a metabolic or toxic disturbance or by an acute central nervous system insult [1]. It is one of common neurologic condition with approximately 50 million people worldwide affected [2].

There is wide agreement among studies that females have a slightly lower prevalence of epilepsy and unprovoked seizures than males [3], however women with epilepsy have several exceptional dilemmas include the use of Antiepileptic Drugs (AEDs) in this population, also the affect AEDs on sexual function, contraception, pregnancy, childbirth, fetal congenital malformation, and breastfeeding. Worldwide, 50% of women and girls with epilepsy are in the reproductive age range

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#### \*Correspondence:

Riyam Al Anazi, Department of Pediatric Neurology, Al Yamama Hospital, Riyadh, KSA, Tel: 00966533449021; E-mail: rfalenizi@gmail.com

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[4].

Ninety percent of Women With Epilepsy (WWE) deliver healthy babies [5], however, use of some Antiepileptic Drugs (AEDs) has been associated with pregnancy-related complications such as negative impact on cognitive outcome in offspring [6,7], and associated with major congenital malformations [6].

Previous literature disclosed inadequacy of knowledge of women with epilepsy among physician, particularly about menstrual cycle, impact on seizure activity, contraceptive and antiepileptic drug interaction, pharmacokinetic alternations during pregnancy, teratogenicity of antiepileptic drugs, breast feeding and the effect of antiepileptic drugs on bone health and sexual function [9-12]. Two different studies on woman with epilepsy showed similar results as they found that more than half of the reviewed woman stated that they got inadequate information on women's issues in epilepsy from their treating physicians [10,11].

The issue of doctors' knowledge about women with epilepsy has been addressed by investigator in many researches [12,13]. Epilepsy Foundation conduct a large study among 3,500 health care they concluded that only 5% of them likely to treat women with epilepsy correctly answered at least two-thirds of questions on these issues.

Obstetricians and primary care physicians were selected in this study because they significantly contribute for WWE during pregnancy and labor. Therefore, we undertook this study to assess the knowledge about the relevant topics and concerns of WWE in Saudi Arabia.

## Methodology

Cross-sectional study was conducted in Saudi Arabia using a 10-item survey "KOWIE II" questionnaire includes items specific to issues that affect Women With Epilepsy (WWE) [10], including hormone sensitive seizures, effects of Antiepileptic Drugs (AEDs) on oral contraception, bone health, sexual function, pregnancy, and breast-feeding. This is a standardized questionnaire established by Long and Montouris to evaluate healthcare professionals' knowledge regarding certain WWE. Permission obtained from corresponding author to use the questionnaire in this study.

We used an online survey (Google form), which allows data collection through a personalized survey. Information is automatically collected from software programs and converted into an excel sheet. This method was utilized in an effort to increase the number of study participants.

We distributed the questionnaire through what's up significant groups in Family Medicine and Obstetrics/Gynecology (OB/GYN) in the western, northern and south areas in Saudi Arabia.

## Statistical analysis

The data collected were entered and analyzed using IBM SPSS for Windows, version 25.0 (IBM). Participants' responses on the 14 item questionnaire were presented in terms of count and percentage, and then we created a scoring system that gives 1 to the correct answer and 0 for either incorrect or unsure responses. The scores were presented in terms of mean, standard deviation, median, and percentiles, and due to non-normality of the scores, the Mann-Whitney test was use to compare those scores with respect to participants' medical specialty and position.

## Results

Out of 108 participants recruited for the study, it was found that the largest percentage comprised of residents (62%) while 17.6% of the participants were consultants, remaining 16.7% were specialists, while 37% were fellows. In terms of specialty, it was found that 61.1% of the participants were obstetricians while the remaining 38.9% were family medicine specialists (Figure 1).

Participants' responses on the 14-item questionnaire were corrected and classified as correct, incorrect answers or unsure (Table 1). The participants showed varied levels of knowledge about health issues of importance to woman with epilepsy ranging from 71.3% (antiepileptic medication and breast feeding) to 11.5% (percent of children at risk for major birth defects). It was apparent that many participants (11.3% to 75%) were aware of their knowledge defects as evidence by responding with the "Unsure" option rather than guessing incorrectly.

Knowledge score of health issues for women with Epilepsy was significantly higher among obstetricians compared to family physicians ( $6.16 \pm 2.75$  vs.  $4.29 \pm 1.95$ ),  $p < 0.001$ . Similarly, it was significantly higher among consultants/fellows compared to residents/specialists ( $7.27 \pm 1.62$  vs.  $4.65 \pm 2.56$ ),  $p < 0.001$  (Table 2).

