

Effect of Nursing Program on Improving Nurses' Knowledge and Skills Regarding Care of Eclamptic Women

EkbalAbd El Rheem Emam^{1,*}, Nahed Mousa Saber²

¹Woman Health and Obstetric Nursing, Faculty of Nursing, Minia University, Egypt

²Maternal and New born Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt

*Corresponding author: dr_ekbal_2010@yahoo.com

Received August 18, 2018; Revised October 01, 2018; Accepted October 08, 2018

Abstract Eclampsia proceeds to be a major problem, particularly in developing countries that, adding significantly to high maternal mortality and mobility rate. Maternity nurses can play a major role in prevention of maternal death related to eclampsia. **Aim:** The aim of the study was to evaluate the effect of nursing program on improving nurses' knowledge and skills regarding care of eclamptic women. **Subjects and methods:** A quasi-experimental (pre-post) design was adopted to reach the stated aim and conducted at inpatient units in obstetrics & gynecology and child Minia University. A total sample of 60 nurses participated in the study. A Structured Interview Questionnaire form used for data collection including personal characteristics, knowledge and practice about eclamptic women. **Results:** the finding of this study revealed that, more than quarter of nurses had poor knowledge (30.0%), but after program (75.0%) of nurses had good knowledge. There was statistically significant difference before / after program ($p < 0.05$) related to total knowledge regarding care of eclampsia women. Practice regarding care of eclampsia women, less than quarter of nurses of pre-program (23.3%) had poor practice and post-program (83.3%) had good practice. **Conclusion:** There were gaps between before/after program related to nurses' knowledge and practice in the area of managing eclamptic women. **Recommendations:** Regular training programs for performance to encourage nursing updated and improve their practice.

Keywords: eclampsia, knowledge, practice, nurses, program

Cite This Article: EkbalAbd El Rheem Emam, and Nahed Mousa Saber, "Effect of Nursing Program on Improving Nurses' Knowledge and Skills Regarding Care of Eclamptic Women." *American Journal of Nursing Research*, vol. 6, no. 6 (2018): 430-436. doi: 10.12691/ajnr-6-6-10.

1. Introduction

One of the most prevalent disorders that occur during pregnancy is hypertension, which causes complications in 10% of all pregnancies. These disorders are not only dangerous for the pregnant women, but they also significantly increase the risk for the fetus [1]. The classification of hypertensive disorders in pregnancy currently consists of five categories: (1) hypertension that is present before pregnancy or that starts before twenty weeks' gestation that is chronic hypertension (2) Gestational hypertension: blood pressure elevation (140/90 mm Hg) identified after 20 weeks' gestation without proteinuria. Blood pressure returns to normal by 12 weeks postpartum (3) Pre-eclampsia: most common hypertensive disorder of pregnancy, which develops with proteinuria after 20 weeks gestation. It is multi system disease process, which is classified as mild or severe, depending on the severity of the organ dysfunction. (4) Eclampsia: Onset of seizure activity in a woman with pre-eclampsia (5) Chronic hypertension with superimposed preeclampsia: occurs in

approximately 20% of pregnant women with increased maternal and fetal morbidity rates [2].

Eclampsia, which is considered a complication of severe preeclampsia, is commonly defined as new onset of grand mal seizure activity and/or unexplained coma during pregnancy or postpartum in a woman with signs or symptoms of preeclampsia. It typically occurs during or after the 20th week of gestation or in the postpartum period [3].

In severe cases, preeclampsia can develop into eclampsia, which includes seizures. Seizures in eclampsia may cause a woman to lose consciousness and twitch uncontrollably. If the fetus is not delivered, these conditions can cause the death of the mother and/or the fetus [4]. When the pregnant mother has eclampsia, several complications can occur to her and to the fetus as well as retarded growth of fetus (IUGR) or the fetus may be born low birth weight or small for gestational age (SGA). The fetus may grow more slowly than normal within the womb (uterus) of a woman with eclampsia, which is termed intrauterine growth restriction and may result in the child appearing small for gestational age or being born with low birth weight as well as causing Eclampsia problems with the placenta to occur [5].

Eclampsia remains to be the most important cause of morbidity and mortality rate among either maternal or fetal world or among mothers and fetuses. So, enhancing knowledge about management of eclampsia among health team is very important as it will decrease disease and death rate among women with eclampsia. Nurses have a vital role in preventing maternal mortality because of eclampsia. Hence, the value of estimating nurses' knowledge about eclampsia [6].

