Original Article

Nurses' Knowledge Regarding Preeclampsia and Eclampsia in Maternity Teaching Hospital in Erbil City

Silan Muhammad Abdulrahman; *Department of Nursing, College of Nursing, Hawler Medical University, Erbil, Iraq.*
(Correspondence: silan.muhammed9@gmail.com)
Awaz Aziz Saied; *Department of Nursing, College of Nursing, Hawler Medical University, Erbil, Iraq.*

ABSTRACT

Background and objectives: Preeclampsia is a severe blood pressure condition that progresses during pregnancy. Pregnant women with preeclampsia often have high blood pressure (hypertension) and high levels of protein in their urine (proteinuria). Preeclampsia typically progresses after the 20th week of pregnancy. We would have assessed knowledge of them regarding preeclampsia and eclampsia, and found a difference between mean of sociodemographic characteristics and the level of nurse knowledge.

Methods: A quantitative, descriptive cross-sectional study was conducted at Maternity Teaching Hospital and the study was conducted from (1 the September 2021) to (December 2022). The study sample size were 150 nurses who worked in this hospital. Data was collected through interviews (face-to-face) using a questionnaire designed by the investigator. The data was analysed by SPSS software for statistical analysis Version 25.

Results: The majority (45.3%) of the participants were age between 30- 39 years old, and majority (81%) of the study participants were married. The majority (46%) of study participants have a nursing diploma. Most of the nurses (32%) have six to ten years of experience as the nurse at the hospital. In this study, must of the participants (78.7%) in this study have fair knowledge of the hospital. There was a statistically significant difference between the mean level of education and the of overall knowledge.

Conclusion: The study concluded that the nurses had fair knowledge regarding preeclampsia and eclampsia. Based on the results of the present study, it has been recommended that ongoing health educational programs, seminars and training courses to improve the knowledge of nurses in order to provide good health care for cases of preeclampsia and eclampsia and become more knowledgeable about this condition.

Keywords: Nurse; Knowledge; Preeclampsia; Eclampsia

INTRODUCTION

During a healthy pregnancy, there are numerous physiological changes in how various organs work. Low- grade proteinuria and alterations in renal function are common occurrences during pregnancy. However, one of the key signs for the clinical diagnosis of preeclampsia is new-onset proteinuria [1].Pre-eclampsia is one of the most prevalent and significant problems (potentially affecting up to 10% of pregnancies), and is often characterized as blood pressure greater than 140 mmHg / 90 mmHg and proteinuria greater than 300 mg / 24h at or after 20 weeks of pregnancy. The second most common cause of maternal death worldwide is severe PE. A major factor in both maternal and foetal morbidity and mortality is severe preeclampsia [2].Oedema, protein in the urine, and hypertension are the first signs of preeclampsia. Headache, blurred vision, and bloating appear as the symptoms worsen, Seizures or convulsions in a pregnant woman, a woman in labour, or within 42 days after delivery who does not have a history of epilepsy are the primary symptoms of eclampsia. Other signs of eclampsia include muscle discomfort and pain, agitation, loss of consciousness, and stroke. Both the mother and the foetus may also pass away as a result of eclampsia and eclampsia risk factors include having a family history of the condition or having previously experienced both pre-eclampsia and eclampsia, being pregnant at a young age, being over 35, multi-foetal gestation, being a prim gravida, and having a poor pregnancy outcome in the past, such as intrauterine growth restriction, placenta abruption, and foetal death [3].Eclampsia is generally understood to be the new start of seizures and/or an unexplained coma during pregnancy or postpartum in a woman with signs or symptoms of preeclampsia. It is regarded as a consequence of severe preeclampsia. Eclampsia often happens at or after the 20th week of pregnancy or in the postpartum period, affecting roughly 1 in every 200 women with preeclampsia. Eighty percent of eclampsia seizures happen during labour or in the first 48 hours after delivery. Rare cases have been documented as early as 20 weeks of pregnancy and as late as 23 days after delivery [4]. Of all pregnancies, 5 to 8 percent are complicated by preeclampsia. This amounts to 8.5 million instances annually around the world. One of the three main causes of maternal death is still this condition. As a result of poorly controlled hypertension (SBP > 160 mmHg), cerebral haemorrhage is the primary cause of the majority of these maternal deaths. Other preeclampsia problems include placenta abruption, haemorrhage, retinal detachment, cortical blindness, pulmonary oedema, liver failure or rupture, convulsions, and disseminated intravascular coagulation [5].The reduction in uterine and placental blood flow that causes oligohydramnios, intrauterine growth retardation, placental abruption, foetal discomfort, and eventually foetal death is the most significant threat to the foetus during preeclampsia [6].Inadequate knowledge of health professionals in direct link with complications of pregnancy, and inability to keep up through medical knowledge, have possibly severe effects on the quality of care and increase maternal and perinatal death [7].Clinical data or biochemical markers cannot be used to predict which women will get preeclampsia. The incidence of eclampsia and the case fatality rate connected to it, however, have been reduced by 90% in high-income nations. Using a combination of early detection during antenatal care and improved access to hospital care for women who experience severe preeclampsia/eclampsia [8].Pre-eclampsia