## Discussion

Majority of woman with epilepsy have inadequate knowledge about their condition also they reported they didn't receive proper counseling [14]. This can be achieved by improving knowledge among healthcare providers dealing with them. Provision of better health care to WWE necessitates having good awareness and relevance about these issues among healthcare providers. In the present study; remarkable gabs were observed the median score of surveyed Obstetrician and Family Medicine physicians was only 50%.

The majority of participants (86.2%) in the current study were not aware of the fact that during menstrual cycle, estrogen has been found to be a proconvulsant while progesterone has anticonvulsant properties. This is similar to what has been reported by Bhat et al. [9] (60%), Long and Montouris et al. [10] (86%), and Morrell et al. [4] (83%).

Seventy percent of the participants knew that some AEDs compromise the efficacy of oral contraception, but the majority of participants did not know which AEDs dose. This is comparable to what has been reported in studies done by Morrell et al. [4] (95%), Long and Montouris [10] (71%), and Bhat et al. [9] 95%.

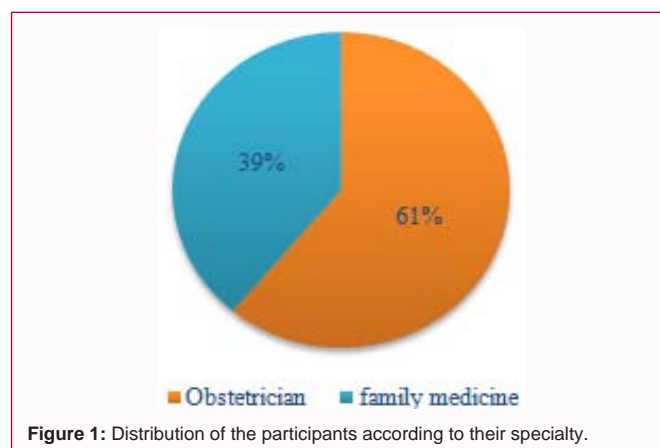


Figure 1: Distribution of the participants according to their specialty.

**Table 1:** Knowledge and awareness of health issues for women with Epilepsy.

| Statements  | Correct    | Incorrect  | Unsure     |
|---|------------|------------|------------|
| For some women with epilepsy, there is a relationship between seizures and the hormonal cycle                                       | 66 (61.1%) | 15 (13.9%) | 27 (25 %)  |
| Reproductive disorders occur more frequently in women with epilepsy than in women without epilepsy                                  | 38 (35.2%) | 36 (33.3%) | 34 (31.5%) |
| Women with epilepsy on antiepileptic drugs (AEDs) have a higher rate of oral contraception pill failure.                            | 76 (70.4%) | 15 (13.9%) | 17 (15.7%) |
| To the best of your knowledge, which of the following AEDs interferes with levels of oral contraceptives?                           | 18 (34.6%) | 15 (28.9%) | 19 (36.5%) |
| Women with epilepsy have a lower fertility rate than women who don't have epilepsy.   | 31 (28.7%) | 66 (61.1%) | 11 (10.2%) |
| A woman with epilepsy should not get pregnant while taking AEDs.  | 23 (44.2%) | 20 (38.5%) | 9 (17.3%)  |
| What percent of children born to women with epilepsy are at risk for major birth defects?   | 6 (11.5%)  | 25 (48.1%) | 21 (40.4%) |
| Estrogen has an inhibitory effect on neurons, whereas progesterone has an excitatory effect.  | 24 (22.2%) | 20 (18.5%) | 64 (59.3%) |
| What is the minimum amount of folic acid that must be advised to a woman with epilepsy of childbearing potential who is under AEDs? | 13 (25%)   | 39 (75%)   | 0 (0%)     |
| What is the rate of patients with epilepsy usually have sexual dysfunction?   | 8 (15.4%)  | 21 (40.4%) | 23 (44.2%) |
| Studies on women with epilepsy indicate higher incidences of sexual dysfunction?  | 16 (30.8%) | 14 (26.9%) | 22 (42.3%) |
| Sexual dysfunction in women with epilepsy is a result of?   | 19 (36.5%) | 11 (21.2%) | 22 (42.3%) |
| Women with epilepsy are at higher risk for osteoporosis   | 50 (46.3%) | 26 (24.1%) | 32 (29.6%) |
| Do you recommend a woman with epilepsy on antiepileptic medication to breast feed her baby?   | 77 (71.3%) | 31 (28.7%) | 0 (0%)     |

Most of the study participants were either unsure or incorrectly answered the question regarding the percent of children at risk for major birth defects when born to women with epilepsy, while only 11.5% of them were aware that the majority of women with epilepsy have healthy children. This is in accordance to what has been reported in other studies done by Long and Montouris et al. [10] (86%) and Bhat et al. [9] (91%); both studies used "KOWIE II" questionnaire.