The nurse at three Indian hospitals stated that they had neither the knowledge nor the skills to manage eclampsia patients at the same time; they accepted that there was some hesitancy to manage such complicated cases. [7]. Also, a study done in Port Said hospitals found that the nurse had deficient knowledge and practice related to care of women with eclampsia. Those who attend a training program in managing eclampsia were few and also emergency drugs and resuscitation equipment were deficient [8].

Thus, the nurses role are very crucial in providing the nursing care for eclamptic cases; they must be competent in their knowledge and practices, as they should be aware accurately for who they are dealing before, during and after monitoring the fits [9]. Nursing actions during a convulsion are directed toward ensuring a patient airway and client safety. It is important to note the time of onset and duration of the seizure. Call for help but not leave the bed side. Make sure that the side rails on the bed are raised; pad them with a folded blanket or pillow if possible. Women with eclampsia have been known to sustain fractures from falling out of bed during the seizure. Immediately after convulsion, lower the head of the bed and turn the women on to her side. This helps prevent aspiration of vomitus [10].

Recognizing pre-eclampsia is very vital in reducing the danger of eclampsia. The United States Preventive Services Task Force (USPSTF) recommends regular measurement of blood pressure during pregnancy to recognize preeclampsia early. A good line of treatment of patients with pre-eclampsia is magnesium sulfate for seizures prevention [11].

1.1. Significance of the Study

Hypertensive disorders are associated with higher rate of maternal, fetal, and infant mortality and with severe morbidity; especially in case of severe pre-eclampsia, eclampsia, and Hemolysis, elevated liver enzyme levels, and low platelet levels (HELLP) syndrome [12]. The incidence of eclampsia has been relatively stable at 1.6 to 10 cases per 10,000 deliveries in the developed countries. However in the developing countries, the incidence varies widely from 6 to 157 cases per 10,000 deliveries. Incidence of 76 patients out of a total 5562 deliveries presented with eclampsia in Canada (excluding Quebec) 5.9/10,000 cases between 2009-2010 Thus, despite rates of eclampsia declining in the developed world, Eclampsia remains a worldwide problem[13].

Many studies about the women in the developing countries found that, the women is seven times more likely to develop pre-eclampsia, three times more likely for it to progress to eclampsia, and 14 times more likely to die of eclampsia than a pregnant women in a developed

countries. The number of deliveries with a complication of eclampsia at inpatient units at Obstetrics & Gynecology and Child Minia University Hospital (2017) was 177 out of 5696 deliveries (3.1%) [14].

Although management of preeclampsia is challenging, early detection can be made through antenatal follow up as it may enhance pregnancy outcome. Early detection and proper treatment of preeclampsia are very vital. Professional nurse can play a major role to save lives of eclamptic and preeclamptic women [15].

1.2. Aim of the Study

To examine the effect of nursing program on improving nurses' knowledge and skills regarding care of eclamptic women.

1.3. Research Hypotheses

- Nurses' knowledge regarding care of eclamptic women will improve after attendance of learning program than before.
- Nurses' practice regarding care of eclamptic women will improve after attendance of learning program than before.

2. Subjects and Method

2.1. Research Design

A quasi-experimental (pre-post) design was adopted to reach the stated aim.

2.2. Study Setting

The study was conducted at inpatient units of Obstetrics & Gynecology and Child Minia University Hospital consisting of three floors, two floors for obstetrics and gynecology and the third floor for pediatrics .The first floor contained room for gynecological disease patient. The second floor contained many section, one of them contained antenatal rooms for high risk women, second section contained delivery room and rooms for post labor women, the third section contained intensive care unit rooms. Third floor specialized for pediatric and its diseases.

2.3. Study Sample

Convenience sample of (60) Maternity staff nurses who had worked at Obstetrics & Gynecology and Child Minia University Hospital. **Inclusion criteria:** - All nurses were working at Minia university hospital in antenatal, labor, post natal ward and intensive care units. **Exclusion criteria:** - Nurses who have administrative role only as head nurse.