risk factors have been reported to include low socioeconomic status, a poor diet (lack of vitamins C and E), poor antenatal care, a history of pregnancy-related hypertension, extreme poverty, poor reproductive care - seeking behaviour, restricted access to quality maternal services, and low levels of medical professionals' knowledge [9]. Preeclampsia and eclampsia in pregnant women with severe symptoms can be prevented by early detection, quick action, accurate therapy, and prompt delivery. The absence of core knowledge leads to poor decision -making and management of emergency maternal health conditions. Additionally, inadequate knowledge can be attributed to delays in treatment and referrals, appropriate knowledge is essential to correctly recognize women with preeclampsia with and without severe features. This foundational knowledge helps confirm timely evidence-based decision -making and care based on global guidelines [10].According to the researcher's experience, lack of knowledge leads to poor decision-making and poor management of emergency maternal health conditions. Furthermore, insufficient knowledge can be attributed to delays in treatment and referrals and because preeclampsia and eclampsia are common diseases in the world, and all nurses should have good knowledge related to preeclampsia and eclampsia. These were the main reasons for the researcher to assesses nurses' knowledge regarding preeclampsia/eclampsia in the Maternity Teaching Hospital in Erbil City and found an association between sociodemographic characteristics and level of Nurse knowledge

METHODS

A cross-sectional study was conducted (1 the September 2021) to (December 2022). from the total 198 nurses who were working in the hospital 150 were recruited as study samples and 48 of them either could not to participate due to giving care to patients or not were available during the data collection period. Informed consent was obtained from the study sample after explaining the purpose of the study and providing reassurance regarding the confidentiality of the data. The investigators prepared a questionnaire format after reviewing related literature and the questionnaire format consisted of two parts. The first part was on the socio-demographic The questionnaire format consisted of two parts. The First part focused on the socio-demographic characteristics of the study sample such as age, marital status (single, married, divorced, widowed), level of education (preparatory nursing school, diploma institute, bachelor degree, master degree), word unit, and years of experience. The second part consisted of 20 items of questions designed to assess the knowledge of nurses about preeclampsia/eclampsia and each one of the 20 items has three categories. The questionnaire was scored on a Likert scale for the scoring system. The answers from each one of the questionnaire items were recoded into numerical values by applying the following scores: Incorrect=1, I do not know=2, Correct=3. Direct face-to-face interview through a questionnaire was conducted by the researcher in the Maternity Teaching Hospital and separately with each of the participating candidates for at least 20-30 minutes and the investigator filled out the questionnaire. Twelve experts in related fields validated the questionnaire, and the pilot study of 15 nurses indicated that the tool was eligible for data collection. Before starting data collection, the researcher explained the research process, the purpose of the study and the aim to participants and asked each of the participants to fill out a consent form. Prior to the data collection, ethical approval was

obtained from the research ethics committee at the Collage of Nursing/ Hawler Medical University (No.118 Dated October 7,2021) and formal permission was obtained from General Directorate of Health in Erbil City Kurdistan /Iraq. Also, formal permission was obtained from the Maternity Teaching Hospital administrator. The data was analysed using SPSS software for statistical analysis Version 25, to calculate descriptive statistical analysis (frequency and percentage). Inferential statistical analysis (One Way ANOVA) was used to determine the association between variables. P-value ≤ 0.05 is considered statistically significant.

