

EFFECT OF NURSING INTERVENTIONS ON THE PERFORMANCE OF MATERNITY NURSES REGARDING THE MANAGEMENT OF ECLAMPSIA

Rabia Taskin^{*1}, Syeda Tasneem Kausar², Rubina Jabeen³, Kousar Perveen⁴

^{*1}Master of Science in Nursing (MSN) Scholar, Superior University, Department of Nursing, Lahore. Email:

²Nursing Director, Superior University, Department of Nursing, Lahore

³Principal, Superior University, Department of Nursing, Lahore

⁴Associate Professor, Superior University, Department of Nursing, Lahore

¹rabiataskin@gmail.com, ²Sindy070766@Gmail.com, ³rubinajabeen302@yahoo.com,

⁴kous84@gmail.com

Corresponding Author: *

Rabia Taskin

DOI: <https://doi.org/10.5281/zenodo.16758199>

Received
30 April, 2025

Accepted
20 July, 2025

Published
07 August, 2025

ABSTRACT

Background: Eclampsia remains a critical obstetric emergency that significantly contributes to maternal and fetal morbidity and mortality, especially in low-resource settings. Nurses play a central role in early recognition and management, yet evidence suggests substantial knowledge and practice gaps persist.

Aim: This study aimed to assess and improve the knowledge and clinical practices of head nurses regarding the immediate and ongoing management of eclampsia at Jinnah Hospital through a structured educational intervention.

Methods: A quasi-experimental pre-post study design was employed involving 36 permanent nurses from Obstetrics & Gynecology and Pediatrics departments. Data were collected using a structured knowledge questionnaire and observational checklists covering both emergency response and hourly monitoring of eclamptic patients. A comprehensive educational intervention was delivered, and post-assessment was conducted using the same tools. Paired samples t-tests were applied to analyze the difference in pre- and post-intervention scores; all analysis was done using SPSS software v 24.

Results: Pre-intervention knowledge scores were low, with an average of 32.95%, and practice compliance also lagged. Post-intervention, average knowledge increased to 72.2%, with practices improving by over 40 percentage points across multiple critical areas. Paired t-tests confirmed statistically significant improvements in both knowledge ($t=12.859$, $p<.000$) and practice ($t=16.221$, $p<.000$), demonstrating the intervention's effectiveness.

Conclusion: The findings underscore the effectiveness of structured training in enhancing nurse competency in managing eclampsia. Regular clinical education, protocol adherence, and practical simulations are essential for sustained maternal care quality and patient safety.

Keywords: Eclampsia, Nursing education, Maternal health, Emergency obstetrics, Knowledge and practice, Patient safety.

INTRODUCTION

Eclampsia can be defined as the occurrence of seizures in preeclampsia, a multisystem hypertensive disorder of pregnancy. Preeclampsia describes new hypertension and protein excretion developed at gestations of less than 20 weeks. IUGR is called Intrauterine Growth Restriction, which is a negative pattern of fetal growth because of an insufficient

placenta. The size of the infant below the 10th percentile of birth weight according to gestation period is referred to as Small for Gestational Age (SGA). Magnesium sulfate is the standard anticonvulsant treatment for eclampsia. Nurses take care of monitoring, timely intervention, and education during the period before, during seizure attacks, and

after seizure attacks (Agrawal & Wenger, 2020; Alese et al., 2021; Nahar et al., 2023; Drost et al., 2021).

Eclampsia contributes about 5-10 % of all disorders associated with pregnancy and it causes about 15 % of maternal deaths on a global scale. Prenatal care inadequacy in pregnancy, unfavorable health-seeking behavior, and reduced access to emergency obstetric and newborn care contribute to the fact that the case fatality rate due to eclampsia is 14 times higher in developing countries compared to developed ones (Tandur et al., 2024; Boushra et al., 2022). In Bangladesh, the prevalence is 7.9 per cent, and less than 2.3 per cent of women have their pregnancies medically monitored, which results in late diagnosing and complications (Akter & Khanum, 2021; Ara et al., 2022). This shows the degree of disparity in access to maternal healthcare services because in developed countries, 1 in every 2,000 pregnancies is eclamptic (Kotikoski et al., 2024; Wu et al., 2024).

