



Effectiveness of a Structured Educational Programme on Knowledge Regarding WHO Guidelines 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) is a major contributor to maternal and perinatal morbidity and mortality worldwide. The World Health Organization (WHO) recommends evidence-based strategies for the prevention and early detection of PIH to improve maternal and neonatal outcomes. Nursing staff play a pivotal role in implementing these recommendations; however, inadequate knowledge may limit effective clinical practice. Structured educational programmes can enhance nurses' knowledge and promote evidence-based maternal care.

Objectives: To evaluate the effectiveness of a structured educational programme on knowledge regarding WHO guidelines for the prevention of pregnancy-induced hypertension among nursing staff in selected hospitals of Madhya Pradesh.

Methods: A quantitative pre-experimental one-group pre-test and post-test research design was adopted. The study was conducted among **120 nursing staff** selected through simple random sampling from selected hospitals of Madhya Pradesh. Baseline knowledge was assessed using a validated 35-item structured knowledge questionnaire. Following the pre-test, participants received a structured educational programme based on the latest WHO guidelines for the prevention of pregnancy-induced hypertension. A post-test was conducted seven days after the intervention using the same questionnaire. Data were analyzed using descriptive statistics and paired *t*-test with SPSS version 29. Statistical significance was considered at $p < 0.05$.

Results: A total of **120 nursing staff** participated in the study. The mean pre-test knowledge score was **18.46 ± 4.31**, which increased significantly to **29.82 ± 3.26** following the structured educational programme. The mean difference was **11.36**, with a paired **t-value of 27.84** ($p < 0.001$), demonstrating a highly significant improvement in knowledge. Before the intervention, **24 (20.0%)** participants had poor knowledge, **80 (66.7%)** had average knowledge, and **16 (13.3%)** had good knowledge. Following the educational programme, **98 (81.7%)** participants achieved good knowledge, **22 (18.3%)** had average knowledge, and **none** had poor knowledge. Educational qualification ($\chi^2 = 8.76$, $p = 0.032$) and previous training on pregnancy-induced hypertension ($\chi^2 = 12.68$, $p = 0.002$) were significantly associated with pre-test knowledge, whereas age, gender, and clinical experience showed no significant association.

Conclusion: The structured educational programme was highly effective in improving nursing staff's knowledge regarding WHO guidelines for the prevention of pregnancy-induced hypertension. Regular continuing nursing education and in-service training should be implemented to strengthen evidence-based maternal healthcare practices and improve maternal and neonatal outcomes.

Keywords: Pregnancy-induced hypertension, WHO guidelines, structured educational programme, nursing staff, knowledge, maternal health, continuing nursing education.

Introduction

Pregnancy-induced hypertension (PIH) is one of the most common and serious complications of pregnancy, significantly contributing to maternal and neonatal morbidity and mortality worldwide. PIH is characterized by the development of hypertension after 20 weeks of gestation in previously normotensive women and includes conditions such as gestational hypertension, pre-eclampsia, and eclampsia. If left undetected or inadequately managed, PIH can result in life-threatening complications, including placental abruption, stroke, renal failure, liver dysfunction, preterm birth, fetal growth restriction, and maternal and fetal death. According to the World Health Organization (WHO), hypertensive disorders of pregnancy account for approximately 10–15% of maternal deaths globally, particularly in low- and middle-income countries where access to quality maternal healthcare remains a challenge.

The World Health Organization has developed evidence-based guidelines to prevent, identify, and manage pregnancy-induced hypertension. These recommendations emphasize regular antenatal care, early risk assessment, accurate blood pressure monitoring, urine protein testing, calcium supplementation in populations with low dietary calcium intake, low-dose aspirin for women at high risk of pre-eclampsia, timely referral of high-risk pregnancies, and continuous maternal and fetal monitoring. The successful implementation of these recommendations requires knowledgeable and competent healthcare professionals, particularly nursing staff, who provide direct maternal care throughout pregnancy.