RESULT

Table 1: Shows the descriptive data for the socio-demographic question, including the nurse's age, marital status, level of education, word unit, and years of experience.

The majority of participants (45.3%) are between the ages of 30 and 39, followed by those who are older than 39 (33.3%) and those who are between the ages of 20 and 29 (21.3%). Since their average age is 36. The majority (81.3%) of nurses were married and (18.7%) of them were single.

The majority of study participants (46%) have a nursing diploma, followed by bachelor's degrees (29.3%) and nursing preparatory nursing schools (24.7%), in that order. Since some of the nurses work in both the postpartum and operation units (3.3 %)., the majority of them (19.3 %) Were in high-risk area. Most of the nurses have six to ten years (32%) of experience as a nurse at the hospital followed by 1-5 years (20.7%) and 11-15 years (19.3%), more than 20 years (18.7%) and 16-20 years (9.3%), respectively since the average of experience is 13 years.

Table 1: Socio-demographic data of the study sample

Characteristics	Subgroups	n=150 F.	(%)
Age Group (years old)	20 - 29	32	(21.3)
	30 - 39	68	(45.3)
	40 and more	50	(33.4)
Marital status of nurse	Single	28	(18.7)
	Married	122	(81.3)
Level of education	Preparatory nursing school	37	(24.7)
	Diploma in nursing	69	(46)
	Bachelor degree	44	(29.3)
Ward unit	High risk	29	(19.3)
	Neonatal unit	21	(14)
	Postpartum unit	5	(3.3)
	Emergency	24	(16)
	Word unit	28	(18.7)
	Operation unit	5	(3.3)
	Post operation	19	(12.7)
	Delivery room	19	(12.7)
Years of experience	1-5	31	(20.7)
	6-10	48	(32)
	11-15	29	(19.3)
	16-20	14	(9.3)
	21+	28	(18.7)

Table 2: The nurses check the highest proportion of eleven items. (1-Preeclampsia is increased blood pressure 140/90mmhg before 20 weeks of gestational age,
2-Eclampsia is a severe complication of preeclampsia with convulsion,
3-Preeclampsia and eclampsia occurred in both in the second and third trimester,
4-Blurred vision, severe headache ,nausea, vomiting and epigastric pain are symptoms of preeclampsia, 5-lack of exercise during pregnancy is a risk factor for preeclampsia, 9-Cardiovascular disease is one of the complications of preeclampsia, 12-Immediate intervention in cases of convulsion is to check blood pressure,13-Calcium sulphate

is recommended for the control of convulsions during preeclampsia, 14-After convulsion the nurse should be given oxygen 8 litres per minute by mask or nasal mask, 16 - Another management of eclampsia is inserted a urinary catheter to monitor urine output and proteinuria, 17- Hydralazine and diazepam are 2 drugs used for the control of blood pressure during pregnancy) as correct answers (C); the proportion of correct answers from nurses is ([6/11] *100 = 54.55%) since six of them (2-Eclampsia is a severe complication of preeclampsia with convulsion, 3-Preeclampsia and eclampsia occurred in both in the second and third trimester, 4-Blurred vision, severe headache ,nausea, vomiting and epigastric pain are symptoms of preeclampsia, 9-Cardiovascular disease is one of the complication of preeclampsia , 14-After convulsion the nurse should be given oxygen 4-6 litres per minute by mask or nasal mask, 16 - Another management of eclampsia is inserted a urinary catheter to monitor urine output and proteinuria) in actually are correct questions. Also, the nurses check the highest proportion of five items (7- Vitamin D and folic acid that are required in the diet to prevent preeclampsia, 10-Tetanus toxoid vaccine is reduce risk of the onset of preeclampsia, 11- Ultrasound is the screening test you can use for the detection of preeclampsia, 15- The recommended intravenous fluid for managed eclampsia is normal saline, 18- The dose of magnesium sulphate that is given in cases of preeclampsia is 10gintravenous and 10g intramuscular) .As incorrect answers (I), the proportion of incorrect answers from nurses is ([4/5] *100 = 80%) since four of them (7-Vitamin D and folic acid that are required in the diet to prevent preeclampsia, 10-Tetanus toxoid vaccine is the risk reduce of the onset of preeclampsia, 11- Ultrasound is the screening test you can use for the detection of preeclampsia, 18- The

