

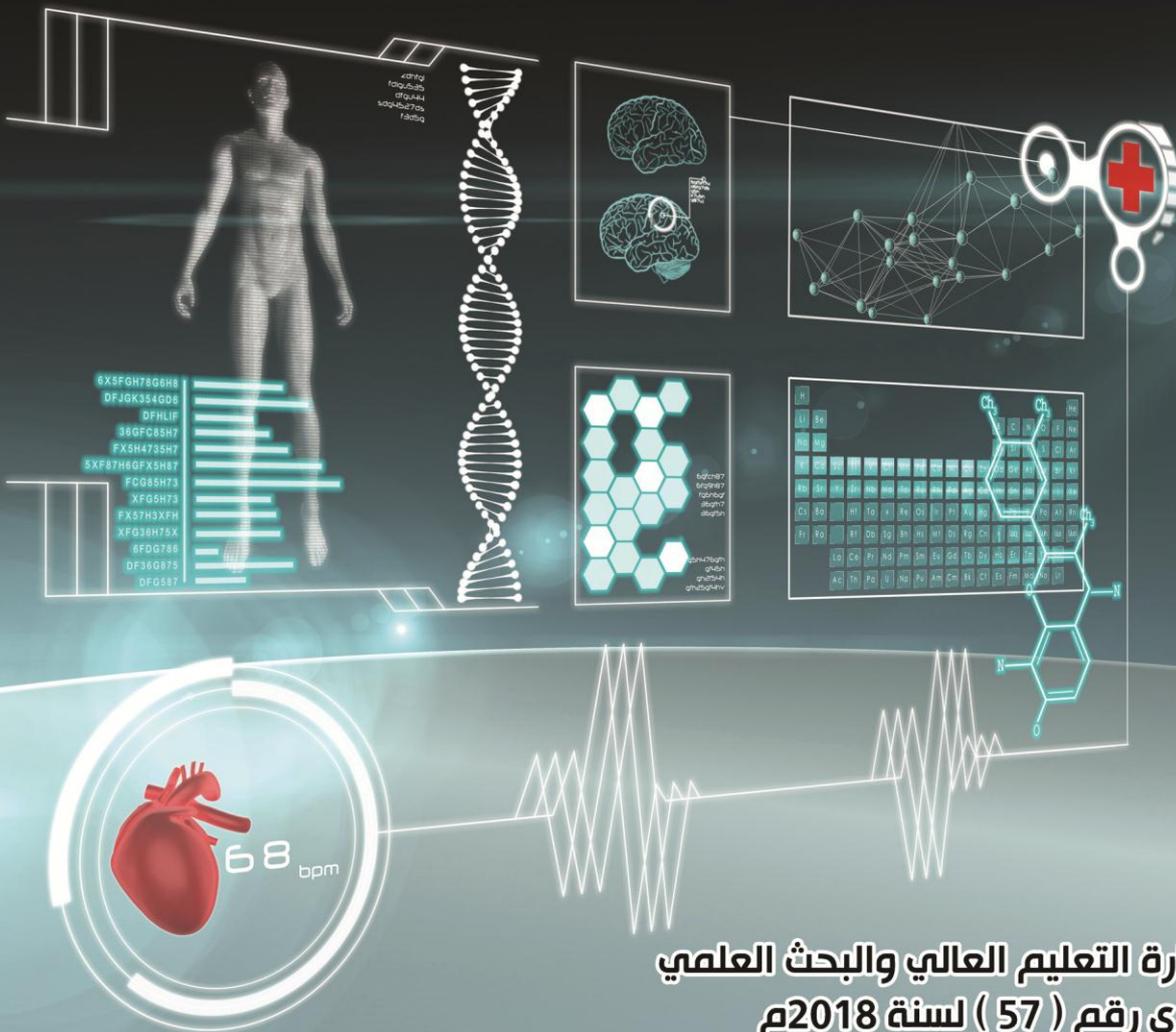
# Al-Razi University Journal for Medical Sciences



## RUJMS

ISSN No. 2616-6143

Volume (2) Issue (2) December 2018



مرخصة من وزارة التعليم العالي والبحث العلمي  
بقرار وزاري رقم ( 57 ) لسنة 2018م

## RUJMS

Published by Al-Razi University

Bianual Refereed Journal

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## Knowledge and Skills of Midwives toward Eclampsia In Public Hospitals In Sana'a, City-Yemen

