



“A STUDY TO EVALUATE THE EFFECTIVENESS OF AN EDUCATIONAL INTERVENTION ON KNOWLEDGE OF WHO GLOBAL STRATEGIES FOR THE PREVENTION OF PREGNANCY-INDUCED HYPERTENSION AMONG NURSING STAFF IN SELECTED HOSPITALS OF MADHYA PRADESH”.

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Abstract

Background: Pregnancy-induced hypertension (PIH) remains one of the leading causes of maternal and perinatal morbidity and mortality worldwide. Nurses play a pivotal role in the early identification, prevention, monitoring, and management of PIH. Enhancing their knowledge of the World Health Organization (WHO) global strategies through structured educational interventions may improve evidence-based clinical practice and maternal health outcomes.

Objectives: To evaluate the effectiveness of an educational intervention on the knowledge of WHO global strategies for the prevention of pregnancy-induced hypertension among nursing staff working in selected hospitals of Madhya Pradesh.

Methods: A pre-experimental one-group pre-test and post-test research design was employed among **120 nursing staff** selected through simple random sampling from selected hospitals in Madhya Pradesh. Baseline knowledge was assessed using a validated structured questionnaire consisting of 35 multiple-choice questions. Following the pre-test, participants received a 45-minute educational intervention based on WHO recommendations for the prevention and management of pregnancy-induced hypertension. A post-test was conducted seven days after the intervention. Data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (paired *t*-test and chi-square test). Statistical significance was set at **$p < 0.05$** .

Results: The mean pre-test knowledge score was 18.46 ± 4.31 , which increased significantly to 29.82 ± 3.26 in the post-test, with a mean difference of 11.36 . The improvement was statistically significant ($t = 27.84$, $p < 0.001$). Before the intervention, **20.0%** of participants had poor knowledge, **66.7%** had average knowledge, and **13.3%** had good knowledge. After the intervention, **81.7%** demonstrated good knowledge, **18.3%** had average knowledge, and none had poor knowledge. A significant association was observed between pre-test knowledge and previous in-service training on PIH ($p < 0.05$).

Conclusion: The educational intervention was highly effective in improving nursing staff's knowledge of WHO global strategies for the prevention of pregnancy-induced hypertension. Regular continuing nursing education and periodic competency-based training are recommended to strengthen evidence-based maternal healthcare practices and contribute to improved maternal and neonatal outcomes.

Keywords: Pregnancy-induced hypertension, WHO global strategies, educational intervention, nursing staff, knowledge, maternal health, continuing nursing education.

Introduction

Pregnancy-induced hypertension (PIH) is one of the most significant complications of pregnancy and remains a major public health concern worldwide. It encompasses a spectrum of hypertensive disorders that develop after 20 weeks of gestation, including gestational hypertension, preeclampsia, and eclampsia. These conditions are associated with substantial maternal and neonatal morbidity and mortality, particularly in low- and middle-income countries. According to the World Health Organization (WHO), hypertensive disorders of pregnancy contribute to nearly 14% of maternal deaths globally and are among the leading causes of preventable maternal mortality. In addition to maternal complications such as stroke, renal failure, liver dysfunction, placental abruption, and seizures, PIH is associated with adverse fetal outcomes including preterm birth, fetal growth restriction, low birth weight, and perinatal death.

Early identification and effective management of pregnancy-induced hypertension are essential for reducing these complications. The WHO has developed comprehensive global recommendations emphasizing routine antenatal screening, accurate blood pressure monitoring, early detection of warning signs, timely referral, appropriate use of antihypertensive medications, calcium supplementation in populations with low dietary calcium intake, low-dose aspirin for women at high risk of preeclampsia, promotion of healthy nutrition and physical activity, and continuous monitoring of maternal and fetal well-being. These evidence-based strategies aim to improve maternal health outcomes and support the achievement of the Sustainable Development Goals (SDGs), particularly the goal of reducing the global maternal mortality ratio.