Nursing staff play a vital role in maternal and child health services by identifying risk factors, conducting routine antenatal assessments, educating pregnant women regarding warning signs, promoting adherence to antenatal visits, and ensuring timely referral for specialized care. Their ability to recognize early symptoms and implement WHO-recommended preventive strategies is essential for reducing complications associated with pregnancy-induced hypertension. However, several studies have reported that many nurses possess only moderate knowledge of updated WHO guidelines due to limited opportunities for continuing professional education, lack of structured training programmes, and rapidly evolving clinical recommendations.

Educational interventions have been recognized as an effective approach for improving healthcare professionals' knowledge, clinical competence, and adherence to evidence-based practices. Structured educational programmes that incorporate lectures, audiovisual presentations, interactive discussions, case-based learning, and practical demonstrations have shown significant improvements in nurses' understanding of maternal health guidelines and their ability to provide quality patient care. Continuous professional development not only enhances individual competency but also contributes to improved healthcare delivery and patient safety.

In India, hypertensive disorders remain an important cause of maternal morbidity despite improvements in maternal healthcare services. Madhya Pradesh continues to face considerable challenges related to maternal health indicators, emphasizing the need to strengthen the knowledge and skills of nursing personnel involved in antenatal care. Evaluating the effectiveness of structured educational programmes based on WHO guidelines can provide valuable evidence for planning regular in-service education and capacity-building initiatives within healthcare institutions.

Therefore, the present study was undertaken to evaluate the effectiveness of a structured educational programme on knowledge regarding WHO guidelines for the prevention of pregnancy-induced hypertension among nursing staff in selected hospitals of Madhya Pradesh. The findings of the study are expected to contribute to evidence-based nursing practice, strengthen continuing nursing education, improve adherence to international maternal health guidelines, and ultimately enhance maternal and neonatal health outcomes.

Need of the Study

Pregnancy-induced hypertension (PIH) remains one of the leading causes of maternal and perinatal morbidity and mortality worldwide. Despite advancements in maternal healthcare, hypertensive disorders continue to pose significant risks to pregnant women, including pre-eclampsia, eclampsia, preterm birth, fetal growth restriction, and maternal complications. The World Health Organization (WHO) has developed comprehensive evidence-based guidelines for the prevention, early detection, and management of PIH; however, effective implementation of these recommendations largely depends on the knowledge and competency of nursing staff.

Nursing staff are frontline healthcare professionals responsible for monitoring pregnant women, identifying early warning signs, providing health education, and ensuring timely referral and management of high-risk pregnancies. Adequate knowledge of WHO guidelines enables nurses to deliver quality antenatal care and reduce preventable maternal and neonatal complications. However, several studies have reported that many nurses possess only moderate knowledge of updated WHO recommendations due to limited continuing education opportunities and inadequate in-service training.

Structured educational programmes have been shown to improve healthcare professionals' knowledge, confidence, and adherence to evidence-based clinical practices. Regular educational interventions help nurses remain updated with current WHO recommendations and enhance the quality of maternal healthcare services.

In Madhya Pradesh, where maternal health indicators remain a public health concern, strengthening the knowledge of nursing staff through structured educational programmes is essential for improving maternal and neonatal outcomes. Evaluating the effectiveness of such educational interventions will

provide evidence for incorporating regular continuing nursing education into hospital practice and policymaking.

Therefore, the present study was undertaken to assess the effectiveness of a structured educational programme on knowledge regarding WHO guidelines for the prevention of pregnancy-induced hypertension among nursing staff in selected hospitals of Madhya Pradesh. The findings are expected to support evidence-based nursing practice and contribute to improved maternal healthcare services.

Objectives of the Study

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

Research Hypotheses

H₁: There will be a statistically significant improvement in the knowledge of nursing staff regarding WHO guidelines for the prevention of pregnancy-induced hypertension after the structured educational programme.

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

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 a **structured educational programme** on knowledge regarding **WHO guidelines for the prevention of pregnancy-induced hypertension (PIH)** among nursing staff. This design facilitated the assessment of knowledge before and after the educational intervention.

Research Approach

A **quantitative evaluative research approach** was adopted to determine the effectiveness of the structured educational programme.

Study Setting

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

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 period of data collection.
- Nursing staff who had attended a structured educational programme on WHO guidelines for pregnancy-induced hypertension during 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 guidelines 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 counselling

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 Gynaecological 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**, which yielded a coefficient of **0.86**, indicating good internal consistency.