dose of magnesium sulphate that is given in case of preeclampsia is 10gintravenous and 10g intramuscular) these are actually incorrect questions. Additionally, the nurses check the maximum percentage of four items (6-The exact cause of preeclampsia is unknown, 8-Preeclampsia is affected on gallbladder, 19-Respiratory depression and convulsion are signs of magnesium sulphate toxicity, 20- During urine analysis if protein presence in the urine less than 300mg/24hrs is considered proteinuria during pregnancy).

Table 3: Most of the participants in this study have fair knowledge of the hospital (78.7%) followed by good knowledge (18.7%) and poor knowledge (2.7%) respectively.

Table 4: Shows there is no statistically significant difference between the mean of age groups and the measure of overall knowledge because p-values (0.295) is higher than the significant level of α=0.05. It means, there is no difference between the mean of age groups including 20-29, 30-39, and more than 39 years with measurement of both overall knowledge.

Table 5: Shows there is a statistically significant difference between the mean level of education and the measure of overall knowledge because its p-value (0.029) is less than the significant level of α=0.05. It means, there is a difference between the mean level of education including preparatory, diploma, and bachelor degree of nurses with measurement of overall knowledge.

Table 2: Assessment of Nurse's knowledge regarding Preeclampsia/Eclampsia

	Knowledge	Incorrect		I do not know		Correct	
		N	(%)	N	(%)	N	(%)
1	Preeclampsia is increased blood pressure 140/90mmhg before 20 weeks of gestational age (I)	39	(26)	9	(6)	102	(68)
2	Eclampsia is a severe complication of preeclampsia with convulsion (C)	13	(8.7)	12	(8)	125	(83.3)
3	Preeclampsia and eclampsia occurred in both in the second and third trimester (C)	26	(17.3)	31	(20.7)	93	(62)
4	Blurred vision, severe headache, nausea, vomiting and epigastric pain are symptoms of preeclampsia (C)	10	(6.7)	9	(6)	131	(87.3)
5	Lack of exercise during pregnancy is a risk factor for preeclampsia (I)	53	(35.3)	40	(26.7)	57	(38)
6	The exact cause of preeclampsia is unknown (C)	25	(16.7)	65	(43.3)	60	(40)
7	Vitamin D and folic acid that required in the diet to prevent preeclampsia (I)	57	(38)	45	(30)	48	(32)
8	Preeclampsia is affected on gallbladder (C)	55	(36.7)	56	(37.3)	39	(26)
9	Cardiovascular disease is one of the complications of preeclampsia (C)	26	(17.3)	40	(26.7)	84	(56)
10	Tetanus toxoid vaccine is reduced risk of the onset of preeclampsia (I)	86	(57.3)	41	(27.3)	23	(15.3)
11	Ultrasound is the screening test you can use for detection of preeclampsia (I)	128	(85.3)	7	(4.7)	15	(10)
12	Immediate intervention for case of convulsion is to check blood pressure (I)	55	(36.7)	14	(9.3)	81	(54)
13	Calcium sulphate is recommended for the control of convulsion during preeclampsia (I)	53	(35.3)	30	(20)	67	(44.7)
14	After convulsion the nurse should be given oxygen 4-6 litres per minute by mask or nasal mask (C)	22	(14.7)	30	(20)	98	(65.3)
15	The recommended intravenous fluid for managed eclampsia is normal saline (C)	96	(64)	21	(14)	33	(22)
16	Another management of eclampsia is inserted a urinary catheter to monitor urine output and proteinuria (C)	11	(7.3)	24	(16)	115	(76.7)
17	Hydralazine and diazepam are 2 drugs used for the control of blood pressure during pregnancy (I)	43	(28.7)	40	(26.7)	67	(44.7)
18	The dose of magnesium sulphate that given in case of preeclampsia is 10gintravenous and 10g intramuscular (I)	67	(44.7)	51	(34)	32	(21.3)
19	Respiratory depression and convulsion are sign of magnesium sulphate toxicity (I)	48	(32.0)	68	(45.3)	34	(22.7)
20	During urine analysis if protein presence in urine less than 300mg/24hrs is considered proteinuria during pregnancy (I)	22	(14.7)	87	(58)	41	(27.3)

