Assessment of Maternity Nurses' Perception and Compliance with Safety Practices among Women with Severe Preeclampsia

1Dalia Ahmed Omran, 2Hossam Eldin Elsayed Mohamed, 3Shaimaa Fouad Mohammed, 4HananEl sayed MohameEl sayed

Nursing Specialist at Central Menyte El Nasr Hospital 1, Professor of Obstetrics and Gynecology Medicine2,Lecturer of Woman's Health and Midwifery Nursing, Faculty of Nursing,

MansouraUniversity, Egypt3, Professor of Woman's Health and Midwifery Nursing, Faculty of Nursing, MansouraUniversity 4

1.ABSTRACT

Background: One of the top five primary causes of maternal and newborn death is severe preeclampsia and eclampsia. *Aim:* The aim of this study is to assess maternity nurses, perception, compliance and safety practices among severe preeclampsia women. **Methods:** A descriptive cross sectional design was used. This study was carried out at Menyte El -Nasr Hospital, Delta, Egypt. A purposive non probability sample was utilized. The study sample included 107 nurses chosen according to the inclusion criteria. Three tools were used; included structured interview questionnaire, nurses perception, compliance and safety practices among women with severe preeclampsia. **Results:** More than half of the studied nurses (53,50%) have moderately low perception, while nearly one third of them (29,29%) had high perception, more than half (50,47%) of them were non compliant with safety practices in sever preeclampsia cases. There are a highly statistically significant relationship between total nurses perception score and total compliance score among women with sever preeclampsia (p < 0.001). Also a statistically significant relationship was found between nurses perception of severe preeclampsia and their age, qualifications, years of experience and place of work (p < 0.001). Also a highly statistically significant relationship was found between nurses' compliance and their age, qualifications, years of experience and place of work (p < 0.001). **Conclusion:** The current study questions were answered where, more than half of the studied nurses had moderately low perception of sever preeclampsia, also more than half of them were non compliant with safety practices among women with severe preeclampsia. **Recommendation**: The present study recommended advising nurses to attend training programs in forms of workshops, seminars as well as reviewing current nursing care techniques and providing specific policies, procedures or posters in work place about women safety practices in preeclampsia and severe preeclampsia and application of WHO standard recommendations to improve severe preeclampsia management.

Keywords: Compliance, maternity nurses, perception, pregnant women, severe preeclampsia and safety practices.

2.Introduction:

Severe preeclampsia occurs during gestation; it is characterized by after 20 weeks of pregnancy, hypertension and proteinuria appear suddenly. It affects between 2 and 5% of pregnant women. Early-onset preeclampsia (delivery before 34 weeks of pregnancy) and late-onset preeclampsia (birth after 34 weeks of pregnancy), with systolic blood pressure of 160 mmHg or diastolic blood pressure of 110 mmHg, respectively (*Kamal & El-Sayed, 2020*).

Preeclampsia is the most leading cause of maternal death and morbidity. In this concern, it is essential to conserve the good condition of the mother and the fetus with a close monitoring to avoid development of more severe and endanger the lives of the mother and the fetus. The nurses have a very strategic role in dealing with pregnant women suffering from sever preeclampsia, especially maternity specialized nurses *(Soliman, Hasneen, AbdElmoniem & Ali, 2020)*.

Pregnant women want their labour and obstetric personnel to be prepared for any emergency or issues that may arise. Furthermore, the hospital will make every effort to achieve the finest results possible. Nurses have a critical role in the treatment of severe preeclampsia by providing safe practises *(Sobhy, Basyuni &Ghattas, 2019)*.

Nurses perception of the severity of preeclampsia and their compliance with safety practices among women throughout the pregnancy, childbirth and hospital discharge are very important actions to ensure excellence of care and the reduction of fetal and maternal morbidity and mortality *(American College of Obstetricians & Gynecologists, 2020)*.

Nurses compliance and safety practice are essential for maternal and fetal safety during the antepartum period. The treatment of severe preeclampsia is determined by the start, severity, gestation, and the benefits of continuing the pregnancy versus delivering the baby sooner *(Farahat, Mostafa, Younes & Abbas, 2021)*. So, assessing nurses perception and compliance with safety practices among women with severe

preeclampsia are discussed in this study.