Nurses are the largest group of healthcare professionals involved in maternal and child healthcare services and play a pivotal role in implementing WHO recommendations. In hospitals, maternity units, antenatal clinics, and community healthcare settings, nursing staff are responsible for assessing pregnant women, measuring blood pressure accurately, identifying early symptoms of hypertensive disorders, educating mothers regarding warning signs, promoting adherence to treatment, and facilitating timely referrals. Their competence and knowledge directly influence the quality of antenatal care and the prevention of severe complications associated with PIH. Therefore, ensuring that nursing staff possess current knowledge of WHO guidelines is crucial for improving maternal and neonatal outcomes.

Despite the availability of standardized international guidelines, several studies have reported gaps in the knowledge and clinical practices of nursing professionals regarding the prevention and management of pregnancy-induced hypertension. Factors such as limited access to continuing professional education, rapidly evolving clinical recommendations, heavy workloads, and variations in institutional protocols may contribute to these deficiencies. In many healthcare settings, especially in resource-constrained regions, opportunities for regular in-service education and competency-based training remain limited.

As a result, nursing staff may not consistently apply evidence-based preventive strategies in routine clinical practice.

Educational interventions have been recognized as effective approaches for enhancing the knowledge, skills, and clinical competencies of healthcare professionals. Structured educational programmes that incorporate lectures, audiovisual presentations, interactive discussions, case-based learning, and evidence-based teaching materials have demonstrated significant improvements in knowledge retention and clinical decision-making. Continuous professional development enables nurses to remain updated with current WHO recommendations and strengthens their ability to provide safe, standardized, and patient-centered maternal healthcare.

In Madhya Pradesh, where maternal health indicators continue to require improvement, strengthening the capacity of nursing staff through targeted educational interventions is particularly important. Evaluating the effectiveness of such interventions can provide valuable evidence for policymakers, nursing administrators, and educators to design sustainable continuing education programmes. Therefore, the present study was undertaken to evaluate the effectiveness of an educational intervention on the knowledge of WHO global strategies for the prevention of pregnancy-induced hypertension among nursing staff working in selected hospitals of Madhya Pradesh. The findings are expected to contribute to improving evidence-based nursing practice, enhancing the quality of antenatal care, and ultimately reducing maternal and neonatal complications associated with pregnancy-induced hypertension.

Need for the Study

Pregnancy-induced hypertension (PIH) remains one of the leading causes of maternal and perinatal morbidity and mortality worldwide despite considerable advances in maternal healthcare. The condition contributes significantly to preventable complications such as preeclampsia, eclampsia, stroke, renal impairment, placental abruption, preterm birth, fetal growth restriction, and neonatal mortality. The World Health Organization (WHO) has developed evidence-based global strategies to prevent, detect, and manage hypertensive disorders during pregnancy. However, the successful implementation of these recommendations depends largely on the knowledge, competence, and clinical practices of healthcare professionals, particularly nursing staff.

Nursing staff constitute the largest segment of the healthcare workforce involved in maternal and newborn care. They are responsible for routine antenatal assessment, accurate blood pressure measurement, identification of warning signs, health education, timely referral of high-risk pregnancies, and continuous monitoring of maternal and fetal well-being. Therefore, their knowledge and adherence to WHO guidelines are critical for ensuring safe pregnancy outcomes and reducing maternal and neonatal complications.

Although WHO recommendations are widely available, studies have indicated that many nursing professionals have inadequate or only moderate knowledge regarding the latest evidence-based strategies for preventing pregnancy-induced hypertension. Factors such as limited continuing nursing education, evolving clinical guidelines, heavy workloads, and insufficient in-service training may contribute to these knowledge gaps. These deficiencies can lead to delayed recognition of hypertensive disorders, inconsistent clinical practices, and missed opportunities for early intervention.

Educational interventions have consistently been shown to improve healthcare professionals' knowledge, clinical competence, and adherence to evidence-based guidelines. Structured educational programmes provide an effective means of updating nursing staff on current WHO recommendations and strengthening their confidence in managing women at risk of pregnancy-induced hypertension. Continuous professional education is therefore essential to improve the quality of maternal healthcare services.