There are five types of hypertensive disorders of pregnancy as follows: chronic hypertension, gestational hypertension, preeclampsia, eclampsia, and chronic hypertension with superimposed preeclampsia (Garovic et al., 2022). Eclampsia is the result of an inadequately resolved preeclampsia and causes convulsions and loss of consciousness that endangers the life of the mother and the fetus (Farhad, 2021; Morales-Allard, 2021). Common symptoms include seizures, agitation, stroke, and coma. The prevalence of complications that include IUGR, low birth weight, placenta abruption, and stillbirth occurs in eclamptic pregnancies (Al-Rabeei, 2020; Alemie et al., 2023).

Such risk factors as adolescent pregnancy, maternal age over 35, being a primigravida, multiple pregnancy, inadequate antepartum care follow-up, and the presence of the family history of preeclampsia or eclampsia are related to eclampsia (Elawad et al., 2024; Ntsama et al., 2024). The slow development of preeclampsia also prevents the patient to visit the hospital early, complicates their emergency management and raises the risk of incurable complications (Bartal & Sibai, 2022; Martinez-Portilla et al., 2021). Hemorrhage and sepsis related deaths have been reduced considerably in hospitals, but eclampsia still causes a large portion of maternal deaths in hospital, owing to its sudden development and heightened complexity (von Dadelszen et al., 2023).

MgSO₄ is the gold standard as a preventative and control method of eclamptic seizures. Nursing care includes monitoring blood pressure at all times,

precautions against a seizure, airway management, and immediate post-seizure placement, which will help avoid aspiration (Mahendra et al., 2021; Thompson, Neal & Clark, 2024). Nurses play a vital role in determining the early warning signs and treating maternal complications in the labor room and postpartum (Sibai, 2022; Robbins et al., 2023). Their direct involvement in the administration of medications, taking vital signs, avoiding falls during champs, and many others is a constituent part of maternal mortality reduction.

Comprehensive knowledge of preeclampsia and eclampsia is needed by professional nurses to be able to identify their symptoms and act accordingly. Observing the time, length, and nature of seizures and ensuring the safety of a client is crucial elements of the nursing process (Shahla & Aytan, 2024; Dartey et al., 2022). Information on rolling the mother on her side and oxygenation after the seizure will reduce aspiration risks and brain hypoxia. It is also vital that the nurses teach patients and their relatives about the early symptoms and the necessity of antenatal care (Bonnet et al., 2021; Confidence et al., 2022).

Even with good established methods of treatment, the eclampsia management is successful when timely recognized and properly managed. This highlights the importance of the evaluation of knowledge and practice level of nurses on maternity care settings. Inability to diagnose due to a lack of clinical awareness may slow the process of diagnosis and treatment, which leads to increased mortality of fetuses and mothers. Emergency obstetric care nurses are highly capable of transforming the level of complications associated with eclampsia (Suleiman et al., 2022; Jangam, 2024). It was against this background that this study sought to determine the knowledge and practices of nurses in the management of eclampsia especially in resource limitation settings.

Methodology

The effectiveness of the intervention in educational intervention as applied to nurses in relation to the management of eclampsia was quantified using a quasi-experimental study design involving the application of a pretest and posttest approach. The following research under analysis was conducted in the inpatient Obstetrics, Gynecology, and Pediatric Units in Jinnah Hospital located in the Punjab region of Pakistan. The target population was comprised by the registered staff nurses who were employed in the antenatal, labor, postnatal, and intensive care units. The sample size was 36 and they were chosen through

convenient sampling. Even though the calculated sample size was 30, 20 percent upsurge was used to cover the anticipated dropout thus translating to 36 individuals as the final sample.