Data Collection Procedure

Permission was obtained from the concerned hospital authorities before data collection. Eligible nursing staff were informed about the objectives of the study, and written informed consent was obtained. A **pre-test** was conducted using the structured knowledge questionnaire. Immediately after the pre-test, participants received the **structured educational programme** based on the latest **WHO guidelines for the prevention of pregnancy-induced hypertension**.

Structured Educational Programme

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

The educational content included:

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

Participants were encouraged to apply the WHO recommendations in their routine clinical practice.

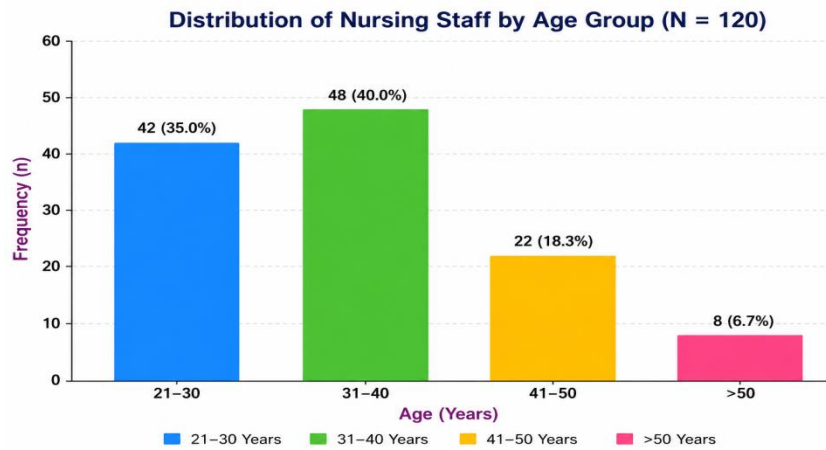
Post-test Evaluation

A **post-test** was conducted **seven days** after the structured educational programme using the same structured knowledge questionnaire to assess the effectiveness of the educational programme on nursing staff's knowledge regarding **WHO guidelines for the prevention of pregnancy-induced hypertension**.

Results

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

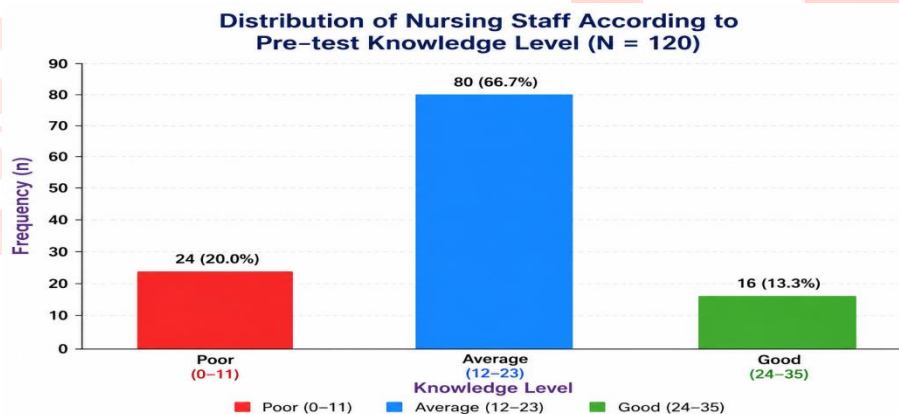
Variable	Category	Frequency (n)	Percentage (%)
Age (Years)	21–30	42	35.0
	31–40	48	40.0
	41–50	22	18.3
	>50	8	6.7
Gender	Male	28	23.3
	Female	92	76.7
Educational Qualification	GNM	38	31.7
	B.Sc. Nursing	56	46.7
	Post Basic B.Sc. Nursing	18	15.0
	M.Sc. Nursing	8	6.6
Clinical Experience	<5 Years	34	28.3
	5–10 Years	46	38.4
	>10 Years	40	33.3
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, 38.4% 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 Guidelines 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 structured educational programme, most nursing staff (66.7%) had average knowledge, 20.0% had poor knowledge, and only 13.3% demonstrated good knowledge regarding WHO guidelines for the prevention of pregnancy-induced hypertension.