Notice: I: Incorrect and C: Correct

Table 3: Descriptive Statistics for Overall Response from Nurse's Knowledge

Variables	Poor		Fair		Good	
	N	%	N	%	N	%
Overall Knowledge Level	4	2.7%	118	78.7%	28	18.7%

Table 4: Difference between mean of age group and measure of (Overall Knowledge)

Variables		N	Mean	SD	F-value	P-value
Overall Knowledge	20 - 29	32	43.438	4.370	1.232	0.295
	30 - 39	68	42.118	4.530		
	11-15	29	42.724	3.945		
	40 and more	50	43.120	4.434		
	Total	150	42.733	4.472		

Table 5: Difference between mean of Level of Education and measure of (Overall Knowledge)

Variables		N	Mean	SD	F-value	P-value
Overall Knowledge	1-5	31	42.968	5.199	0.202	0.937
	6-10	48	42.542	4.222		
	11-15	29	42.724	3.945		
	16-20	14	42.000	4.624		
	21+	28	43.179	4.714		
	Total	150	42.733	4.472		

Table 6: Shows there is no statistically significant difference between the mean of experience in years and the measure of overall knowledge because p-values (0.817) is higher than the significant level of α=0.05. It means, there is no difference between the mean of experience groups including 1-10, 11-20, and more than 20 years with measurement of overall knowledge.

Table 6: Difference between mean of Experience in years and measure of (Overall Knowledge)

Variables		N	Mean	SD	F-value	P-value
Overall Knowledge	1-5	31	42.968	5.199	0.202	0.937
	6-10	48	42.542	4.222		
	11-15	29	42.724	3.945		
	16-20	14	42.000	4.624		
	21+	28	43.179	4.714		
	Total	150	42.733	4.472		

DISCUSSION

Preeclampsia refers to the new beginning of hypertension, and proteinuria and major end-organ dysfunction with or without proteinuria afterward 20 weeks of gestation or postpartum in a previously normotensive patient, 4.6 percent (95% CI 2.7-8.2) of pregnancies globally were complicated by preeclampsia. The occurrence in the United States is approximately 5 percentages, Differences in occurrence among countries reflect, at least in part, changes in the maternal age, spreading and proportion of nulliparous pregnant women in the population (11).The current study has tried to determine the knowledge of nurses regarding preeclampsia/eclampsia. Nurses are the most important medical workers who provide health education to patients and the general population and thereby help in the prevention of disease and aid in health promotion, thus staff nurses can play a very crucial role in hospitals. A recent study has shown that the majority of nurses have fair knowledge about preeclampsia/eclampsia. The socio-demographic characteristics of nurses regarding preeclampsia/eclampsia