2.1 Significance of study

Preeclampsia is a complex and unexpected multiorgan dysfunction occurring only in human pregnancy. It leads to a significant perinatal morbidity and mortality during pregnancy, childbirth or puerperium. Severe preeclampsia/eclampsia associated with 50,000–100,000 annual deaths *(Hendiya, Eshra & kassem, 2020).* The incidence of preeclampsia in developing countries ranged from 1.8 % to 16.7% of pregnant women. Preeclampsia affects 10% of African women, compared to 2% worldwide. Preeclampsia and eclampsia affected 4.2 percent of pregnant women in Egypt, while preeclampsia and eclampsia affected 3.8 percent (*Bashyal & Thapa, 2020 ; Zahran, Fadel & Ahmed, 2020)*. In Central Menyte El Nasr Hospital, the flow rate of preeclampsia in 2019 was about 380 cases per 7000 pregnant women admitted to the hospital.

One of the top five causes of maternal and newborn death is preeclampsia. Pregnant women with severe preeclampsia needed constant prenatal care, early detection of problems, and prompt treatment. Despite having a rudimentary understanding of pre-eclampsia, health care workers lacked confidence in its detection and management *(Al-Matouti &Ibrahim, 2021).*

Nurses are critical in ensuring that pregnant women with severe preeclampsia are treated safely. They must be knowledgeable and highly skillful in promoting nursing practices toward women's health (*Ayed & Ibrahim, 2021)*. There is a little research on addressing the nurses perception and compliance with safety practices among women suffering from severe preeclampsia, so this study was conducted.

2.2 Aim of the Study:

This study aimed to assess maternity nurses' perception and compliance with safety practices among women with severe preeclampsia.

2.3 Research questions:

- What is nurses' perception of safety practices regarding severe preeclampsia?
- What is the the degree of maternity nurses' compliance with safety practices among women with severe preeclampsia ?

3 Method

3.1 Study Design

This research was carried out using a descriptive cross-sectional study design. Descriptive studies are observational studies that describe illness trends in connection to factors like person, place, and time,

3.2 Study Setting

This study was carried out at the high risk, labor, postnatal department and intensive care unit at Menyte El -Nasr central Hospital.

3.3 Sample type:

A non probability purposive sample was used

3.4 Study sample

The study sample included 107 nurses chosen according to the following criteria

Inclusion criteria:

- Nurses who have varying years of practice experience in the high risk, labor, postnatal departments and intensive care units of Menyte El-Nasr Hospital.

Exclusion criteria:

- Nurses who attended training program from 6 months ago regarding management of eclamptic women.

3.5 Sample size calculation

Based on data from the literature *(Olaoye, Oyerinde, Elebuji & Ologun, 2019)* to assess perception and management of pre-eclampsia among health care providers in a maternity hospital, considering power of study of 80%, calculated the sample size using the following formula: $[(Z1-/2)2.P(1-P)]/d2$ Where $Z1-/2$ = is the standard normal variate, and P = the expected proportion in the population based on past studies. d = absolute precision or inaccuracy. As a result, sample size = $[(1.96)2]. (0.23). (1-0.23)] /(0.08)2$ =106.3 The sample size required for this study is 107 nurses, according to the formula above.

3.6 Tools of Data collection

Data was collected using three tools

Tool I: Structured Interview questionnaire:

This tool was developed by the researcher after reviewing the national and international relevant literature. It included general characteristics of nurses as age, sex, the current nursing role, qualifications, years of experience, position and residence.

Tool II: Nurses perception of preeclampsia scale

This tool was adopted from *Olaoye et al. (2019)* and encompassed 12 items such as such as eclampsia not being a severe or serious condition, young women were not susceptible to developing pre-eclampsia, convulsion during pregnancy is hereditary to the unborn child, etc.....

Scoring system

The subjects were asked to react to each section on a three-point scale ranging from disagree(1) to agree(2) to strongly agree(3). The total score is 36, with scores ranging from 0 to 8 indicating "poor perception," 9-17 indicating "moderately low perception," 18-27 indicating "average perception," and 28-36 indicating "high perception." *Olaoye et al. (2019).*

Tool III: Observational checklist for nurses' compliance with safety practices in caring cases with severe preeclampsia

This tool was developed by the researcher after reviewing the related literatures

(Basyuni etal., 2019 ; Abdelhakm and Said, 2017 ; WHO, 2014) to assess nurses' compliance with safety practices in caring cases with severe preeclampsia. It, encompassed 25 items and consists of 4 domains, physical safety practice (12items), biological safety practice (4 items), environmental safety practice (5 items) and psychological safety practice (4 items).