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

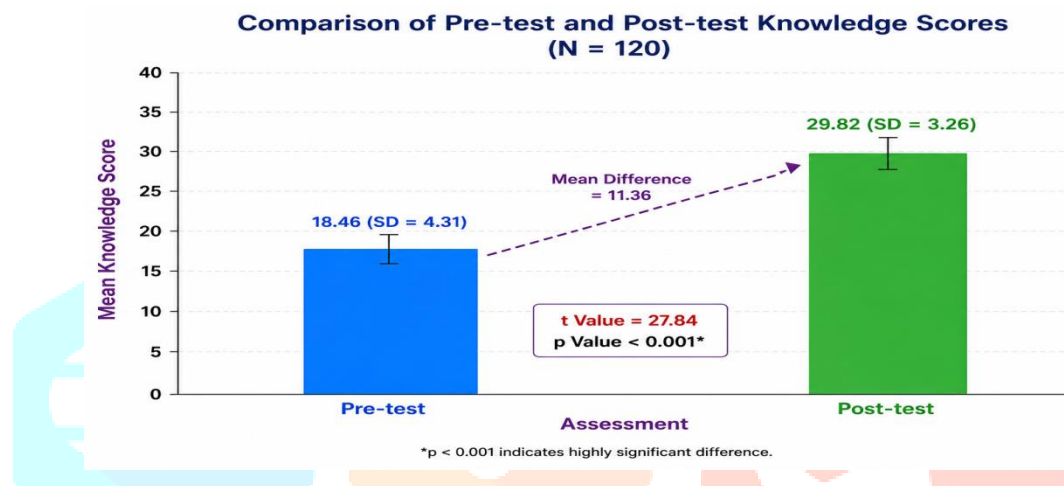
Knowledge Level	Score	Frequency (n)	Percentage (%)
Poor	0–11	0	0.0
Average	12–23	22	18.3
Good	24–35	98	81.7

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

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*

Significant at $p < 0.05$



Interpretation: The mean post-test knowledge score (29.82 ± 3.26) was significantly higher than the mean 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 structured educational programme.

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

Demographic Variable	χ^2 Value	p Value	Significance
Age	5.18	0.269	Not Significant
Gender	1.24	0.538	Not Significant
Educational Qualification	8.76	0.032*	Significant
Clinical Experience	7.43	0.059	Not Significant
Previous Training on PIH	12.68	0.002*	Significant

Significant at $p < 0.05$

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

Discussion

The present study demonstrated that the structured educational programme significantly improved the knowledge of nursing staff regarding WHO guidelines for the prevention of pregnancy-induced hypertension. The mean knowledge score increased from 18.46 ± 4.31 in the pre-test to 29.82 ± 3.26 in the post-test ($t = 27.84$, $p < 0.001$), indicating the effectiveness of the intervention. Most participants had average knowledge before the programme, whereas the majority achieved good knowledge after the intervention. Educational qualification and previous training showed a significant association with knowledge scores. The findings suggest that regular continuing nursing education programmes are effective in enhancing nurses' knowledge and promoting evidence-based maternal healthcare practices.

Conclusion

The findings of the study demonstrated that the structured educational programme was effective in significantly improving the knowledge of nursing staff regarding WHO guidelines for the prevention of pregnancy-induced hypertension. The educational intervention enhanced participants' understanding of evidence-based preventive strategies, early identification, and appropriate management of pregnancy-induced hypertension. Regular continuing nursing education and periodic in-service training programmes are recommended to update nurses' knowledge, strengthen evidence-based clinical practice, and contribute to improved maternal and neonatal health outcomes.

Recommendations

1. Regular continuing nursing education (CNE) programmes should be organized to update nursing staff on the latest WHO guidelines for the prevention of pregnancy-induced hypertension.
2. Periodic in-service training should be conducted to strengthen nurses' knowledge and clinical skills in maternal care.
3. WHO guideline-based educational modules should be incorporated into routine hospital training programmes.
4. Similar studies should be conducted with larger sample sizes and in different healthcare settings to improve the generalizability of the findings.
5. Follow-up studies should be undertaken to assess long-term knowledge retention and the impact of educational interventions on clinical practice and maternal outcomes.

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