2.4. Data Collection Tools

Data for the study were developed by the researcher after extensive review of literature and it was structured from [16,17,18]. in collaboration with the ministry of health, and modified by researcher after reviewing questionnaire

are revised by 3 panels of Obstetrical and Gynecological experts in nursing staffs. A Structured Interview Questionnaire and observational checklist was consisted of two tools were utilized for data collection:

First tool: A Structured interviewing schedule form used for data collection. The questionnaire sheet included two parts:

Part 1: It is consisted of questions regarding to personal data interview sheet included: age, nursing qualifications, years of experience, and place of work).

Part 2: the second part included questions to assess level of nurses' knowledge about management of eclamptic women. It included (12) items such as (immediate management during fit, cares of women after convulsion, prevention of drug toxicity.....etc.

percentage	knowledge
0-49%	Poor
50-69%	Average
≥70%	Good

A total scoring was modified after being revised by researcher to reference updated MOHSW (2010) which show a competent maternity nurse should obtain satisfactory pass score in knowledge and skill ≥70%

Second tool: Assessment of nurses' skills regarding care of eclamptic women by observational checklist, the questionnaire was developed from checklist for eclamptic care by (Jhpiego, 2011) and Aba-Banda (2010) in collaboration with the ministry of health Tools were formulated in English and translated into Arabic. Tool used to evaluate nurse's performance during care provided for women with eclampsia. It consisted of (33) items related to nurses practice.

percentage	Practice
0-59%	Poor
60-74%	Average
≥75%	Good

Tools validity and reliability:

The two tools were reviewed by a panel of three experts in women health and obstetric nursing to examine their face and content validity, to clarity, relevance, comprehensiveness, understanding, applicability and easiness.

The internal consistency of reliability for tool 1 was tested using α cronbach coefficient test and it was 0.78 which was reliable. Regarding tool 2, equivalence was measured by using interrater reliability which revealed 0.82.

2.5. Ethical Considerations

Before the conduction of the pilot study as well as the actual study, an official permission and consent was obtained from nurses that were willing to participate in the study, after explaining the nature and purpose of the study. They were informed about their rights to refuse or withdraw from the study at any time. Study subject privacy was considered during collection of data. No health hazard was present. A participant was assured that all their data are highly confidential.

Pilot study

After developing the tool, a pilot study was conducted on a sample of 10% of total sample (6 nurses). The aim of the pilot was to assess the feasibility and applicability of the tools. It also helped estimating the time needed for data collection. According to the results of the pilot study no modifications were done. The data collection forms were finalized based on the pilot results.

Field of study:

The study was conducted during the period from December 2017 to March 2018, after taking permission from the director and head department as an approval for data collection to conduct the study. The letter explained the study purposes and its main procedure.

2.6. Procedures

1. Interviewing phase:-

- The researcher was attended inpatient to provide the care for Eclamptic women, with average of three days per week to collect data, using the structured interview questionnaire sheet.
- At the beginning of interview the researcher greeted each nurse, utilizing proper channel of communication and explained the purpose of the study and taken their verbal informed consent.

2. Assessment phase:

Assessment began at the first contact with the nurses in the morning. Data related to age, qualification and years of experience, knowledge about nurses' knowledge regarding care of eclamptic women. The time taken by each nurse to fill the form was about 15-20 minutes. Two to three nurses fill the questionnaire daily to avoid disruption of the service in the department. The observation checklist was done by the researcher toward care of eclamptic women. The observation was repeated after three months, and the average taken, it took about 1-2 hours or more. The observation was scheduled for weekday as well as morning, evening and night shift to avoid observing each participant more than once

3. Implementation phase:

After preparation of the program, the researcher started its implementation. The program was administered to the nurses in short sessions, each session lasted for around 35-45 minutes and filling out the questionnaire to measure the nurses knowledge (pre & post) test consumed on average about 15-20 minutes. Arabic language was used to suit all levels of education. Different methods of teaching and training strategies were used such as lecture, group discussion, demonstration and re-demonstration for clinical procedures Instructional media included, handout prepared by the researcher and distributed to all nurses in the first day of the training. After each session feedback was done. Most nurses were cooperating and interested by the topic.