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### Abstract

**Background:** Eclampsia affects 5 to 10% of all pregnancies and contributes to 10 to 15% of maternal deaths worldwide. Estimated case fatality rate due to eclampsia is 14 times higher in developing countries compared to developed countries. **Aim:** To assess the level of knowledge and skills of midwives regarding management of eclampsia at public hospitals in Sana, a city. **Methods:** A descriptive cross-sectional study was carried out from May to June 2018. Stratified random sampling was administered to selected 50 midwives during the period of this study. The data was collected using a self-administered questionnaire. A questionnaire was divided into 4 sections namely; demographic characteristics of midwives, training information in managing eclampsia, midwifery general knowledge on eclampsia, knowledge on emergency care in managing eclamptic convulsions, barriers and suggestion in managing eclamptic patients. Data were analyzed using SPSS version 20. Descriptive analysis, and Chi-square and ANOVA tests were used and the level of significance was <0.05. Informed oral consent was obtained from the participants. **Results:** In this study, the mean of the midwives age was the 28.5 year. Above half (68%) of the midwives were unmarried. A majority (88%) of midwives had a diploma degree. The mean of work experiences was 7 year. More than half (60%) of midwives were not attended courses training. 60.4% of the midwives don't know about the current management of Eclampsia. Staff shortage and equipment were among the major leading barriers reported by midwives in managing eclampsia. Most of the midwives suggested the need to have training/seminars for managing eclampsia. **Conclusion:** The findings of this study revealed that the majority of the midwives lack enough knowledge about the management of eclampsia. There should be a need for the development of in-service training programs for midwives regarding the managing eclampsia.

**Keywords:** Eclampsia, Knowledge, Skills, Midwifery, Sana'a city

### Introduction

Eclampsia is the occurrence of convulsions in association with signs and symptoms of pre-eclampsia<sup>1</sup>. Eclampsia proceeds to be a major problem, particularly in developing countries, adding significantly to high maternal mortality and mobility<sup>2</sup>.

Eclampsia affects 5-10% of all pregnancies and contributes to 10-15% of maternal deaths worldwide. Estimated case fatality rate due to eclampsia is 14 times higher in developing countries compared to developed countries<sup>3</sup>. Akinola et al, (2008)<sup>4</sup> claim that Eclampsia is one of

the leading causes of maternal and perinatal mortality as well as morbidity throughout the world. Duley (2009)<sup>5</sup> reported that 10% to 15% direct maternal deaths are associated with pre-eclampsia and eclampsia. Risk factors for eclampsia are a family history of eclampsia or previous history of pre-eclampsia and eclampsia, teenage pregnancy, patient older than 35 years, multi-fetal gestation, primigravida and poor outcome of previous pregnancies including intrauterine growth retardation, abruption in placenta and fetal death<sup>6,7</sup>.

The earliest symptoms of eclampsia are hypertension, protein in the urine and edema. When symptoms advance, headache, blurred vision and bloating develop. Primary symptoms of eclampsia are seizures or convulsions in a pregnant woman, a woman in labor or within 42 days after delivery who does not have a history of epilepsy.

Other symptoms of eclampsia include muscle aches and pain, agitation, loss of consciousness and stroke, coma and death can occur to a mother and fetus<sup>8</sup>. Knowledge of midwives in managing eclampsia is essential in reducing maternal morbidity and mortality. There is no documented study conducted at public hospitals in Yemen to assess the midwives knowledge and skills in managing eclampsia nor the ability of nurses to use the knowledge and skills they do have.

The study is expected to assess the current level of knowledge and skills for the management of eclampsia among midwives.

#### **Aim of the study**

To assess the level of knowledge and skills of midwives regarding management of eclampsia at public hospitals in Sana, a city.

#### **Subjects and Methods**

The study employed a descriptive cross-section study from May to June 2018 to assess knowledge and skills on managing eclampsia among midwives working at public hospitals In Sana' a City. The study was conducted at 4 public hospitals in Sana, a city-Yemen. These hospitals are the referral hospitals for all Yemenis women and also serves as teaching hospitals for the faculties of medical and Health Sciences. The target populations comprised all midwives working at public hospitals in Sana, a city. All midwives in public hospitals were involved in this study because all midwives can be reallocated to the maternity wards when necessary .