Scoring system

Board of sub items of the previously mentioned safety practices in caring of women with preeclampsia was observed and scored as follows: done correct / complete = (3), done correct / incomplete = (2), incorrect /not done = (1). Sum of the observed checked items of "compliance " was divided by the total and multiplied by 75. The level of compliance was classified into: Compliant = over 75%, Fairly compliant = 50-75%, Noncompliant = less than 50%

(Abdelhakm & Said, 2017 ; Basyuni, Sobhy & Ghattas, 2019 ; WHO, 2014)

Validity of the tools:

Before being used, a panel of three experts in woman's health and midwifery nursing reviewed the content validity of the three tools to ensure that questions were consistently conveyed and carried the expected meaning that they were prepared for, and modifications were made to simplify meaning and arrange the sequence of questions.

3.7Reliability of the tools:

Cronbach alpha coefficients for internal consistency of nurses perception questionnaire of women with sever preeclampsia was 0.837, while 0.689 for compliance with safety practice in caring women with sever preeclampsia, hence the questionnaire were found to be highly reliable.

3.8Pilot study:

Prior to data collection, a pilot study was conducted on 10% from 107nurses (10 nurses) to test the objectivity and applicability of the study tools, as well as the feasibility of the research process and to estimate the time required to answer them. The pilot study was left out of the final analysis.

3.9Ethical Consideration:

To conduct this study, the Research Ethics Committee of Mansoura University faculty of nursing provided an ethical approval letter. The director of Menyte Elnasr Hospital gave his consent in writing. After explaining the nature and objective of the study to all nurses, oral agreement was acquired. The study was completely voluntary, and each nurse had been guaranteed that the information collected would be kept private. Furthermore, participants had the option to drop out of the study at any time.

3.10Data collection process:

- The current research took place between the beginning of February and the end of July 2021.
- The Research Ethics Committee of Mansoura University's Faculty of Nursing provided an ethical approval letter, and the director of Menyte El Nasr Hospital gave his official authorization to conduct the study.
- The data of current study was collected from the high risk, labor, postnatal department and intensive care unit at Menyte El -Nasr Hospital.
- Studied nurses were permitted to ask for any interpretation and explanation.
- The researcher followed the recommended personal protective measures during data collection process as well as, privacy and safety were absolutely assured.
- - From 8 a.m. to 2 p.m., the researcher went to the previously specified location three times a week (Saturday, Monday, and Wednesday) until the calculated sample was gathered.
- - At the start of the interview, the researcher greeted each nurse, used appropriate communication channels, explained the study's goal, and obtained their oral consent.
- Each nurse was observed for at least 6 hours / shift until her practice covered the items of tool III (observational checklist for nurses' compliance with safety practices in caring cases with severe preeclampsia)

- Statistical Package for Social Sciences (SPSS) version 21 was used to store, computerize, and analyze the obtained data.

3.11 Data analysis :

IBM SPSS Corp. was used to provide data into the computer and analyze it. Version 22.0 of IBM SPSS Statistics for Windows. IBM Corp., Armonk, NY Number and percentage were used to describe qualitative data. For parametric data, mean and standard deviation were used to characterise quantitative data. The Kolmogrov-Smirnov test was used to determine whether the data was normal. The significance of the findings was determined at the (0.05) level.

4. Results

Table 1. Showed that (42.1%) of the studied nurses aged more than 30 years with Mean ±SD (27.72 ±4.090) and had diploma qualifications . Most of them (97.2%) were females and nearly two third of them (65.4%) were living in rural area. About (41.1%) of them were working in the postnatal ward. Less than half of nurses (48.6%) had experience in nursing from 5-10 years with Mean ± SD (9.07±3.579).

Table 2. Showed that Less than three quarters of the studied nurses (70.1%) strongly agreed that up to date training was improved the knowledge and management practice of health care provider on PE . Also (12.1%) of them strongly agreed that it's the duty only of the pregnant woman to prevent PE , PE can't be managed & it is the primary duty of health care provider to prevent PE. More than half of them agreed that young women weren't susceptible to preeclampsia, it can be prevented & excepted mothers should be educated on risk factors of preeclampsia (56.1%,59.8%& 58.9% respectively). More than two thirds of them (67.3%) agreed that referral of women from primary health center should be based on immediate diagnosis of preeclampsia. More than half of them disagreed that convulsions during pregnancy are hereditary & tetanus toxoid vaccine reduces onset of PE (57.0% & 58.9% respectively). The majority of them (83.2%) disagreed that PE had no cure.

Figure 1. Showed that more than half of the studied nurses (53,50%) had moderately low perception, while nearly one third of them (29,29%) had high perception of severe preeclampsia .