The teaching and training involved (6) sessions where (4) and (2) of them were devoted to theoretical and practical content to cover all information related to eclamptic women. Sessions were arranged to take place when nurses working during morning shift would be available. The first session, an orientation to the program, its purpose and the written manual of regarding care of eclamptic women took place. Nurses were informed

about the time of session. The second session to fourth session to cover all information related to nurses knowledge regarding care of eclamptic women, such as on immediate management during fits, the cares of women after convulsion, physical examination needed after convulsion, the recommended drug used to control convulsion in management of eclampsia, The recommended dose of that drug during control of convulsion andetc. While the fifth session to sixth session it's covered all information and practice related to regarding care of eclamptic women, such as Encourages the woman to lie on her side, If available, gives oxygen at 4–6 L per minute by mask or cannula, Checks the biceps or patellar reflexes, If rates are heard, withholds fluids andetc.

2.7. Evaluation Phase

After three months of implementation of the teaching and training, the follow up test for nurses' knowledge and skills were done by the same format of the pre-training assessment to evaluate the effect of the implemented teaching and training.

2.8. Statistical Analysis

Statistical analysis was done by using Statistical Package for the Social Science (SPSS 20.0). Quality control was done at the stages of coding and data entry. Data were presented by using descriptive statistics in the form of frequencies and percentage for qualitative variables, and mean & standard deviation (SD) for quantitative variable. Fisher's exact test used to test the association between two qualitative variables or to detect differences between two or more proportions statistical significance was considered at $P \leq 0.05$.

3. Results

Table 1: this table shows that, the total study sample was 60 nurses, as regarding nurses' age near half of the

studied nurses (45%) their age ranging from less than 30 years while (16.7%) in the age group (40-50) years of age; with Mean age 30.5 ± 7.4 years. Regarding qualification, majority of nurses (68.3%) had technical institute, while the minority (11.7%) had bachelor degree. Regarding years of experience, near half of study sample (48.3%) had more than 10 years' experience, while (16.7%) had less than 5 – 10 years of experience.

Table 1. Distribution of nurses related to their personal data (n = 60)

Personal data	Frequency	%
Age		
20 < 30	27	45.0
30 < 40	23	38.3
40- 50	10	16.7
Mean \pm SD	30.5 \pm 7.4	
Qualification		
Nursing Diploma	12	20.0
Technical Institute	41	68.3
Bachelor	7	11.7
Years of experience		
< 5	21	35.0
5 – 10	10	16.7
more than 10	29	48.3
place of work		
Gyna	17	28.3
ICU	9	15.0
Gyna Clinic	5	8.3
Gyna Reception	18	30.0
Middel Care	3	5.0
Eclampsia	8	13.4
Position		
Staff Nurse	55	91.7
Supervisor Nurse	5	8.3

Table 2. Nurses' Knowledge Related to Eclampsia Before and After Program (n= 60)

Nurses' knowledge	Before		After		P – value
	Frequency	%	Frequency	%	
1. The immediate managements during fit	39	65.0	57	95.0	.0001**
2. The cares of women after convulsion	45	75.0	56	93.0	.0001**
3. Kind of assessment/physical examination needed after convulsions/fits?	15	25.0	59	98.3	.001**
4. The recommended intravenous line for managing eclampsia	30	50.0	55	91.7	.0001**
5. The recommended drug used to control convulsion in management of eclampsia	22	36.7	45	75.0	.004**
6. The recommended dose of that drug during control of convulsion	45	75.0	57	95.0	.005**
7. The prevention of drug toxicity	0	.0	43	71.7	.007**
8. The immediate measures in case the toxicity of the drug occur	29	48.3	51	85.0	.0008**
9. If diastolic blood pressure remains above 110mmhg, the recommended group of drug used	48	80.0	60	100.0	.0002**
10. Other management of eclampsia	42	70.0	59	98.3	.008**
11. Barriers do you face in the management of women with eclampsia	19	31.7	52	86.7	.005**
12. Nurses suggestion for improving management of eclampsia	32	53.3	45	75.0	.001**

Table 2 indicates that, there was statistically significant difference before and after regarding all items of the knowledge with increased knowledge of nurses after program relation to nurses knowledge regarding care of eclampsia ($p < 0.05$).

Table 3 illustrates that, there was highly statistically significant difference before / after program related to practice of nurses regarding immediate management of Eclampsia items three items which are; never leaves the woman alone, check for signs of labor and if diastolic

blood pressure remains above 110 mm Hg, gives antihypertensive drugs. These three items shows no statistically significant difference after the program ($p > 0.05$).