The estimated sample size was 50 midwives and was calculated by using open source software for epidemiological statistics, Open Epi, version 3. The formula used in sample size  $n = N p (1-P) / d^2 / z^2 1-\alpha/2 (N-1) + P*(1-P)$ . *Parameters used are:* N= population size = 87; p= proportion of health care workers with knowledge on management of eclampsia in Zanzibar = 42%<sup>9</sup>; d= confidence limits as % of 100 (absolute+/- %) = 9%.; Z = Standard normal deviation of 1.96 corresponding to 95% confidence interval  $\alpha = 0.05$ . Therefore sample size was 50 midwives.

Stratified random sampling was administered. This is the method that is used to draw a sample from a study population in such a manner that the sample was given a representative picture of the study population. A stratified random sample was applied to select the sample of midwives, 50 (57.5%) of the total population of 87 as planned. Sampling used to obtain study participant were divided into strata according to their working hospitals. Then a selection of midwives to be sampled from each stratum was done by probability

proportional sampling in order to ensure that all midwives in public hospitals have the same probability of selection irrespective of the size of their cluster. For the purpose of this study, the research team collected all data personally by handing out a structured questionnaire to midwives participants and collecting it after completion.

Data collection was done over a period of 8 weeks. A self-administered questionnaire was applied as a method for data collection. A 100% return rate was achieved. The questionnaire was completed within 30 minutes. The instrument developed for the purpose of this study was a structured questionnaire consisting of closed and multiple choices questions. A questionnaire was divided into 5 sections namely; demographic characteristics of midwives, midwifery general knowledge on eclampsia, knowledge on emergency care in managing eclamptic convulsions, barriers faced by midwives in the management of eclampsia and midwives suggestion for improving the management of eclamptic patients. A pilot study was performed on 10% of midwives using

the same setting and questionnaire to assess the clarity and feasibility of the study.

Data was analyze used SPSS program version 20 for data entry then data were analyzed. The following statistical analyses were performed used descriptive analysis, which included frequency, percentage. Chi-square an ANOVA test was used and the level of significance selected for this study was  $< 0.05$ . The consent form was obtained from Al-Razi University, as well as the managers of hospitals where the research was conducted. Informed oral consent was obtained from the participants. Confidentiality and privacy concerning all information were ensured.

## Results

### Demographical characteristics

It is showed that more than half of midwives (68%) were unmarried. The majority (88%) of midwives had a diploma degree. The age mean $\pm$ SD was 28.54 $\pm$  5.4 years. The mean $\pm$ SD of work experiences) was the 7.04 $\pm$ 5.9 year. More than half (60%) of midwives were not attended courses training. Table1

**Table 1: Demographic characteristics of midwives (N=50)**

Demographic data	F	%
<b>Marital status</b>		
• Married	16	32
• Unmarried	34	68
<b>Education level</b>		
• Diploma degree	44	88
• BSc degree	6	12
<b>Courses training</b>		
• Yes	30	60
• No	20	40
<b>Age (Year) /mean<math>\pm</math>SD</b>	28.54 $\pm$ 5.4 year	
<b>Work experiences (Year)/ mean<math>\pm</math>SD</b>	7 $\pm$ 5.9 years.	

**Knowledge of midwives on general information toward eclampsia**

Table 2 reveals that the majority of the midwives (84%) not defined eclampsia correctly as the woman in labor or within 42 days after delivery, experiences seizures or convulsions. As regards to earliest symptoms of eclampsia the majority of midwives, (84%) had correct knowledge on the earliest symptoms of eclampsia. As regards to primary symptoms of eclampsia, the majority of midwives (60%) had correct knowledge of symptoms of eclampsia. The results of the study toward advance symptoms of eclampsia showed that (46%) had correct knowledge on advance symptoms of eclampsia and only (14 %) of midwives had correct knowledge on risk factors of eclampsia.

**Knowledge of emergency care in managing eclamptic fits**

The results of the study showed that only 2(4%) of midwives had correct knowledge on immediate care during convulsions and more than two-thirds (88%) of midwives were able to mention all measures needed to care women about convulsion.