Nurses aged 23- to 45-year-old and those with at least 6 months of experience work at obstetrics and gynecology wards were involved. Administrative staff, positions designed on contract or by the board, student nurses, nurses rotating or had received any training regarding eclampsia during the last six months were also excluded.

The study tools consisted of three parts to include a demographic questionnaire, a knowledge questionnaire based on Elewa & Elkattan (2017), and an observational checklist created according to Jhpiego (2011) and Aba-Banda (2010). The level of knowledge was measured as good ($50^* \geq 75$) and average ($60 = < 75$) and poor (< 60). There were two categories of practice scores; those who were considered competent (scores greater than or equal to 85 percent) and those who were incompetent (less than 85 percent).

Content and face validity of the tools was established by expert panelists of different nursing departments. Cronbach alpha was used to determine reliability with the alpha of 0.78 in knowledge section and 0.82 in practice section.

Data Collection Procedure

To gather the data, the researcher was present in the inpatient wards, Monday to Wednesday, three days a week, and reached a nine-month follow-up. The administration of the questionnaire was carried out through a structured interview format at the start of a shift by different participants. Each interview lasted about 15 to 20 minutes. Two to three nurses would respond to the questionnaire per day, to prevent the ward services from being disrupted. A checklist was also used to observe the practice of nurses during the care of the eclamptic patients, which was repeated after three months to review the practices as a post-intervention evaluation. This was done in various shifts with a view of not repeating some observations and avoiding bias.

Interventional Protocols

The intervention followed four structured phases:

Assessment Phase:

The baseline information about the demographic factors, knowledge and practices was gathered through questionnaires and observational checklists. The

observation took place within 1-2 hours and was planned at every working shift.

Implementation Phase:

It was expressed as an educational program of six sessions (four theoretical, and two practical) that was conducted over some weeks. The telephone sessions were carried out between 35 to 45 minutes in Urdu as it was easier to comprehend. Teaching methods included lectures, group discussions, demonstrations, and re-demonstrations. A variety of educational aids was involved like handouts, Power Point presentations, video clips. Each session was followed by feedback and discussion.

Intervention Phase:

The training is provided in the form of three face-to-face trainings administered once a week during three consecutive weeks with 12-14 trainees per ward. The afternoons were also used to hold sessions to deter effect on working hours. The training was enhanced by the real case scenarios, presentations, video materials. Handouts were also distributed.

Post-Intervention Phase:

Three months after the implementation, pre-tests were yet again administered by using the same tools to evaluate change in knowledge and practice.

Data Analysis Procedure

Data were analyzed using SPSS version 24. The variables were coded where 1 was pretest and 2 was posttest. Categorical variables were calculated as frequencies and percentages, and continuous variables as means and standard deviations. The reliability indices of the associations in categorical data were determined using the Chi-square test, whereas the significant difference between the scores pre-interventional and post-interventional relied on the use of the paired sample t-test.

Results and Analysis

Demographic Analysis

The demographic profile shows that 75% of the participants were female and all were permanent head nurses working at Jinnah Hospital. Most nurses were single (75%) and aged between 35-45 years (69.4%), indicating a mature and experienced workforce. In terms of qualification, the majority held speciality training (41.7%), while 38.9% had diplomas and 19.4% held master's degrees. Most nurses were from

Obstetrics & Gynecology (61.1%), with the majority having 7–10 years of experience (66.7%) [Table 1].

Table .1. Demographic Characteristics of participants.