Table 4 illustrates that, there was statistically significant difference before / after program related to practice to monitor women with Eclampsia except, two items checks temperature every four hours, checks for signs of labor These two items shows no statistically significant difference after the program ($p < 0.03$).

Table 3. Frequency distribution related to Nurses' practices in Immediately Management of eclampsia and After Program (n= 60)

Immediate management	Before		After		p - value
	Frequency	%	Frequency	%	
1. Urgently mobilizes available personnel.	42	70.0	58	96.7	.005**
2. Encourages the woman to lie on her side	41	68.3	54	90.0	.0001**
3. Ensures the woman's airway is open	44	73.3	54	90.0	.001**
4. Observes color	18	30.0	54	90.0	.0001**
5. If available, gives oxygen at 4-6 L per minute by mask or cannula.	54	90.0	60	100.0	.04*
6. Checks pulse	47	78.3	60	100.0	.005**
7. Checks respirations	47	78.3	60	100.0	.005**
8. Checks temperature	21	35.0	60	100.0	.002**
9. Checks fetal heart	38	63.3	47	78.3	.05**
10. Checks the biceps or patellar reflexes	8	13.3	47	78.3	.0008**
11. Auscultates the lung bases for rales	7	11.7	47	78.3	.0001**
12. Starts an intravenous drip of normal saline or Ringer's lactate	47	78.3	60	100.0	.005**
13. If diastolic blood pressure remains above 110 mm Hg, gives antihypertensive drugs	54	90.0	58	96.7	.815 NS
14. Gives anti-convulsive drugs to prevent or treat convulsions / fits	27	45.0	60	100.0	.0001**
15. Inserts an indwelling urinary catheter	54	90.0	60	100.0	.04*
16. Checks urine for proteinuria	48	80.0	60	100.0	.005**
17. Assesses clotting status with a bedside clotting test	39	65.0	47	78.3	.007**
18. If the woman begins having a convulsion, provides for care during the convulsion	55	91.7	60	100.0	.05*
19. Never leaves the woman alone	59	98.3	60	100.0	.742 NS
20. Checks for signs of labor	58	96.7	60	100.0	.547 NS
21. Records drug administered, interventions, and findings on the woman's record	59	98.3	60	100.0	.0002**

Table 4. Frequency distribution related to Nurses' practices in Monitor women with eclampsia - Hourly before and after Program (n= 60)

Monitor women with eclampsia - hourly	Before		After		p - value
	Frequency	%	Frequency	%	
1. Maintains a strict fluid balance chart	49	81.7	58	96.7	.002**
2. Checks vital signs	53	88.3	60	100.0	.05*
3. Checks fetal heart rate	43	71.7	47	78.3	.05*
4. Checks urinary output	47	78.3	58	96.7	.002**
5. Checks patella reflexes	14	23.3	47	78.3	.0001**
6. Observes color	19	31.7	54	90.0	.0001**
7. Auscultates the lung bases	16	26.7	47	78.3	.0001**
8. If rates are heard, withholds fluids	50	83.3	54	90.0	.03*
9. Checks temperature every four hours	59	98.3	60	100.0	.742 NS
10. Checks for signs of labor	59	98.3	60	100.0	.742 NS
11. Records all findings on the woman's record	60	100.0	60	100.0
12. Shares findings with the woman	60	100.0	60	100.0

Table 5. Level of nurses' knowledge before and after the program (n = 60)

Nurses' Knowledge	Before		After		Fisher Exact	P - value
	no.	%	no.	%		
Poor < 50%	18	30.0	0	.0	70.847	.0001**
Average 50 < 70%	23	38.3	15	25.0		
Good ≥ 70	19	31.7	45	75.0		

Table 5: illustrates total knowledge regarding care of eclamptic women, more than quarter of nurses had poor knowledge (30.0%), but after program (75.0%) of nurses had good knowledge. There was statistically significant difference before / after program ($p < 0.05$) related to total knowledge regarding care of eclamptic women.

Table 6. Practice of nurses before, after the program (n = 60)

Nurses' Practice	Before		After		Fisher Exact	P – value
	no.	%	no.	%		
Poor < 60%	14	23.3	0	.0	47.125	.001**
Average 60 < 75%	38	63.3	10	16.6		
Good \geq 75	8	13.4	50	83.3		

Table 6: practice regarding care of women with eclampsia, less than quarter of nurses of pre-program (23.3%) had poor practice and post-program (83.3%) had good practice.