The result of this table shows that the majority of study midwives were not able to mention correctly the examination needed after convulsions. Only 10 percent managed to select the

correct item. The results of this study showed that the majority of study midwives were not able to mention correctly recommended I.V fluids to manage eclampsia. Only 22 % of study midwives mentioned that you can use ringer lactate as IV line recommended in managing eclampsia. The findings of the study regarding to knowledge of midwives about recommended drugs used to managing eclampsia showed that majority of midwives (88%) were able to mention correctly the magnesium sulfate as recommended drug used to control convulsion, majority of midwives (86%) were aware of the recommended dose of magnesium sulfate 20% solution, 4g iv slowly over 5-10 minutes or 10 g of magnesium sulfate, each buttock 5g with 50% solution deep IM., only 8 percent of midwives identified that all efforts are combined strategies for prevention of toxicity of magnesium sulfate.

Midwives were also asked to choose the immediate measure to control of toxicity of drug occur. It was observed that 66% of midwives were don't know how to immediate measures to control toxicity from drugs that selected to managing eclampsia. Only 2% of the midwives were answered correctly regarding immediate measures to control toxicity from drugs that selected to managing eclampsia.

**Table 2: General knowledge of midwives about eclampsia (N=50)**

Statement	Correct answer		Incorrect answer	
	F	%	F	%
Definition of eclampsia	8	16	42	84
Earliest symptoms of Eclampsia	42	84	8	16
Primary symptoms of Eclampsia	30	60	20	40
Advance symptoms of Eclampsia	23	46	27	54
Risk factors of eclampsia	7	14	43	86

**Table 3: Knowledge of emergency care in managing eclamptic fits (N=50)**

Statement	Correct answer		Incorrect answer	
	F	%	F	%
Immediate management during convulsions	2	4	48	96
Care of woman after convulsions	44	88	6	12
Kind of assessment after convulsions	5	10	45	90
The recommended I.V fluids to managing eclampsia	1	2	49	98
The recommended drugs used to managing eclampsia	44	88	6	12
The recommended dose of those drugs to control convulsion	43	86	7	14
Prevention of toxicity of drugs that selected to managing eclampsia	4	8	46	92
The immediate measures to control toxicity from drugs that selected to managing eclampsia	1	2	49	98

**Barriers faced by midwives in the management of eclampsia**

Staff shortage or an insufficient number of a midwife to the patient (39%) was among the major leading barriers reported by midwives in managing eclampsia followed by equipment shortage (23%) as shown in table 4.

**Midwives suggestion for improving the management of eclampsia**

Most of the midwives suggested the need to have training for managing eclampsia (34.4%), followed by staff for managing eclampsia (22.4%) and equipment for assessing, monitoring and managing eclampsia like suction, monitor and oxygen equipment (16%) as reflected in table 5

**Table 4: Barriers faced by midwives in the management of eclampsia**

Barriers	F	%
Staff shortage or an insufficient number of a midwife to patient	39	42.4
Shortage/Irregular availability of drugs (Mgso <sub>4</sub> , and antihypertensive	9	9.8
Equipment shortage (B.P machine, monitor, suction)	23	25
Insufficient knowledge of midwives/Nurses	21	22.8

*\*Multiple choices were allowed*

**Table 5: Midwives suggestion for improving the management of eclampsia**

Statement *	F	%
Need to have Training/seminars	45	34.4
Sufficient number of staff	29	22.4
Availability of drugs	17	12.9
Availability of equipment	21	16
Special space for caring eclamptic patient	19	14.5

*\*Multiple choices were allowed*

### **Association between the demographic characteristics of midwives and knowledge toward eclampsia**

There was no statistically significant difference between the level of knowledge and courses training ( $P$ -value $>0.05$ ). Whereas there was a statistically significant difference between the level of knowledge and educational level ( $P$ -value $<0.05$ ). There was no statistically significant difference between the level of knowledge and age of midwives ( $P$ -value $>0.05$ ) but no statistically difference between the level of knowledge and years of experiences ( $P$ -value $>0.05$ ).

### **Discussion**

Despite this, the data obtained through self-reporting questionnaire on knowledge in managing eclampsia revealed that knowledge of midwives about general information toward eclampsia shows that the majority of the midwives not defined eclampsia correctly as the woman in labor or within 42 days after delivery, experiences seizures or convulsions. As regards to earliest symptoms of eclampsia, the majority of midwives had correct knowledge on the earliest symptoms of eclampsia. As regards to primary symptoms of eclampsia, the majority of midwives had correct knowledge of symptoms of eclampsia and the majority of midwives had correct knowledge on advance symptoms of eclampsia.