In Madhya Pradesh, maternal health continues to be a public health priority, and strengthening the competency of nursing staff is vital for improving antenatal care services. However, limited evidence is available regarding the effectiveness of educational interventions on nursing staff's knowledge of WHO global strategies for the prevention of pregnancy-induced hypertension in this region.

Hence, the present study was undertaken to evaluate the effectiveness of an educational intervention on the knowledge of WHO global strategies for the prevention of pregnancy-induced hypertension among nursing staff in selected hospitals of Madhya Pradesh. The findings of this study are expected to provide evidence for planning regular continuing nursing education programmes, improving adherence to WHO guidelines, enhancing the quality of maternal healthcare services, and ultimately contributing to the reduction of maternal and neonatal morbidity and mortality.

Objectives of the Study

1. To assess the pre-test knowledge of nursing staff regarding WHO global strategies for the prevention of pregnancy-induced hypertension.
2. To evaluate the effectiveness of the educational intervention by comparing pre-test and post-test knowledge scores.
3. To determine the association between pre-test knowledge scores and selected demographic variables.

Hypotheses

H₁: There will be a significant improvement in the knowledge of nursing staff regarding WHO global strategies for the prevention of pregnancy-induced hypertension after the educational intervention.

H₂: There will be a significant association between the pre-test knowledge scores of nursing staff and selected demographic variables.

H₀₁: There will be no significant improvement in the knowledge of nursing staff regarding WHO global strategies for the prevention of pregnancy-induced hypertension after the educational intervention.

H₀₂: There will be no significant association between the pre-test knowledge scores of nursing staff and selected demographic variables.

Materials and Methods

Research Design

The study employed a **pre-experimental one-group pre-test and post-test research design** to evaluate the effectiveness of an educational intervention on the knowledge of **WHO Global Strategies for the Prevention of Pregnancy-Induced Hypertension (PIH)** among nursing staff. This design enabled the comparison of participants' knowledge before and after the educational intervention.

Research Approach

A **quantitative evaluative research approach** was adopted to objectively assess the effectiveness of the educational intervention among nursing staff.

Study Setting

The study was conducted in **selected hospitals of Madhya Pradesh**, where nursing staff involved in maternal and obstetric care were recruited.

Study Population

The target population comprised **registered nursing staff** working in selected hospitals of Madhya Pradesh.

Sample Size

A total of **120 nursing staff** participated in the study.

Sampling Technique

Participants were selected using a **simple random sampling technique** based on the eligibility criteria and willingness to participate.

Inclusion Criteria

Participants who fulfilled the following criteria were included in the study:

- Registered nursing staff working in selected hospitals.
- Nursing staff involved in maternal, obstetric, or general patient care.
- Able to understand and communicate in Hindi or English.
- Willing to provide written informed consent and participate in the study.

Exclusion Criteria

Participants with the following conditions were excluded:

- Nursing staff on long leave during the data collection period.
- Nursing staff who had attended a structured educational programme on WHO guidelines for pregnancy-induced hypertension within the previous six months.
- Nursing staff unwilling to participate in the study.

Research Instruments

Section A: Demographic Profile

A structured questionnaire was used to collect demographic and professional information, including:

- Age
- Gender
- Educational qualification
- Professional designation
- Years of clinical experience

- Working department
- Previous training on pregnancy-induced hypertension
- Source of professional information regarding PIH

Section B: Structured Knowledge Questionnaire

Knowledge regarding **WHO Global Strategies for the Prevention of Pregnancy-Induced Hypertension** was assessed using a **35-item structured multiple-choice questionnaire** covering:

- Basic concepts of pregnancy-induced hypertension
- Risk factors for PIH
- Early identification and screening
- WHO recommendations for antenatal care
- Blood pressure monitoring
- Calcium supplementation
- Low-dose aspirin prophylaxis
- Lifestyle modification during pregnancy
- Early referral and emergency management
- Maternal and fetal monitoring
- Prevention of complications
- Health education and counseling

Each correct response was awarded **one mark**, while incorrect responses received **zero marks**. The maximum attainable score was **35**.