Table 3. Shows that, more than one third of the studied nurses monitored urinary output & assessed weight **correct and complete** (39.3% & 41.1% respectively). However less than half of

nurses' maintained fluid balance, monitored blood pressure every 15 minutes, assessed deep tendon reflexes, assessed body temperature every 4 hours, performed   abdominal palpation **correct and incomplete** (41.1% ,43.0%, 42.1%, 42.1%, 41.1% respectively). Around one quarter of them never left women alone, raised the bed side rails, balanced women diet to contain folic acid , performed abdominal palpitation & checked signs of labor **incorrect and incomplete** (30.8%, 20.6%, 15.0% & 28.0% respectively). Regarding biological safety practices, more than half of the studied nurses checked liver function enzymes and checked protein in urine **correct and complete** (51.4%& 53.3% respectively). About (31.% 8& 37.4% respectively) of the studied nurses checked urine analysis & platelet count **correct and incomplete.** Concerning   environmental   safety   practices, (38.3%, 33.6% & 30.8% respectively) of the studied nurses provided comfort for women, care for urinary catheter & encourage women to lie on her side **correct and complete.** While (43.9% & 30.8% respectively) of them provided quite, dark environment and privacy for women **correct and incomplete.** As regard   psychological safety practices, (24.3% & 32.7% respectively) of the studied nurses' managed stress positively and record all findings and share it with women **correct and complete.** About (43.9% & 45.8% respectively) of them reassured of preeclamptic women and educated the women about the disease **correct and incomplete**.

Figure 2. Showed that more than half (50,47%) of the studied nurses were non compliant while, one third of them (33,31%) were compliant with safety practices among women with severe PE.

Table 4. Illustrates that, more than half of the studied nurses (58.6%) who had high perception were fairly compliant with safety practices in caring cases with severe PE. There was a highly statistically significant relation between total studied nurses perception score total compliance score among women with severe PE (p < 0.05).

Table 5. Illustrates that, there was statistically significant relationship between nurses' perception of severe PE and their age, qualifications, years of experience and place of work (p < 0.05)

Table 6. Illustrates that, there was a highly statistically significant relationship between nurses' compliance and their age, qualifications, years of experience and place of work (p < 0.001).

Table (1): Showed the distribution of the studied nurses' according to their sociodemographic characteristics

Age (years)		
- Less than 25	21	19.6%
- 25-30	41	38.3%
- More than 30	45	42.1%
Mean & SD	27.72 ± 4.090	
Gender		
- Male	3	2.8%
- Female	104	97.2%
Residence		
- Rural	70	65.4%
- Urban	37	34.6%
Qualification		
- Diploma	45	42.1%
- Technical	44	41.1%
- Bachelor	18	16.8%
Years of experience		
- Less than 5	19	17.8%
- 5-10	52	48.6%
- More than 10	36	33.6%
Mean & SD	9.07 ± 3.579	
Place of work		
- High risk ward	24	22.4%
- Labor ward	35	32.7%
- Postnatal ward	44	41.1%
- ICU	4	3.7%

Table (2): Showed the distribution of the studied nurses' according to their perception regarding severe preeclampsia n= (107)

| Items	Strongly agree		Agree		Disagree	
	No.	%	No.	%	No.	%
- Preeclampsia is not a serious problem	9	8.4%	33	30.8%	65	60.7%
- Young women are not susceptible to preeclampsia	12	11.2%	60	56.1%	35	32.7%
- Convulsions during pregnancy are hereditary	12	11.2%	34	31.8%	61	57.0%
- Tetanus toxoid vaccine reduces the risk of onset of preeclampsia	9	8.4%	35	32.7%	63	58.9%
- Preeclampsia can be prevented	9	8.4%	64	59.8%	34	31.8%
- It is the duty only of the pregnant women to prevent preeclampsia	13	12.1%	41	38.3%	53	49.5%
- Preeclampsia cannot be managed	13	12.1%	29	27.1%	65	60.7%
- It is the primary duty of health care provider to prevent preeclampsia	13	12.1%	72	67.3%	22	20.6%
- Up to date training will improve the knowledge and management practice of health care provider on preeclampsia	75	70.1%	22	20.6%	10	9.3%
- Preeclampsia has no cure	5	4.7%	13	12.1%	89	83.2%
- Expecting mothers should be educated on the risk factor of preeclampsia	16	15.0%	63	58.9%	28	26.2%
- Referral of women from primary health center should be based on immediate diagnosis of preeclampsia	10	9.3%	72	67.3%	25	23.4%
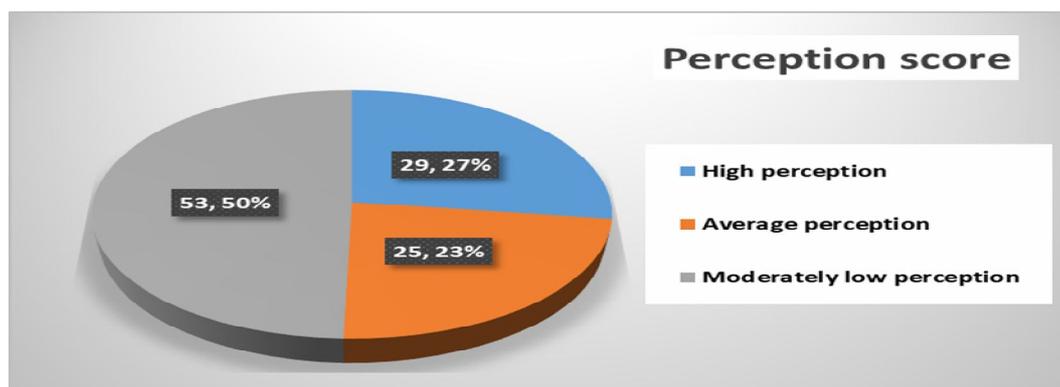
Figure 1. Showed the total studied nurses' perception score regarding severe preeclampsia