4. Discussion

Eclampsia remains to be the most important cause of morbidity and mortality rate among conditions or world maternal and fetal. So, enhancing knowledge about management of eclampsia among health team is very important as it will decrease disease and death rate among women with eclampsia. Nurses have a vital role in preventing maternal mortality because of eclampsia. Hence, the value of estimating nurses' knowledge about eclampsia [6].

Majority of nurse's in the study were able to know that magnesium sulphate is the most common drug for managing eclampsia and most of the study sample had given MgSO₄ to Eclamptic women. This result was similar to study done by [17], who found that most participants in his study, were knowledgeable about the recommended drug for controlling convulsion and the result is similar to study done at Dar-es-salaam by [19], who observed that the nurses were knowledgeable about recommended drug that controlling convulsion with highly percent after giving program.

As regard personal data of the studied sample, it was found that near half of study sample their age ranging from 20-30 years with mean (30.5 \pm 7.4). this finding is not consistent with [17], who found that most participants were from age group of 31- 40 years followed by age group 41-50 and [19], did a study on management of pre-eclampsia and eclampsia in Dar-el-Salaam public health facility and found nearly two thirds of health care workers were between 31-40 years and the majority were nurses, followed by the age of 40 and above.

Regarding nurse's years of experiences this study showed that near half have for 1 - 10 years and (48.3%) have years of experiences more than 10 years. This result is in agreement and supported by the work of the [20], who found that slightly above half of the respondents had worked for 1- 10 years while 48% of respondents had worked for over 11years and above. This indicated that more nurses working in this hospital have years of experience's less than 10 years.

The present study revealed that, majority of nurses' knew the current management of Eclampsia after giving

program. Our finding is inconsistent with that of a review done by [21], who found that minority of the staff nurses had inadequate knowledge regarding managing eclampsia, inadequate resources and inadequate staffing.

Moreover, the finding of the current study showed that near two thirds of studied sample have average in practice and less than quarter of them were good before giving program, while after program the majority had good and higher in practice (63.3%, 83.3%) respectively.. This finding is to study done by [17], who observed that the data obtained from observation checklists about managing eclampsia revealed that, more than half of respondents had poor skills in managing eclampsia.

Recent research conducted by [22], who have revealed that one of the bad needs of nurses is to update their knowledge and skills for early detection and proper treatment of preeclampsia. Also to reach the competence, nurses need to improve both knowledge and skills [23].

5. Conclusion & Recommendations

There is a positive effect of program on nurses' knowledge and skills.

Based on results of the present study the following can be recommended:

- Continuing health educational programs, seminars and in service training for nurses.
- Providing training program to nurses caring for women with eclampsia and preeclampsia to reduce maternal and fetal complications among women with preeclampsia.

References

- [1] Ricci, S.S (2017). Essentials of maternity, newborn, and women's health nursing (4th ed). Philadelphia. PA: Wolters Kluwer.
- [2] King, T.L.,Burucker, M.C.,Kriebs, J.M., Fahey, J.O., Grgor, C.L.& Varney, H. (2015) Varney's midwifery (5th ed.), Burlington, MA: Jones & Bartlett Learning.
- [3] Warrington JP. (2015). Placental ischemia increases seizure susceptibility and cerebrospinal fluid cytokines. *Physiol Rep*. Nov. 3 (11).
- [4] National Institute of Neurological Disorders and Stroke. (2016). *The Epilepsies and Seizures: Hope through Research*. Retrieved January 4, 2017, from <https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Hope-Through-Research/Epilepsies-and-Seizures-Hope-Through>
- [5] Fleisher MD, Lee A. (2018). "Chapter: Eclampsia". *Essence of Anesthesia Practice*. Roizen, Michael F., Roizen, Jeffrey D., (4th ed.). Philadelphia, Pa.: Elsevier Inc. pp. 153-154.
- [6] Morris, S.C. Pregnancy, Eclampsia. (2006): Available at: <http://WWW.medicinet.com/pregnancy>. (Accessed on 03/06/09). 9:11.
- [7] Baruaa, A., Mundle, S., Bracken, H., Easterling, T., & Winikoff, B. et al (2011): Facility and personnel factors influencing magnesium sulfate use for eclampsia and pre-eclampsia in 3 Indian hospitals. *International Journal of Gynecology & Obstetrics*, 115(3), 231-234.
- [8] El-bahy M., MOHAMED, H., and SALAM, N., (2013) Effect of Educational Program for Nurses about Pregnancy Induced Hypertension on their Knowledge in Port Said Hospitals. *Med. J. Cairo Univ.*, Vol. 81, No. 2, March: 179-188.
- [9] Bartsch, E; Medcalf, KE; Park, AL; Ray, JG; (2016). High Risk of Pre-eclampsia Identification, "Clinical risk factors for pre-eclampsia determined in early pregnancy: systematic review and meta-analysis of large cohort studies.". *Group (19 April) BMJ (Clinical research ed.)*. 353: i1753.