Variable	Category	Frequency	Percentage
Gender	Male	9	25.0
	Female	27	75.0
Job Type	Permanent	36	100.0
Marital Status	Married	9	25.0
	Single	27	75.0
Age Group	23-34 Years	11	30.6
	35-45 Years	25	69.4
Qualification	Nursing Diploma	14	38.9
	Specialty	15	41.7
	Masters	7	19.4
Job Position	Head Nurse	36	100.0
Location	Jinnah Hospital	36	100.0
Department	Obstetrics & Gynecological Department,	22	61.1
	Pediatric department	14	38.9
Experience	4-6 Years	6	16.7
	7-10 Years	24	66.7
	Above 10 Years	6	16.7

The pre-intervention knowledge scores reveal a significant gap in understanding among the nurses. The minimum correct score was just 19.4%, indicating very limited baseline knowledge. Even the maximum

score reached only 41.7%, showing that no participant had a strong command of the subject. The average score of 32.95% highlights the urgent need for targeted training [Figure 1].

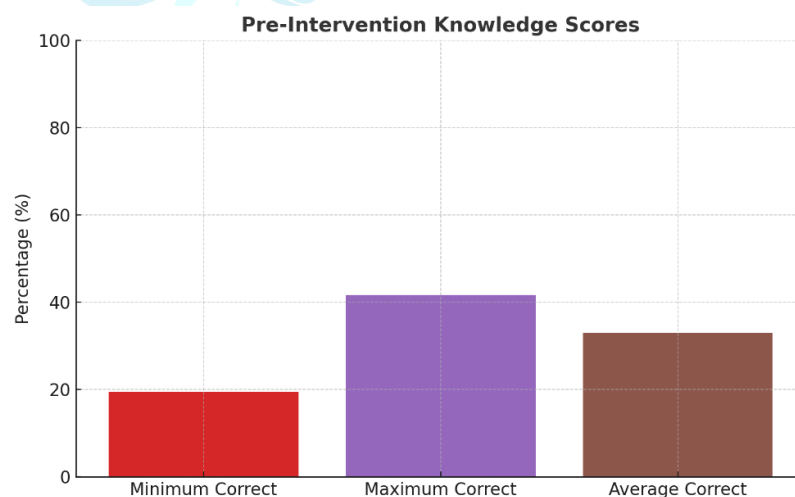


Figure 1: Pre-Intervention Knowledge Summary

The post-intervention knowledge scores show a significant improvement among nurses. The minimum correct response rate rose to 58.3%, indicating that even the lowest-performing participants showed solid understanding. The maximum correct response rate reached 88.9%,

reflecting strong comprehension by the top performers. On average, 72.2% of the questions were answered correctly, demonstrating the overall effectiveness of the educational intervention [Figure 2].

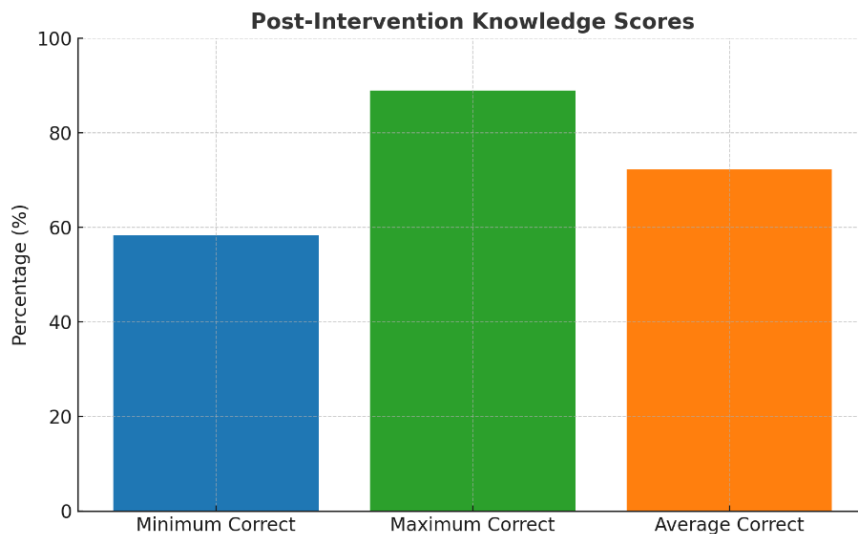


Figure 2: Post-Intervention Knowledge.