Table (3): Showed the studied nurses' compliance with Physical, biological , environmental and psychological safety practices among women with severe preeclampsia n= (107)

| Items	Correct & Complete		Correct & Incomplete		Incorrect & Incomplete	
	No.	%	No.	%	No.	%
Physical safety practices						
- Maintain fluid balance	42	39.3%	44	41.1%	21	19.6%
- Monitor blood pressure every 15 minutes.	29	27.1%	46	43.0%	32	29.9%
- Monitor urinary output.	42	39.3%	38	35.5%	27	25.2%
- Assess deep tendon reflexes.	30	28.0%	45	42.1%	32	29.9%
- Never leave women alone and raise the bed side rails.	49	45.8%	25	23.4%	33	30.8%
- Insert indwelling catheter.	30	28.0%	41	38.3%	36	33.6%
- Assess body temperature every 4 hours.	29	27.1%	45	42.1%	33	30.8%
- Balance women diet to contain folic acid.	50	46.7%	35	32.7%	22	20.6%
- Assess weight	44	41.1%	31	29.0%	32	29.9%
- Check fetal heart rate	26	24.3%	36	33.6%	45	42.1%
- Perform abdominal palpation	47	43.9%	44	41.1%	16	15.0%
- Check signs of labor	41	38.3%	36	33.6%	30	28.0%
Biological safety practices						
- Check Urine analysis	47	43.9%	34	31.8%	26	24.3%
- Check Liver function enzymes	55	51.4%	31	29.0%	21	19.6%
- Check platelet count	42	39.3%	40	37.4%	25	23.4%
- Check protein in urine	57	53.3%	28	26.2%	22	20.6%
Environmental safety practices						
- Provide quite & dark environment	30	28.0%	47	43.9%	30	28.0%
- Provide privacy for women	29	27.1%	33	30.8%	45	42.1%
- Encourage women to lie on her side	33	30.8%	29	27.1%	45	42.1%
- Provide comfort for women	41	38.3%	41	38.3%	25	23.4%
- Care of urinary catheter	36	33.6%	47	43.9%	24	22.4%
Psychological safety practices						
- Mange stress positivity	26	24.3%	45	42.1%	36	33.6%
- Record all finding and share it with women	35	32.7%	34	31.8%	38	35.5%
- Reassurance of preeclamptic women	31	29.0%	47	43.9%	29	27.1%
- Educate the women about the disease	30	28.0%	49	45.8%	28	26.2%
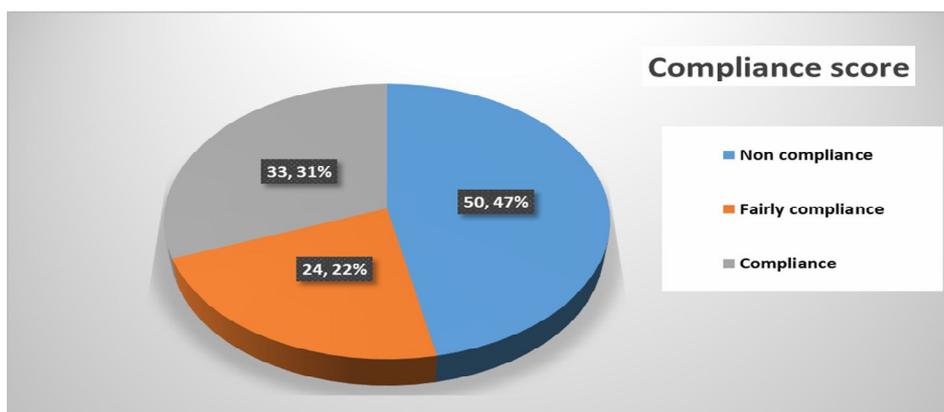
Figure 2. Showed the total nurses' compliance score with safety practices among women with severe preeclampsia