Knowledge Score Interpretation

- **Poor Knowledge:** 0–11
- **Average Knowledge:** 12–23
- **Good Knowledge:** 24–35

Validity and Reliability

The research instrument was reviewed by experts in **Obstetric and Gynecological Nursing, Community Health Nursing, Medical-Surgical Nursing, and Biostatistics** to establish content validity. Reliability of the structured knowledge questionnaire was assessed using **Cronbach's alpha**, yielding a coefficient of **0.86**, indicating good internal consistency.

Data Collection Procedure

Prior permission was obtained from the concerned hospital authorities before commencing the study. Eligible nursing staff were informed about the purpose of the research, and written informed consent was obtained. A **pre-test** was conducted using the structured knowledge questionnaire. Immediately after the pre-test, participants received the educational intervention based on the **WHO Global Strategies for the Prevention of Pregnancy-Induced Hypertension**.

Intervention

The educational intervention lasted approximately **45 minutes** and included lectures, PowerPoint presentations, interactive discussions, audiovisual demonstrations, and printed educational handouts.

The educational content covered:

- Overview of pregnancy-induced hypertension
- Classification and risk factors
- WHO recommendations for prevention of PIH
- Accurate blood pressure measurement
- Early detection of warning signs
- Calcium supplementation during pregnancy
- Low-dose aspirin for high-risk women
- Antenatal screening and monitoring
- Lifestyle modification and nutritional counseling
- Timely referral and emergency management
- Maternal and fetal monitoring
- Role of nurses in implementing WHO guidelines

Participants were encouraged to incorporate the WHO recommendations into their routine clinical practice.

Post-test Evaluation

A **post-test was conducted seven days after the educational intervention** using the same structured knowledge questionnaire to evaluate the effectiveness of the educational intervention on nursing staff's knowledge regarding the **WHO Global Strategies for the Prevention of Pregnancy-Induced Hypertension**.

Results

Table 1. Distribution of Nursing Staff According to Demographic Characteristics (N = 120)

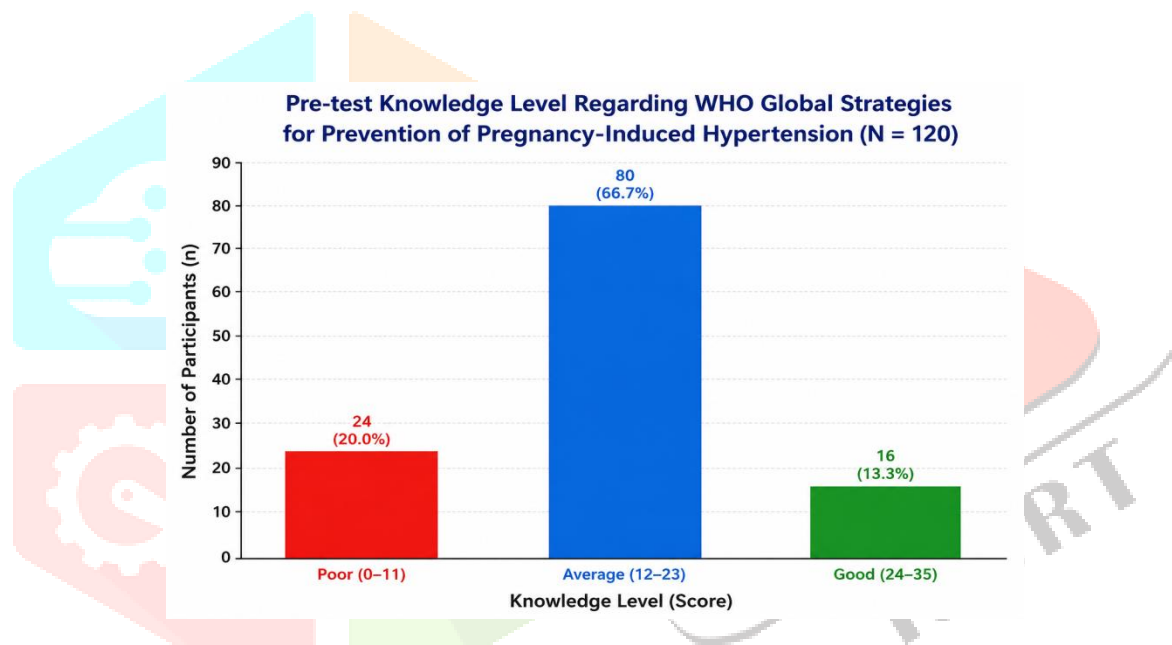
Variable	Category	Frequency (n)	Percentage (%)
Age (Years)	21–30	42	35.0
	31–40	48	40.0
	41–50	22	18.3
	>50	8	6.7
Gender	Male	28	23.3
	Female	92	76.7
Educational Qualification	GNM	38	31.7
	B.Sc. Nursing	56	46.7
	Post Basic B.Sc. Nursing	18	15.0
	M.Sc. Nursing	8	6.6
Clinical Experience	<5 Years	34	28.3
	5–10 Years	46	38.3