The results of the study showed that only 7(14%) of midwives had knowledgeable about risk factors of eclampsia. Our findings showed that the overall percentage 60.9% of midwives lack enough knowledge about the management of eclampsia however the rest of the midwives 39.1% had somehow enough level of

knowledge regarding management of eclampsia. The result is approximately similar to the study done at Dar-es-salaam in public health facilities by Maembe, 2012<sup>10</sup> that found out that the overall proportion of midwives with knowledge in managing patient with eclampsia was 45%. Similarly, a study done by Plotkin et al. (2010)<sup>9</sup>, this showed that 42% of midwives were knowledgeable about managing eclampsia. These findings imply that though midwives care for an eclamptic woman in the ward, they do with insufficient knowledge. Our finding is inconsistent with a study done by Ratna et al. (2017)<sup>10</sup>, this showed that 63.8% of the participants had somehow enough level of knowledge regarding management of eclampsia however the rest of the participants lack enough knowledge about the management of eclampsia.

Most midwives from this study were had poor knowledge (10%) on physical examination (observe color for cyanosis and need for oxygen, check for aspiration; lungs should always be auscultated after the convulsion has ended, check vital signs and fetal heart rate) needed after convulsion. In this study midwives were knowledgeable on the recommended drug for controlling convulsion (88%), the result is similar to study done at Dar-es-salaam by Maembe, 2012<sup>11</sup> which found the nurse-midwives who were knowledgeable on the recommended drug for controlling convulsion was (95%). Also, the study is consistent to the study done by Plotkin et al. (2010)<sup>9</sup> which revealed that 83% of the nurse scored highly on the knowledge of drug controlling convulsion (Magnesium sulfate). Findings of this study shows that most midwives were not knowledgeable on prevention of toxicity (assessing respiratory rate, patellar reflex and urinary output) of

magnesium sulfate (98%) and immediate measure in case of toxicity of MgSO<sub>4</sub> occur (93%); This is comparable to a study done by Nepal society for obstetrics and gynecologist (2009) which indicated 74% of health care providers were not knowledgeable on monitoring of toxicity of magnesium sulfate at a baseline.

The current study shows that courses training has associated with knowledge in managing eclampsia with ( $p$ -value $>0.05$ ). These results are comparable to those reported from the study done in Nepal by USAID and Nepal Society<sup>12</sup> for obstetrician and gynecologists, 2013 which found providers who completed skilled birth attendant's in-services training performed better. Of the 250 providers who participated in various round of assessment, SBA trained providers scored an average of 89% versus 61% among the 180 non SBA trained providers. From this study, the relationship between selected variable and knowledge in managing eclampsia was observed and found between age and nurse's knowledge in managing eclampsia. Whereas there was a statistically significant association between the level of knowledge and educational level ( $P$ -value $< 0.05$ ) and a significant association was found between the place of getting expertise in managing eclampsia ( $P$ -value $<0.05$ ) but no significant association was found in the total year of experiences. This is similar with the findings of the Baby (2005)<sup>13</sup> which indicate that there is no significant association between knowledge level of staff midwives and selected variable like age and professional qualification but significant association was found between knowledge level and total year of experiences and in-service education. In this study, the barriers faced by midwives in managing

eclampsia were staff shortage (42.4%), equipment shortage like a monitor, BP machine and suction (25%) and insufficient knowledge of midwives (22.8%). This is similar to the findings of the study done by engender health<sup>14</sup> in developing countries (2007) and study done by Barua et al. (2011)<sup>15</sup> in Indian hospital which indicated shortage of drugs, lack of manpower and equipment to manage preeclampsia and eclampsia were the barriers in managing eclampsia may not be a good predictor of treatment compliance.

### **Conclusion**

We conclude that the 60.9% midwives lack enough knowledge about the management of eclampsia however the rest of the midwives 39.1% had somehow enough level of knowledge regarding management of eclampsia. Staff shortage and equipment were among the major leading barriers reported by midwives in managing eclampsia. Most of the midwives suggested the need to have training/seminars for managing eclampsia.

### **Recommendations**

There should be a need for the development of in-service training programs for midwives regarding the managing eclampsia. Further study involving a larger sample size of midwives from different public hospitals of Yemen to assess the real picture of midwives practice in managing eclampsia.

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