Almost half (46.3%) of our participants could recognize the association between AEDs and osteomalacia. This is agrees with what has been mentioned by Bhat et al. [9] (45%). However, it is lower from what has been documented by Long and Montouris et al. [10] (77%). This could be partially attributed to variations in cultural competence.

Only minority (13%) of our participant were aware that 25% to 49% of women with epilepsy have sexual dysfunction, while the most of them was unsure (45.5%) or incorrectly answer this question. This is lower than other figures reported by Bhat et al. [9] (30%), and Long and Montouris et al. [10] (37%).

Most (61.1%) of the participants in the current study were aware that taking AEDs should not prevent women with epilepsy to get pregnant. This figure is lower than that reported by Bhat et al. [9] (95%) and Long and Montouris et al. [10] (75%).

The majority of participants (71.3%) recommend a woman with epilepsy on antiepileptic medication to breastfeed her baby. Only 25% of the participants failed to identify the recommended minimum dose of supplement folic acid.

According to specialty, the results indicate that obstetrician score higher ( $6.16 \pm 2.75$ ) compared with family medicine doctors ( $4.29 \pm 1.95$ ), the Mann-Whitney test showed a significant difference in the median scores between obstetrician and Family Medicine doctors. In addition, the results showed that consultant and fellow doctors score higher ( $7.27 \pm 1.62$ ) than resident and specialist doctors ( $4.65 \pm 2.56$ ), also the Mann-Whitney test showed a significant difference in the median scores between the two groups were reported. Finally, the results show that the mean score for all participants is ( $5.4 \pm 2.61$ ).

The results revealed that obstetrician, and consultant or fellow

**Table 2:** Distribution of participants5 knowledge score according to medical specialty and position.

|                     | Mean $\pm$ SD   | Median (25%-75%) | p-value |
|---------------------|-----------------|------------------|---------|
| <b>Specialty</b>    |                 |                  |         |
| Obstetrician        | 6.16 $\pm$ 2.75 | 6 (5-8)          | <0.001* |
| Family Medicine     | 4.29 $\pm$ 1.95 | 4 (3-6)          |         |
| <b>Position</b>     |                 |                  |         |
| Consultant/Fellow   | 7.27 $\pm$ 1.62 | 7 (6-8)          | <0.001* |
| Resident/Specialist | 4.65 $\pm$ 2.56 | 4 (3-5)          |         |
| Overall             | 5.40 $\pm$ 2.61 | 5 (3-7)          |         |

\*Significant difference at 0.05 level

doctors had slightly better knowledge regarding issues of women with epilepsy compared to Family Medicine, and resident or specialist. However, the results indicates a general lack of knowledge among participants regarding issues of women with epilepsy as the highest scores among the groups was for consultant and fellow with only 7.27 correct answers out of 14 questions. Hence, doctors have a responsibility to improve their knowledge of issues regarding to women's health in epilepsy, in addition to the importance of enhancing doctors' education and training programs in that matter.

The study has some limitations that should be addressed. First, the relatively small sample size which could impact the generalizability of our findings over similar population. Second, response rate cannot be estimated, as a result of study nature; therefore the participants couldn't represent accurately all doctors concerning with WWE. Despite of those limitations, this study assessed awareness of Obstetrician and Family Medicine for the first time, up to our knowledge, about women issues related to epilepsy in Saudi Arabia.

## Conclusion

The present study showed inadequate level of knowledge in several vital issues concerning WWE; particularly the hormonal influence of estrogen and progesterone on control of convulsions, the high likelihood of osteomalacia among WWE, and the high rate of sexual dysfunction among them. Additionally, inadequate knowledge concerning pregnancy-related issues such as the selection of AEDs during pregnancy and AEDs safety during breastfeeding was also

observed in the present study. This defective knowledge among healthcare providers could negatively influence counseling for WWE.

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