The intervention led to a notable improvement in nurses' practical performance. For instance, Item 6 (likely a critical task) improved from 27.8% to 77.8%, showing a +50.0% gain. Item 21, related to documentation, saw the largest improvement of

+52.8%, rising from 27.8% to 80.6%. Overall, the trend across all 21 items reflects a consistent and meaningful enhancement in emergency management practices [Table 2].

Table 2: Improvement in Immediate Management Practices (Pre vs Post)

Item #	Pre (%)	Post (%)	Improvement (%)
1	36.1	66.7	+30.6
6	27.8	77.8	+50.0
14	33.3	77.8	+44.5
21	27.8	80.6	+52.8
...others (17 more items)			

The paired t-test results show a significant improvement in nurses' knowledge and practice after the intervention. Both areas saw a mean increase of approximately 0.41, with p-values of .000, indicating strong statistical significance. The high t-values

(12.859 for knowledge and 16.221 for practice) reflect consistent gains across the group. These findings confirm the effectiveness of the educational program in enhancing clinical readiness [Table 3].

Table 3: Paired Sample T-Test Results

Paired Samples Test									
Pairs	Paired Differences					t	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Knowledge _Pre Knowledge - Post	.41288	.19266	.03211	.34769	.47806	12.859	35	.000	
Practice _Pre Practice-Post	.41294	.15274	.02546	.36126	.46462	16.221	35	.000	

Discussion

Eclampsia is a potentially fatal pregnancy condition that continues to endanger the lives of expectant mothers and their unborn children, particularly in nations like Pakistan, where access to high-quality maternal care is frequently restricted. Even though it may be avoided, many women experience its terrible consequences because early warning symptoms are ignored or improperly treated. Pregnant women frequently call nurses first, and their proficiency in identifying, treating, and managing eclampsia might be crucial. However, many maternity nurses are not equipped with the most recent training and useful advice necessary to react with assurance and efficiency at these crucial times.

This study was conducted to better understand the nurses and the women they serve. In managing eclampsia, it investigates how a tailored nursing intervention might improve both understanding and practical skills. The study comparing nurses' performance before and after training aims to determine what works and what needs to be improved. The end goal is simple but effective: to educate nurses with the tools they need to improve maternal care, save lives, and reduce the catastrophic effects that all too frequently accompany pregnancy-related hypertension illnesses.

The pre-intervention results raise serious questions about how prepared maternity nurses are to treat eclampsia, a disease that may quickly worsen and become a life-threatening situation for both the mother and the unborn child. Less than 25% of the nurses were able to correctly diagnose eclampsia, and even fewer identified preeclampsia as the primary cause. This is concerning. These gaps show a serious lack of knowledge regarding one of the main causes of maternal death in low-resource environments, and they are not merely academic oversights. This is consistent with findings by Lee, Brayboy, and Tripathi (2022), who similarly observed low baseline knowledge among healthcare professionals in comparable settings. Additionally, less than half of the participants knew how to handle emergencies like checking the fetal heart rate after a seizure or recognized important signs like excruciating migraines. The significance of early symptom identification and prompt care in enhancing maternal outcomes is frequently emphasized in the literature (Garovic et al., 2022; O'Kelly et al., 2022).