	>10 Years	40	33.4
Previous Training on PIH	Yes	42	35.0
	No	78	65.0

Interpretation: The majority of nursing staff (40.0%) were aged 31–40 years, 76.7% were female, 46.7% had a B.Sc. Nursing qualification, 38.3% had 5–10 years of clinical experience, and 65.0% had not received previous training on pregnancy-induced hypertension.

Table 2. Pre-test Knowledge Level Regarding WHO Global Strategies for Prevention of Pregnancy-Induced Hypertension (N = 120)

Knowledge Level	Score	Frequency (n)	Percentage (%)
Poor	0–11	24	20.0
Average	12–23	80	66.7
Good	24–35	16	13.3

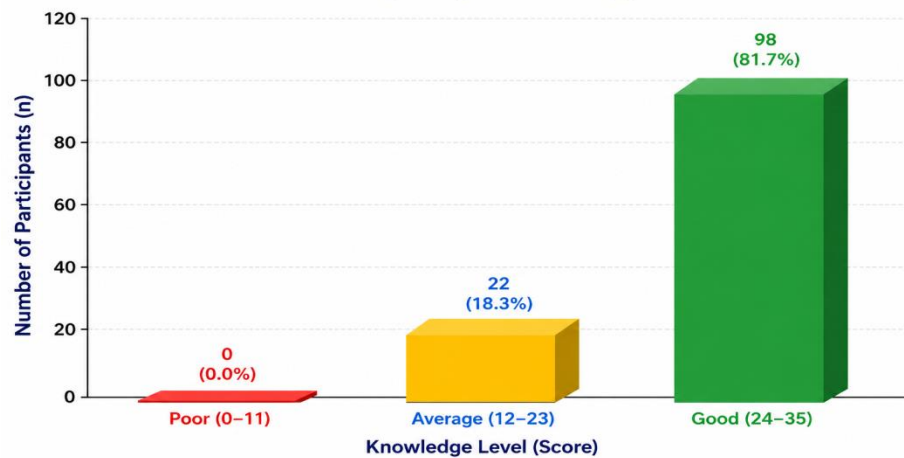


Interpretation: Before the educational intervention, the majority (66.7%) of nursing staff had average knowledge, 20.0% had poor knowledge, and only 13.3% demonstrated good knowledge regarding WHO global strategies for the prevention of pregnancy-induced hypertension.