The subjects in this study included nurses (n = 150). The highest percentage of nurses belonged to the age group of 30-39 years (45.3%) with a mean age of (36 ± 9.29).this result supported by other studies reported that the majority of respondents were aged between (30-39 years) (44.5%) [12]. A previous study conducted in India among staff nurses and auxiliary nurse midwives to assess their knowledge and management of preeclampsia, had a similar mean age to the present study (36.5 ±4.8) [14]. Another study agrees with present study and reports that most participants were in the age group from of (31 - 40) years [3]. The result is disagreement with a study done in Maputo and Gaza Provinces, southern Mozambique and conducted with community health workers, the highest percentage of participants their ages were between (40-49,31%) [13]. Other studies disagree with the present study which was done in Mosul city, reveals that the majority of the study's participants were between the ages of 21 and 30[16]. Another study disagrees with the present result which reveals that the majority of the study's participants were between the ages of 21 and 30. (50%) [14] other study disagrees with the present result which reported nearby half of the studied nurses (45%) were their age ranging less than 30 years [18].Regarding marital status, more than four/five of the study samples were married (81.3%), this result supported by a qualitative study conducted in Nigeria in 2011–2012 that nearly all participants were married [15]. Another study agrees with the present study which reported that 62.5% of the study nurses were married [19]. This result disagrees the study conducted from 2013 to 2014 from southern Mozambique by Boene H et al. reported that most of the participants were single (47%) [13].In the present study, the highest percentage of participants (46%) held diplomas degree. this result supported by other studies that reported that the majority of respondents (46.7%) held diplomas degree [16] A previous study done by bahy MA et al. reported that the majority of the nurses (86.7%) held nursing diplomas which is agrees with present study. [17] This result disagrees with a study conducted by EkbalAbd El Rheem and Nahed reported that the majority of nurses (68.3%) held technical institute [18]. Another study disagreed with the present study which reported that 43.8% of the study sample had a bachelor degree in nursing or secondary school nursing [19]. Another study contrasts with the present study which was conducted in

Bangladesh and stated that more than half of the study participants had a bachelor in nursing and less than one third had a diploma[20] In the present, study the majority of nurses working in high –risk department (19.3 percent). Most of the nurses had six to ten years (32%) of experience as nurses at the hospital, this is result supported by [12] which reported that most of the study participant had 5 to 10 years of experience 35%. This result is in disagreement with a previous study which conducted by Hendiya IE which reported that more than half of the study participants had experienced less than five years [19].Another study in contrast with the present study which reported that the majority of study participants had (1-5) years of experience [16].Assessment of Nurse's knowledge regarding Preeclampsia/ Eclampsia This research revealed that the majority of the nurses had fair knowledge (78.7%) followed by good knowledge (18.7%) and poor knowledge (2.7%) regarding pre-eclampsia/eclampsia. This result is supported by other study which reported that more than half of them 58.80% had fair knowledge before intervention [19]. A descriptive cross-sectional study conducted in Lagos, southwest Nigeria among health care providers which reported that study participants had average knowledge about pre-eclampsia. This result is in contrast to the present result [12].Another study disagreed with the present result which reported that 53.3 % of nurses had poor knowledge the before implementation of the educational program. Then, after implementation, 70 % of them had excellent knowledge [16].

Comparison between overall knowledge and demographic characteristics of nurses Regarding the comparison between overall knowledge and level of education, it has been found that there is a statistically significant difference between the mean level of education and the measure of overall knowledge because its p-value (0.029) as shown in (table 5). This result is in disagreement with [13] which reported that there is no significant association between the knowledge of the participant and with level of education. And there is no statistically significant difference between the mean of experience in years and the measure of overall knowledge because p-values (0.817) are higher than the significant level of α=0.05 as shown in (Table 6).This result supported by another study which reported that there is no significant association between years of experience and with knowledge of participants about pregnancy induced hypertension [21].Another study supported the present result which reported that there is no significant association between years of practice and with knowledge of participants [13]. This result is in disagreement with a previous study which reported that there is a significant association between the overall knowledge of participant and with years of experience [12].(Table 4) shows there is no statistically significant difference between the mean of age groups and the measure of overall knowledge because p-values (0.295) is higher than the significant level of α=0.05.This result is supported by a previous study which conducted in Iraq at Mosul Teaching Hospitals which revealed that there are no significant relationships between study group outcomes (pre-test and post-test) and with all demographic characteristic [16].A previous study reported that there is a significant association between age and the knowledge of participants; this result is in contrast with the present result[13].

CONCLUSION

In conclusion, the majority of nurses in the current study had fair knowledge regarding preeclampsia and eclampsia. A significant difference was found between the measure of overall knowledge of nurses and the mean level of education. Based on the results of the present study. It has been recommended that Ongoing health educational programs, seminars and training courses to improve the knowledge of nurses in order to provide good health care for cases of preeclampsia and eclampsia and become more knowledgeable about this condition.