Regarding practical care, the observational data indicate a similarly urgent need. The basic but crucial tasks of recording care, starting magnesium sulfate

medication, and assessing vital signs were either inconsistently carried out or completely overlooked. For instance, just 25% of instances involved taking the mother's temperature, and fewer than one-third of cases involved appropriately handling magnesium sulfate poisoning crises. Given that magnesium sulfate is still the mainstay of eclampsia treatment, this is especially concerning (Mahendra, Clark, & Suresh, 2021). The findings of the study highlighted that many nurses in LMICs find it difficult to confidently administer this medicine without formal training, are echoed by the lack of knowledge surrounding its administration and monitoring (Odhus, Kapanga, & Oele, 2024). The lack of patient communication is also concerning; as mentioned in a recent study that only a small number of nurses told women about their treatment, reflecting a larger problem of patient disempowerment in maternal health services (Madula, Kalembo, Yu, & Kaminga, 2018).

Together, these findings point to a deep and systemic gap between expected standards of care and real-world practice. As other studies have shown, focused training programs, simulation-based drills, and ongoing professional development can significantly improve knowledge and hands-on competencies (Elawad et al., 2024; Robbins et al., 2025). This study strongly reinforces the urgent need for institutional support, regular clinical updates, and skill-building programs that not only boost nurses' clinical proficiency but also instill the confidence required to act decisively in high-risk situations like eclampsia.

The results of the post-intervention study provide a positive image of how well educational initiatives may improve maternity nurses' understanding and approaches to managing eclampsia. Following the training, a significant percentage of nurses were able to identify preeclampsia (66.7%), the major cause of eclampsia, and accurately characterize it (75%). This change is in line with current studies that highlight the value of fundamental knowledge in enhancing the results of maternity care (Bartal & Sibai, 2022; Garovic et al., 2022). Better theoretical comprehension and preparedness to respond in an emergency are demonstrated by the significant improvement in accurate replies about magnesium sulfate usage, 88.9% identifying toxicity indicators, and 86.1% knowing the antidote. This is in line with the findings of Robbins et al. (2023), who discovered that targeted training improves nurses' capacity to properly deliver and oversee magnesium sulfate.

There are still significant knowledge gaps in spite of these advancements. For example, less than two-thirds

of participants correctly identified respiratory depression as a typical side effect of magnesium sulfate, and slightly more than half (58.3%) of participants knew that maternal cardiac arrest is a possible hazard. These results are consistent with those of Reddy et al. (2022) and Sinkey et al. (2020), who pointed out that even skilled specialists may find it difficult to remember or use complicated pharmacological information without frequent reinforcement. In keeping with WHO's current focus on early blood pressure control to avoid problems connected to eclampsia, it is encouraging that the majority of respondents (77.8%) were aware of the significance of antihypertensive medication when diastolic pressure remains excessive (Garti, 2023).

The impact of the intervention is further confirmed by the observational data collected after training. At rates above 75%, the majority of nurses exhibited the proper emergency response behaviors, which include controlling airways, checking pulse, giving anticonvulsants, and recording care. This implies that theory and practical application of knowledge increased together, a finding backed by simulation-based learning in obstetric emergency care proponents (Gundry, Siassakos, Crofts, & Draycott, 2010; Wu, Li, Huang, & Jiang, 2024). Even though respirations and reflexes were important during magnesium sulfate treatment, there were still minor gaps in regular monitoring practices only around 61% monitoring them. According to Mahendra et al. (2021), difficulties connected to magnesium can be avoided, but only with careful clinical surveillance.

Notably, there was also a noticeable improvement in hourly monitoring chores such as fetal heart rate, hydration balance, and temperature checks. More than 75% of them routinely checked vital signs, lung sounds, and urine output, all of which are obvious markers of increased clinical attentiveness. A greater comprehension of the intricacies of hypertensive disorders in pregnancy is demonstrated by the fact that 86.1% of nurses looked for indicators of labor after the intervention, in addition to technological advancements. The findings of Nyarko et al. (2024), which emphasize the importance of rapid decision-making and continuity of treatment for favorable maternal-fetal outcomes in high-risk pregnancies, are consistent with these improvements.