Table 3. Post-test Knowledge Level Regarding WHO Global Strategies for Prevention of Pregnancy-Induced Hypertension (N = 120)

Knowledge Level	Score	Frequency (n)	Percentage (%)
Poor	0–11	0	0.0
Average	12–23	22	18.3
Good	24–35	98	81.7

Post-test Knowledge Level Regarding WHO Global Strategies for Prevention of Pregnancy-Induced Hypertension (N = 120)

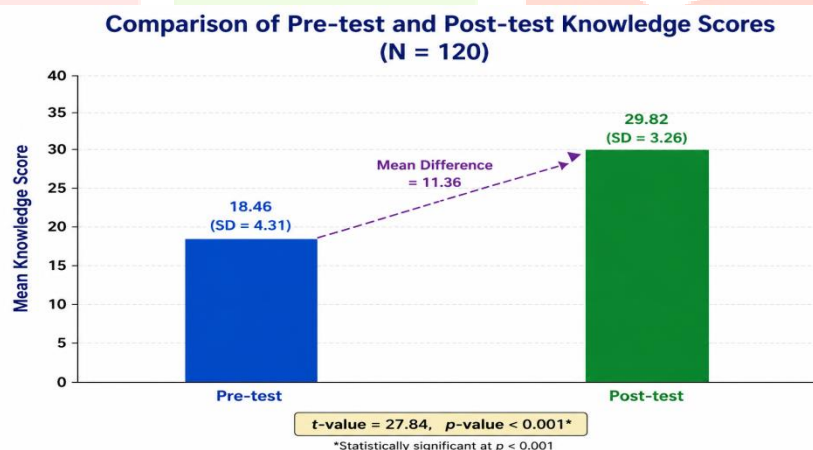


Interpretation: Following the educational intervention, 81.7% of nursing staff achieved good knowledge, while 18.3% had average knowledge. None of the participants had poor knowledge, indicating marked improvement.

Table 4. Comparison of Pre-test and Post-test Knowledge Scores (N = 120)

Assessment	Mean	SD	Mean Difference	t-value	p-value
Pre-test	18.46	4.31			
Post-test	29.82	3.26	11.36	27.84	<0.001*

*Statistically significant at $p < 0.001$



Interpretation: The mean post-test knowledge score (29.82 ± 3.26) was significantly higher than the pre-test score (18.46 ± 4.31). The paired t -test showed a highly significant improvement ($t = 27.84$, $p < 0.001$), confirming the effectiveness of the educational intervention.

Table 5. Association Between Pre-test Knowledge and Selected Demographic Variables (N = 120)

Variable	χ^2 Value	p-value	Significance
Age	5.18	0.269	NS
Gender	1.24	0.538	NS
Educational Qualification	8.76	0.032	Significant*
Clinical Experience	7.43	0.059	NS
Previous Training on PIH	12.68	0.002	Significant*

*Significant at $p < 0.05$

NS = Not Significant

Interpretation: A statistically significant association was found between pre-test knowledge and **educational qualification** ($p = 0.032$) as well as **previous training on pregnancy-induced hypertension** ($p = 0.002$). No significant association was observed with age, gender, or years of clinical experience.

Summary of Findings

- Most nursing staff had **average knowledge (66.7%)** before the educational intervention.
- After the intervention, **81.7%** demonstrated **good knowledge**.
- The mean knowledge score increased significantly from **18.46 ± 4.31** to **29.82 ± 3.26** .
- The educational intervention was **highly effective** ($t = 27.84, p < 0.001^*$).
- Educational qualification and previous training on pregnancy-induced hypertension were significantly associated with baseline knowledge levels.

Discussion

The present study demonstrated that the educational intervention significantly improved the knowledge of nursing staff regarding the WHO global strategies for the prevention of pregnancy-induced hypertension. Before the intervention, the majority of participants had average knowledge, with only a small proportion demonstrating good knowledge. Following the educational programme, a substantial increase in knowledge scores was observed, and most participants achieved a good level of knowledge.

The statistically significant improvement in the mean post-test knowledge score ($p < 0.001$) indicates that the educational intervention was effective in enhancing participants' understanding of evidence-based WHO recommendations. These findings are consistent with previous studies reporting that structured educational programmes and continuing nursing education improve nurses' knowledge, clinical competence, and adherence to maternal health guidelines.