CONFLICT OF INTEREST

None of the writers have any conflicts of interest or sources of financial support.

REFERENCES

[1] Müller-Deile J, Schiffer M. Preeclampsia from a renal point of view: Insides into disease models, biomarkers and therapy. World journal of nephrology. 2014 Nov 11;3(4):169. Available from: doi: 10.5527/wjn.v3. i4.169. [Accessed: 25th June 2022.

[2] Al-Matouti AY, Ibrahim RH. Nurses Knowledge Regarding Preeclampsia Care at Mosul Teaching Hospitals. Annals of the Romanian Society for Cell Biology. 2021 Oct 3;25(6):20596-607.Available from: doi: Nurses Knowledge Regarding Preeclampsia Care at Mosul Teaching Hospitals | Annals of the Romanian Society for Cell Biology (annalsofrscb.ro) [Accessed: 5th July 2022.

[3] Jaffar RJ. Knowledge and skills on managing eclampsia among nurse-midwives working at Mnazi mmoja hospital, Unguja Zanzibar (Doctoral dissertation, Muhimbili University of Health and Allied Sciences.). Available from: Knowledge And Skills On Managing Eclampsia Among... - Google Scholar [Accessed: 7August 2022.

[4] Shaheen AP, Hendiya R. I. E, Eshra P.D. M. K, kassem P. I. K. A. Effect of Educational Program on the Knowledge of Nurses Caring for Women with Eclampsia and Preeclampsia. International Journal of Novel Research in Healthcare and Nursing. May - August 2020; 7(2) :(577-587).

Available   from: doi:www.noveltyjournals.com [Accessed: 5th July 2022.

[5] G. Lambert, J. F. brIchant, G. hartsteIn, V. bonhomme and P. Y. dewandre. Preeclampsia: an update. Acta Anaesthesiol Belg. 2014;65(4):137-49. Available from:_Preclamsia-with-cover-page-v2.pdf (d1wqtxts1xzle7.cloudfront.net)   : [Accessed: 6th July 2022.

[6] Rahmati R, Mohebbi Dehnavi Z, Kamali Z, Mohebbi Dehnavi A. The effect of Mobile-based and Lecture-Based training methods on Midwives' knowledge regarding Management of Pre-Eclampsia/Eclampsia. Journal of Midwifery and Reproductive Health. 2018 Oct 1;6(4):1430-6. Available from: doi: The effect of Mobile-based and Lecture-Based training methods on Midwives' knowledge regarding Management of Pre-Eclampsia/Eclampsia (nlai.ir) [Accessed: 6th July 2022]

[7] Soggiu-Duta CL, Crauciuc DV, Crauciuc E, Dmour A, Iov T, Bulgaru-Iliescu D, et al. The Impact of an intensive educational program regarding preeclampsia on health professional knowledge. Revista De Chimie - Bucharest- Original Edition. 2019 Jun 1;6. Available from: doi: https://doi.org/10.37358/RC.19.6.7315   . [Accessed: 6th July 2022]

[8] Kim YM, Ansari N, Kols A, Tappis H, Currie S, Zainullah P et al. Prevention and management of severe pre-eclampsia/eclampsia in Afghanistan. BMC pregnancy and childbirth. 2013 Dec;13(1):1-0. Available from Kim: Prevention and management of severe pre-eclampsia/ec... - Google Scholar [Accessed: 25August 2022]

[9] Anorlu RI, Iwuala NC, Odum CU. Risk factors for pre-eclampsia in Lagos, Nigeria. Australian and New Zealand journal of obstetrics and gynaecology. 2005 Aug;45(4):278-82. Available from Anorlu: Risk factors for pre-eclampsia in Lagos, Nigeria - Google Scholar [Accessed: 25August 2022]

[10] Angelina JA, Kibusi SM, Mwampagatwa I, Ernest A. Knowledge on Prevention and Management of Preeclampsia and Eclampsia among Nurses in Primary Health Settings: Baseline Findings from an Interventional Study in Dodoma Region, Tanzania. The East African Health Research Journal. 2020;4(1):33. Available from: doi: 10.24248/eahrj.v4i1.619. [Accessed: 7th July 2022]