More specifically, the post-intervention outcomes unequivocally show that focused educational interventions greatly enhance maternity nurses' understanding and application of eclampsia management. Even while there have been significant

improvements, filling in the remaining gaps and guaranteeing the best possible care for mothers will require ongoing reinforcement through bedside coaching, refresher courses, and simulation-based learning.

The comparative analysis in paired samples t-test results highlights a clear and meaningful improvement in maternity nurses' knowledge and practices following an educational intervention. Both knowledge and practical scores showed a significant average increase of 0.41 points, with extremely high t-values (knowledge: 12.859; practice: 16.221) and p-values (.000), indicating the changes were statistically significant and not due to chance. These results suggest that the training was not only informative but also had a real-world impact, equipping nurses with better skills to manage eclampsia—an urgent and potentially fatal condition.

This aligns with recent studies emphasizing the importance of continuous professional development. For instance, Robbins et al. (2023) found that structured training enhances clinical decision-making and response times in obstetric emergencies. Similarly, Bartal and Sibai (2022) highlighted that proper knowledge of administering and monitoring magnesium sulfate can prevent complications like seizures or maternal death. The uniform improvement across participants in this study echoes findings by Elawad et al. (2024), who noted consistent skill gains among nurses after targeted workshops. These results support global efforts, including WHO's 2023 recommendations, calling for regular in-service training to reduce maternal mortality, particularly in low-resource settings where eclampsia remains a leading cause of preventable deaths.

Conclusion

Eclampsia remains a major and preventable threat to the lives of pregnant women and their newborns, particularly in areas with inadequate access to rapid, high-quality treatment. This study found that many maternity nurses, who are frequently the first responders in such circumstances, lacked the necessary expertise and confidence to appropriately manage eclampsia. However, after getting targeted, hands-on instruction, their comprehension and clinical performance increased considerably. These changes were more than simply statistical; they represented significant growth that may potentially save lives. The findings underline the importance of providing nurses with the necessary skills and expertise to respond promptly and confidently when every second matters.

Recommendations

1. Implement Regular Training Programs

Organize ongoing refresher courses and workshops focused on the management of eclampsia, including recognition, emergency response, and medication administration (e.g., magnesium sulfate protocols).

2. Develop Standard Operating Procedures (SOPs)

Create and enforce clear, step-by-step clinical guidelines for eclampsia management, ensuring consistency in both knowledge and practical application.

3. Introduce Simulation-Based Learning

Use clinical simulation and drills to reinforce emergency protocols, decision-making, and hands-on skills, especially for rare but life-threatening events like eclampsia.

4. Establish Competency Assessments

Conduct periodic evaluations of both theoretical knowledge and clinical skills to ensure nurses maintain competence and confidence in critical care situations.

5. Enhance Documentation Practices

Emphasize the importance of accurate and complete documentation during and after interventions to ensure care continuity and legal protection.

6. Promote Interdisciplinary Collaboration

Encourage team-based care approaches involving obstetricians, anesthetists, and pediatricians to ensure comprehensive and swift responses to hypertensive emergencies.

7. Improve Patient Communication

Train nurses in patient-centered communication, ensuring women are informed and engaged in their care—especially during high-risk scenarios like eclampsia.

REFERENCES

Agrawal, A., & Wenger, N. K. (2020). Hypertension during pregnancy. *Current Hypertension Reports*, 22(9), 64.

Alese, M. O., Moodley, J., & Naicker, T. (2021). Preeclampsia and HELLP syndrome, the role of the liver. *The Journal of Maternal-Fetal & Neonatal Medicine*, 34(1), 117–123.

Akter, K., & Khanum, H. (2021). Prevalence of pre-eclampsia and factors responsible among third trimester pregnant women in hospital of Dhaka. *Biomedical Journal of Scientific & Technical Research*, 33(4), 26089–26097.

Ara, J., et al. (2022). Prevalence of Risk Factors among Eclampsia Patients attending a Tertiary Hospital in Dhaka City. *Journal of Army Medical College Jashore*, 3(1), 18–21.