- [10] Poole, J.H. (2014). Hypertensive disorders of pregnancy. In K. Rice Simpson, & P. Greehan (Eds.), *AWHONN's perinatal nursing* (4th ed.). Philadelphia: Lippin-cott Williams & Wilkins.
- [11] Sperling, Jeffrey D.; Gossett, Dana R. (25 April 2017). "Screening for Preeclampsia and the USPSTF Recommendations". *JAMA*. 317 (16): 1629.
- [12] Hutcheon, Lisonkova, & Joseph, K. S. (2011): Epidemiology of pre-eclampsia and the other hypertensive disorders of pregnancy. *Best practice & Research: Clinical Obstetrics & Gynecology* 25(4), 391-403.
- [13] Duley, L. (2009): The global impact of pre-eclampsia and eclampsia. In *Seminars in perinatology*, June). (Vol. 33, No. 3, pp. 130-137). WB Saunders.
- [14] USAID (2013). National Programs for prevention and management of PPH and PE/Eclampsia. Washington DC, Maternal and child health Journal.
- [15] Kim YM, Ansari N, Kols A, Tappis H, Currie S, Zainullah P, Bailey P, van Roosmalen J, Stekelenburg J(2013). Prevention and management of severe preeclampsia/ eclampsia in Afghanistan. *BMC Pregnancy Childbirth*. 2013; 13: 186.
- [16] Jhpiego Baltimore, (2011): Manual for Health Care Providers. Prevention and management of pre-eclampsia and eclampsia.: Prevention, Detection and Management. , Page 1 of 8.
- [17] Jaffar.R.G, (2013): Knowledge And Skills On Managing Eclampsia Among Nurse-Midwives Working At Mnazi Mmoja Hospital, Unguja Zanzibar. September, Muhimbili University of Health and Allied Sciences.
- [18] Aba- Banda, E.N (2010): Knowledge and Practice of Midwives in Management of EclampsiaIn Chipata District registered midwives, MUFULIRA, ZAMBIA. april.
- [19] Maembe, L. E. (2013). Management of preeclampsia/eclampsia in dar es salaam public health facilities: availability of supplies and knowledge of healthcare workers. Retrieved April 23, 2013 from <http://ir.muhas.ac.tz:8080/jspui/bitstream/123456789/664/1/Thesis%20final.pdf>.
- [20] Esther Namw Aba Banda, (2010), Knowledge and Practice of Midwives in Management of EclampsiaIn Chipata District registered midwives, 2004, MUFULIRA, ZAMBIA. april.
- [21] Kavitha P, Asmerom T, Aroun PR, Luwan, Selam G, Yohana Sereke BSN. (2014). Knowledge of staff nurses on emergency obstetric management at orotta national referral maternity hospital. *IJAMSCR* Vol. 2(5), pp. 287-293.
- [22] Remadurg U, Vidler M, Charanthimath U, Katageri G, Bellad M, Mallapur A, Goudar S, Bannale S, Karadiguddi C, Sawchuck D, Qureshi R, von Dadelsen P, Derman R; Community health worker knowledge and management of pre-eclampsia in rural Karnataka State, India. *Reprod Health*.2016 Sep 30; 13(Suppl 2): 113.
- [23] Stellenberg EL, Ngwekazi NL. Knowledge of midwives about hypertensive disorders during pregnancy in primary healthcare. *Afr J Prm Health Care Fam Med*. 2016; 8(1), a899.