[11]   August P, Sibai BM. Preeclampsia: Clinical features and diagnosis. Post TW, UpToDate. Waltham, MA: UpToDate. 2017 Dec. Available from: doi: https://www.medilib.ir/uptodate/show/6814 [Accessed: 24th July 2022]

[12]   Olaoye T, Oyerinde OO, Elebuji OJ, Ologun O. Knowledge, perception and management of pre-eclampsia among health care providers in a maternity hospital. International Journal of Maternal and Child Health and AIDS. 2019;8(2):80. Available from: https://doi.org/10.21106%2Fijma.275 [Accessed: 26th July 2022]

[13]   Vidler M, Augusto O, Sidat M, Macete E, Menéndez C. Community health worker knowledge and management of pre-eclampsia in southern Mozambique. Reproductive Health. 2016 Sep;13(2):149-62. Available from: [PMC free article] [PubMed] [Google Scholar] [Accessed: 26th July 2022]

[14]   Ramadurg U, Vidler M, Charanthimath U, Katageri G, Bellad M, Mallapur A et al. Community health worker knowledge and management of pre-eclampsia in rural Karnataka State, India. Reproductive health. 2016 Sep;13(2):141-8. Available from:Community health worker knowledge and management of pre-eclampsia in rural Karnataka State, India | Reproductive Health | Full Text (biomedcentral.com) [Accessed: 31h July 2022]

[15]   Akeju DO, Vidler M, Oladapo OT, Sawchuck D, Qureshi R, von Dadelszen P et al. Community perceptions of pre-eclampsia and eclampsia in Ogun State, Nigeria: a qualitative study. Reproductive health. 2016 Jun;13 (1):17-26. Available from: Community perceptions of pre-eclampsia and eclampsia in Ogun State, Nigeria: a qualitative study | Reproductive Health | Full Text (biomedcentral.com) [Accessed: 31h July 2022]

[16]   Ayed AY, Ibrahim RH. Effect of Educational Program of Eclampsia Management on Knowledge of Maternity Nurses at Mosul Teaching Hospitals. In1st International Ninevah Conference on Medical Sciences (INCMS 2021) 2021 Oct 12 (pp. 175-180). Atlantis Press. Available from: https://dx.doi.org/10.2991/ahsr.k.211012.029 [Accessed: 3 August 2022]

[17]   El- Mohamed HI, Salam NS, Nasr EH. Effect of educational program for nurses about pregnancy induced hypertension on their knowledge in port said hospitals. The Medical Journal Cairo University. 2013;81(2):179-88. Available from: "Effect of Educational Program for Nurses about... - Google Scholar [Accessed: 3 August 2022]

[18]   Emam EE, Saber NM. Effect of nursing program on improving nurses' knowledge and skills regarding care of eclamptic women. American Journal of Nursing Research. 2018 Oct 8;6(6):430-6.Available from: DOI:10.12691/ajnr-6-6-10 [Accessed: 6 August 2022]

[19]   Hendiya IE, Eshra MK, Kassem KA, Shaheen AE. Effect of educational program on the knowledge of nurses caring for women with eclampsia and preeclampsia. International Journal of Novel Research in Healthcare and Nursing. 2020;7:577-87.Available from: Effect of Educational Program on the Knowledge of... - Google Scholar [Accessed: 7August 2022]

[20]   Khatun R, Mohammad F, Chowdhury AA. NURSE'S KNOWLEDGE REGARDING MANAGEMENT OF ECLAMPSIA AT SELECTED PRIVATE HOSPITAL IN BANGLADESH. International Research Journal of Natural and Applied Sciences.2017 December ;4(12): 69-81.Available from :Nurse's knowledge regarding management of eclampsia... - Google Scholar [Accessed: 7August 2022]

[21]   Tadele W, Debebe F, Tadele A, Tilahun L. Assessment of knowledge and practice of nurses working in gynecology emergency room towards pregnancy induced hypertension in selected government public hospitals found in Addis Ababa, Ethiopia. Research Square. May 4th, 2020.Available from: https://www.researchsquare.com/article/rs-25189/v1