The study also found that educational qualification and previous training were significantly associated with baseline knowledge levels, suggesting that regular professional development and in-service training contribute to better awareness of current clinical guidelines.

Overall, the findings highlight the importance of periodic educational interventions for nursing staff to strengthen evidence-based maternal healthcare practices and support the prevention of pregnancy-induced hypertension.

Conclusion

The study concluded that the educational intervention was highly effective in improving the knowledge of nursing staff regarding the WHO global strategies for the prevention of pregnancy-induced hypertension. A statistically significant increase in post-test knowledge scores demonstrated the effectiveness of the programme. Regular continuing nursing education and in-service training based on WHO guidelines are recommended to enhance evidence-based clinical practice, promote early identification and prevention of pregnancy-induced hypertension, and improve maternal and neonatal health outcomes.

Recommendations

1. Regular continuing nursing education (CNE) programmes should be conducted to update nursing staff on the latest WHO guidelines for the prevention of pregnancy-induced hypertension.
2. Periodic in-service training and competency-based workshops should be organized to strengthen evidence-based maternal care practices.
3. WHO recommendations on pregnancy-induced hypertension should be incorporated into routine hospital protocols and nursing education curricula.
4. Similar studies should be conducted with larger sample sizes and in different healthcare settings to improve the generalizability of the findings.
5. Long-term follow-up studies are recommended to assess the retention of knowledge and its impact on clinical practice and maternal outcomes.

References

1. American College of Obstetricians and Gynecologists. (2020). *Gestational hypertension and preeclampsia* (Practice Bulletin No. 222). *Obstetrics & Gynecology*, 135(6), e237–e260. <https://doi.org/10.1097/AOG.0000000000003891>
2. Brown, M. A., Magee, L. A., Kenny, L. C., Karumanchi, S. A., McCarthy, F. P., Saito, S., Hall, D. R., Warren, C. E., Adoyi, G., & Ishaku, S. (2018). Hypertensive disorders of pregnancy: ISSHP classification, diagnosis, and management recommendations. *Hypertension*, 72(1), 24–43. <https://doi.org/10.1161/HYPERTENSIONAHA.117.10803>
3. Duley, L. (2019). The global impact of pre-eclampsia and eclampsia. *Seminars in Perinatology*, 43(5), 257–262.
4. Magee, L. A., von Dadelszen, P., Stones, W., & Mathai, M. (2022). *The FIGO textbook of pregnancy hypertension: An evidence-based guide to monitoring, prevention and management*. International Federation of Gynecology and Obstetrics. <https://doi.org/10.1002/9781119912381>
5. Poon, L. C., Shennan, A., Hyett, J. A., Kapur, A., Hadar, E., Divakar, H., McAuliffe, F., da Silva Costa, F., von Dadelszen, P., McIntyre, H. D., & Hod, M. (2019). The International Federation of Gynecology and Obstetrics (FIGO) initiative on pre-eclampsia: A pragmatic guide for first-trimester screening and prevention. *International Journal of Gynecology & Obstetrics*, 145(Suppl. 1), 1–33. <https://doi.org/10.1002/ijgo.12802>
6. World Health Organization. (2016). *WHO recommendations on antenatal care for a positive pregnancy experience*. World Health Organization. <https://www.who.int/publications/i/item/9789241549912>

7. World Health Organization. (2023). *WHO recommendations for the prevention and treatment of pre-eclampsia and eclampsia: Updated guideline*. World Health Organization. <https://www.who.int/publications>
8. World Health Organization. (2024). *Trends in maternal mortality 2000–2023*. World Health Organization. <https://www.who.int/publications>
9. World Health Organization. (2024). *Improving maternal health*. <https://www.who.int/health-topics/maternal-health>
10. Yadav, S., Saxena, U., & Sharma, R. (2021). Effectiveness of structured teaching programme on knowledge regarding pregnancy-induced hypertension among staff nurses. *International Journal of Nursing Education*, 13(2), 78–83.