Table (4): Showed the relationship between perception and compliance of studied nurses' regarding severe preeclampsia n= (107)

Compliance	Perception						Test of significance	
	Moderately low perception		Average perception		high perception			
	N=29	%	N=25	%	N=53	%		P
- Non-compliance	18	34.0	25	100	7	24.1	χ=62.51	p<0.001**
- Fairly compliance	7	13.2	0	0.0	17	58.6		
- Compliance	28	52.8	0	0.0	5	17.2		

** Highly statistically significant

Table (5): Showed the relationship between studied nurses' perception of severe preeclampsia and their sociodemographic characteristics

Items	Total number =107	Perception						Test of significance	
		Moderately low perception		Average perception		high perception			
		N=29	%	N=25	%	N=53	%		P
- Age (years)									
Less than 25	21	10	47.6	7	33.3	4	19.0	χ^2=15.75	p=0.003*
25-30	41	11	26.8	12	29.3	18	43.9		
More than 30	45	8	17.8	6	13.3	31	68.9		
- Gender									
Male	3	0	0.0	0	0.0	3	100.0	χ^{2FET}=3.15	p=0.208
Female	104	29	27.9	25	24	50	48.1		
- Residence									
Rural	70	21	30.0	14	20.0	35	50.0	χ^2=1.62	p=0.446
Urban	37	8	21.6	11	29.7	18	48.6		
- Qualification									
Diploma	45	18	40.0	1	2.2	26	57.8	χ^{2MC}=25.23	p<0.001*
Technical	44	11	25.0	15	34.1	18	40.9		
Bachelor	18	0	0.0	9	50.0	9	50.0		
- Years of experience									
Less than 5	19	10	52.6	5	26.3	4	21.1	χ^{2MC}=20.48	p<0.001*
5-10	52	11	21.2	18	34.6	23	44.2		
More than 10	36	8	22.2	2	5.6	26	72.2		
- Place of work									
High risk ward	24	3	12.5	3	12.5	18	75.0	χ^{2MC}=13.65	p=0.0.034*
Labor ward	35	11	31.4	6	17.1	18	51.4		
Postnatal ward	44	15	34.1	14	31.8	15	34.1		
ICU	4	0	0.0	2	50.0	2	50.0		

** Highly statistically significant

Table (6): Showed the relationship between studied nurses' compliance and their sociodemographic characteristics

Items	Total number =107	Compliance						Test of significance	
		Non-compliant		Fairly compliant		Compliant			
		N=50	%	N=24	%	N=33	%		P
Age (years)									
Less than 25	21	12	57.1	7	33.3	2	9.5	χ^2=10.87	p=0.028*
25-30	41	21	51.2	10	24.4	10	24.4		
More than 30	45	17	37.8	7	15.6	21	46.7		
Gender									
Male	3	1	33.3	0	0.0	2	66.7	χ^{2MC}=2.09	p=0.351
Female	104	49	47.1	24	23.1	31	29.8		
Residence									
Rural	70	28	40	18	25.7	24	34.3	χ^2=3.71	p=0.156
Urban	37	22	59.5	6	16.2	9	24.3		
Qualification									
Diploma	45	15	33.3	20	44.4	10	22.2	χ^{2MC}=24.17 p<0.001*	p<0.001*
Technical	44	22	50	4	9.1	18	40.9		
Bachelor	18	13	72.2	0	0.0	5	27.8		
Years of experience									
Less than 5	19	10	52.6	7	36.8	2	10.5	χ^2=10.16 p=0.038*	p=0.038*
5-10	52	28	53.8	10	19.2	14	26.9		
More than 10	36	12	33.3	7	19.4	17	47.2		
Place of work									
High risk ward	28	6	12.0	0	0.0	22	66.7	χ^{2MC}=47.74	p=0.001*
Labor ward	24	13	26.0	4	16.7	7	21.2		
Postnatal ward	25	13	26.0	9	37.5	3	9.1		
ICU	30	18	35.0	11	45.8	1	3.0		

** Highly statistically significant

5. Discussion

The present study aimed to assess maternity nurses perception and compliance with safety practice in caring cases with severe preeclampsia. The present study revealed that more than half of the studied nurses had moderately low perception regarding severe preeclampsia while more than half of nurses were non compliant with safety practices in pregnant women with sever PE. Therefore, these findings answered the research question of the present study (what is nurses' perception and degree of compliance with safety practices among women with severe preeclampsia).