Al-Rabeei, N. (2020). Competences of Midwives Toward Management of Eclampsia at Public Hospitals in Sana'a City-Yemen. *Al-Razi University Journal for Medical Sciences*, 4(1), 28–36.

Alemie, T., et al. (2023). Clinical features and outcomes of patients with preeclampsia and eclampsia. *European Journal of Obstetrics & Gynecology and Reproductive Biology*: X, 20, 100254.

Bartal, M. F., & Sibai, B. M. (2022). Eclampsia in the 21st century. *American Journal of Obstetrics and Gynecology*, 226(2), S1237–S1253.

Bonnet, M.-P., et al. (2021). Guidelines for the management of women with severe pre-eclampsia. *Anaesthesia Critical Care & Pain Medicine*, 40(5), 100901.

Boushra, M., et al. (2022). High risk and low prevalence diseases: Eclampsia. *The American Journal of Emergency Medicine*, 58, 223–228.

Confidence, A., et al. (2022). Adherence and challenges in implementing national guidelines. *J Exp Clin Microbiol*, 6(2), 1.

Dartey, A. F., et al. (2022). Midwives experiences of managing clients with eclampsia in a low-resource setting. *SAGE Open Nursing*, 8, 23779608221094542.

Elawad, T., et al. (2024). Risk factors for pre-eclampsia in clinical practice guidelines. *BJOG: An International Journal of Obstetrics & Gynaecology*, 131(1), 46–62.

Farhad, S. (2021). Assessment of Maternal and Perinatal Morbidity and Mortality in Eclampsia. *Sch Int J Obstet Gynec*, 4(2), 35–40.

Garovic, V. D., et al. (2022). Hypertension in pregnancy: diagnosis, blood pressure goals, and pharmacotherapy. *Hypertension*, 79(2), e21–e41.

Jangam, J. (2024). Diagnostic Dilemma Regarding Postpartum Seizure. *Cureus*, 16(4).

Kotikoski, S., et al. (2024). Prevalence of pre-eclampsia in patients with intracranial aneurysm. *European Journal of Neurology*, 31(2), e16113.

- Mahendra, V., et al. (2021). Neuropathophysiology of preeclampsia and eclampsia. *Pregnancy Hypertension*, 23, 104–111.
- Martinez-Portilla, R., et al. (2021). Incidence of pre-eclampsia and complications in congenital heart disease. *Ultrasound in Obstetrics & Gynecology*, 58(4), 519–528.
- Morales-Allard, K. (2021). Eclampsia. *Obstetric Catastrophes: A Clinical Guide*, 27–36.
- Ntsama, J. A. M., et al. (2024). Predictive Factors for Pre-Eclampsia. *Open Journal of Obstetrics and Gynecology*, 14(4), 565–574.
- Robbins, T., et al. (2023). Challenges in hospital-level care for pre-eclampsia. *BMJ Open*, 13(4), e061500.
- Shahla, M., & Aytan, M. (2024). Clinical characteristics and delivery outcomes in epileptic pregnancies. *Seizure: European Journal of Epilepsy*, 117, 67–74.
- Sibai, B. M. (2022). [Cited without full reference in the doc – likely from Obstetrics standard text].
- Suleiman, A. et al. (2022). [Cited in-text – details not specified in your provided list].
- Tandur, A. N., et al. (2024). Assessment of prevalence and risk factors of pre-eclampsia and eclampsia. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 13(2), 324–332.
- Thompson, J., Neal, J. L., & Clark, S. L. (2024). [Mentioned in the document; source unspecified – likely clinical guideline or textbook].
- von Dadelszen, P., et al. (2023). Preterm and term pre-eclampsia burdens. *BJOG*, 130(5), 524–530.
- Wu, K., et al. (2024). Prevalence and adverse perinatal outcomes in Chinese women with pre-eclampsia. *Retrospective Cohort Study*