This study found that more than half of the studied nurses had moderately low perception as regard severe preeclampsia while, nearly one third of them had high perception. This may be due to lack of nurses conference attendece, workshops and new courses about preeclampsia. In agreement with our findings, **Al-Matouti et al. (2021)** studied nurses knowledge regarding preeclampsia care at Mosul teaching hospitals. According to their findings, found that about two thirds of nurses had low perception about preeclampsia in his study about nurses knowledge regarding preeclampsia

care at Mosul teaching hospitals. Besides, lack of awareness of the importance of nurses' perception as a source of pregnant women wellbeing. In parallel with the present study finding, **Sabry et al. (2021)** study to evaluate the effect of precede knowledge model educational program on nurses knowledge and attitude toward health promotion of preeclampsia, concluded that the majority of nurses, had negative attitude and perception toward health promotion of preeclampsia.

In contrast to the present study finding, **Soliman et al. (2020)** study to assess nurses knowledge and practices regarding the use of evidence-based for pregnant women with preeclampsia and found that more than half of studied nurses had high level of perception regarding the use of evidence-based for pregnant women with pre-eclampsia. Additionally, **ElSharkawy et al. (2020)** study to assess the effect of simulation-based educational program on maternity nurses' performance regarding obstetrical emergencies during Pregnancy and found positive improvement concerning nurses' attitudes and perception regarding obstetrical emergencies including sever preeclampsia during immediate pregnancy. Also, **Olaoye et al. (2019)** studied

perception and management of preeclampsia among health care providers in a maternity hospital and found that the perception of respondents to pre-eclampsia was positive as more than two thirds had high perception of preeclampsia.

The present study showed that more than half of the nurses were non compliant with safety practices among women with sever preeclampsia, while one third of them were compliant. The gap in nurses compliance and treatment of preeclampsia may be due to lack of trainings for management of sever preeclampsia. In agreement with the present study findings **Elsharkway et al. (2020)** found that only few percent of the studied nurses had satisfactory practice regarding obstetrical emergencies pre-intervention. Also, **Sobhy et al. (2019)** studied nurses compliance with safety practices in intensive care unit among women with severe preeclampsia and reported that less than one-quarter of the nurses were compliant with safety practices in caring of pregnant women with severe preeclampsia. Moreover, **Zeinab et al. (2018)** studied the effect of an instructional package on nurses performance regarding obstetrical emergencies and found that during a research of the effect of an instructional package on nurses' performance regarding obstetrical emergencies, it was discovered that just a few percent of the nurses tested had competent practise in this area.

While the present study finding was in disagreement with **Soliman et al. (2020)**, reported that less than two third of staff nurses had satisfactory level of total practices regarding preeclampsia. Also, **Tadele et al. (2020)** they assessed knowledge and practice of nurses working in gynecology emergency room towards pregnancy induced hypertension and association of having training and work experience to their knowledge and practice in selected government public hospitals of Addis Ababa, Ethiopia. They found that half of the charts had showed good practice towards pregnancy induced hypertension. Additionally, **Hendiya et al. (2020)** study to assess the effect of clinical practice guidelines on the performance of nurses caring for women with eclampsia and preeclampsia, found that the majority of the study nurses had a competent practice during assessing the effect of clinical practice guidelines on the performance of nurses caring for women with eclampsia and pre eclampsia. Also, **Elmenshawy et al. (2016)** evaluated evidence based knowledge and practices regarding assessment of preeclampsia and eclampsia among nurses at Mansoura governmental

hospitals in Egypt, reported that more than half of the studied sample had correct score regarding measuring and recording blood pressure. Additionally, **Emam & Sober (2018)** found that less than quarter of nurses had poor and average practice.

The present study finding showed that there was a highly statistically significant relationship between total nurses perception score and total compliance score among women with sever preeclampsia as more than half of the nurses who had high perception were compliant with safety practices in caring cases with sever preeclampsia. In agreement with the present findings **Elsharkway et al. (2020)** reported that there was a highly statistically significant correlation between total practice scores and total perception scores. Also, **Emam & Sober. (2018)** they studied the effect of nursing program on improving nurses' knowledge and skills regarding care of eclamptic women, found that there was statistically significant association related to nurses perception and practice regarding care of eclampsia women. Additionally, **Zeinab et al. (2018)** revealed statistically significant differences in overall nurses' perceptions and practises about obstetrical emergency.

While, in contrast with the present study finding **Fadlala et al. (2019)** study to assess nurses awareness regarding magnesium sulfate administration to preeclamptic /eclamptic mothers, found that there was no statistically significant relation between nurses perception and compliance of nurses practices during his study to assess nurses awareness regarding magnesium sulfate administration to preeclamptic /eclamptic mothers.

The present study finding revealed a highly statistically significant relation between nurses perception of severe preeclampsia and their age, qualifications, years of experience and place of work. This finding was in agreement with **Farahat et al. (2021)** studied the effect of educational program on nurse's knowledge about maternal cases at woman's health hospital, Assiut university, who reported a highly statistically significant difference between the total perception of the studied nurses and their age, academic qualification and their years of experience. Also, **Mai et al. (2020)** studied stimulation and self-efficacy of maternity nurses in management of preeclampsia and eclampsia demonstrated a highly statistically significant beneficial correlation between overall nurses perception and their educational qualification. Also **Olaoye et al. (2019)** found that there was a significant association between the

respondents' perception of preeclampsia and years of service.

While, the present study finding contradicts with **Sobhy et al. (2019)** who revealed that there was no significant correlation between nurses' perception about preeclampsia with each of nurses' age, residence, place of work, qualification, employee rank and years of experience in nursing or in ICU or eclamptic unit. Moreover, **Fadlala et al. (2019)** found no statistically significant relation between nurses perception with experience and professional qualification. This result might be due to nurses were well educated and had experience in dealing with preeclampyic women.

The present study finding revealed that there was a highly statistically significant relationship between nurses compliance and their age, qualifications, years of experience and place of work. This finding was in agreement with **Hendiya et al. (2020)** who concluded that there was a statistical significant difference as regard total practice guidelines in relation to their level of education post intervention. Also, **Mai et al. (2020)** found a very statistically significant positive relationship between total nursing practise and educational qualification. Additionally, **Elmenshewy et al. (2016)** found positive highly significant statistical relation between nurses' practices and their demographic characteristics.

While, in contrast with the present study findings **Sobhy et al. (2019)** found that there was no significant correlation between nurses'compliance with safety practices in caring of pregnant women with severe preeclampsia with each of nurses' age, current residence, and place of work, qualification, employee rank, and years of experience in nursing or in ICU or eclamptic unit. Additionally, **Zahran, et al. (2018)** studied nurses' practical skills provided for mother with toxemia of pregnancy who revealed that there was no relationship between nurses' practices and their demographic characteristics. Also, **Zeinab et al. (2016)** studied to assess nurses' practical skills regarding emergency situations in the delivery unit and found that there was no statistical significant relationship between nurses' practices and their level of education.

Finally, sever preeclampsia still one of the major contributors to maternal and infant morbidity and mortality unfortunately. As the first line of contact with pregnant women in obstetric emergencies, particularly sever preeclampsia, nurses must promote their understanding of and compliance with safety practises in order to aid in the prevention, detection, and management of pregnancy complications such as sever preeclampsia and eclampsia in order to reduce maternal and fetal mortality.

6. Conclusion

Based on the present study findings, the tested questions were answered where more than half of studied nurses' had moderately low perception of severe preeclampsia and more than half of nurses were non compliant with safety practices among women with sever preeclampsia. We found a highly statistically significant relationship between total nurses perception score and compliance score regarding sever preeclampsia and statistical significant relationship between socio-demographic characteristics (age, qualifications, years of experience and place of work), nurses perception and compliance with safety practices regarding severe preeclampsia.

7. Recommendation

The following recommendations were made based on the findings of this study:

1- Advising nurses to participate in preeclampsia training programmes such as workshops and seminars, as well as reviewing current nursing care techniques.

2- Establishing a library with current scientific bookstore magazines in Arabic language, as well as a budget set aside each year for nursing education.

3- Providing specific policies, procedures or posters in work place about women safety practices in preeclampsia and severe preeclampsia and application of WHO standard recommendations to improve severe preeclampsia management.

4- Effective supervision for nursing staff is essential for guidance, monitoring and evaluating nursing practice related to patient safety standards.

- **Further researches are needed to** conduct a large-scale study with a diverse sample size to enhance nurses' practise and perceptions of severe preeclampsia care.

8. Acknowledgements

9. Conflicts of Interests

The authors declare they have no competing interest regarding this research.

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