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A STUDY TO ASSESS THE EFFECTIVENESS OF CONTEXTUALIZED TRAINING ON ANTENATAL EMERGENCY MANAGEMENT AMONG NURSES IN PUBLIC HOSPITALS OF VADODARA CITY, GUJARAT

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ABSTRACT

Background And Objectives: Timely recognition and management of antenatal obstetrical emergencies are critical to reducing maternal morbidity and mortality. Nurses play a pivotal role in early identification and response, yet gaps in clinical preparedness persist.

Method: A quasi-experimental one-group pre-test/post-test design was employed among 80 nurses across three public hospitals. A validated 20-item questionnaire assessed knowledge before and after a two-day training module. Data were analyzed using paired t-tests and thematic feedback analysis.

Results: Mean knowledge scores improved significantly from 11.6 ± 2.3 (pre-test) to 17.8 ± 1.9 (post-test), $p < 0.001$. Thematic analysis revealed enhanced clinical confidence and improved protocol adherence. Education level and years of experience were significantly associated with knowledge gain.

Interpretation And Conclusion: Contextualized training significantly improved nurses' preparedness for antenatal emergencies. Integrating such modules into in-service education may enhance maternal outcomes in public health settings.

Keyword: Antenatal Emergencies, Nursing education, Contextualized training, Maternal health, Vadodara.

INTRODUCTION

Antenatal obstetrical emergencies—including antepartum hemorrhage, preeclampsia, eclampsia, and premature rupture of membranes (PROM)—remain leading contributors to maternal and perinatal morbidity and mortality in India. These conditions often present suddenly and require prompt recognition and intervention to prevent adverse outcomes such as fetal compromise, maternal shock, or death. According to the Sample Registration System (SRS) and National Family Health Survey (NFHS-5), delays in the three-tier response system—delay in seeking care, delay in reaching care, and delay in receiving appropriate care—continue to undermine maternal health outcomes, especially in resource-constrained public sector facilities.Among these delays, the third delay, which pertains to the quality and timeliness of care provided at health facilities, is critically influenced by the preparedness of nursing personnel. Nurses serve as first-line responders in obstetric wards and emergency rooms, often making initial assessments, initiating life-saving interventions, and coordinating referrals. However, studies across various Indian states have highlighted persistent gaps in nurses' ability to manage obstetrical emergencies due to inadequate training, lack of exposure to real-time scenarios, and limited understanding of institutional protocols (Sharma & Thomas, 2024; Singh & Kumari, 2023).While the Reproductive and Child Health (RCH) program and LaQshya initiative provide national guidelines for emergency obstetric care, their implementation at the facility level is often fragmented. Many nurses receive generic in-service

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training that lacks contextual relevance, fails to incorporate simulation-based learning, and does not address local referral pathways or cultural barriers to care. As a result, clinical decision-making

during emergencies remains inconsistent, and protocol adherence is suboptimal.

Contextualized training, defined as educational interventions tailored to the specific clinical, cultural, and infrastructural realities of a given setting, offers a promising solution. Such training incorporates case-based discussions, simulation exercises, role-play, and protocol walkthroughs, enabling nurses to internalize procedures and respond confidently under pressure. Evidence from Maharashtra, Tamil Nadu, and Bihar suggests that contextualized modules significantly improve knowledge retention, clinical confidence, and emergency response time (Rajan & Menon, 2024; Bakshi et al., 2024).

In Vadodara city, public hospitals serve a diverse antenatal population, including high-risk pregnancies from underserved communities. Enhancing the emergency preparedness of nursing staff in these settings is essential to achieving the goals of maternal mortality reduction and respectful maternity care. This study seeks to evaluate the effectiveness of a contextualized training module designed to improve nurses' knowledge and preparedness in managing antenatal obstetrical emergencies, thereby contributing to evidence-based workforce development in maternal health.

OBJECTIVES

1. To assess baseline knowledge of antenatal emergency management among nurses.
2. To implement a contextualized training program tailored to local clinical settings.
3. To evaluate post-training changes in knowledge and perceived preparedness.
4. To identify demographic factors influencing training outcomes.

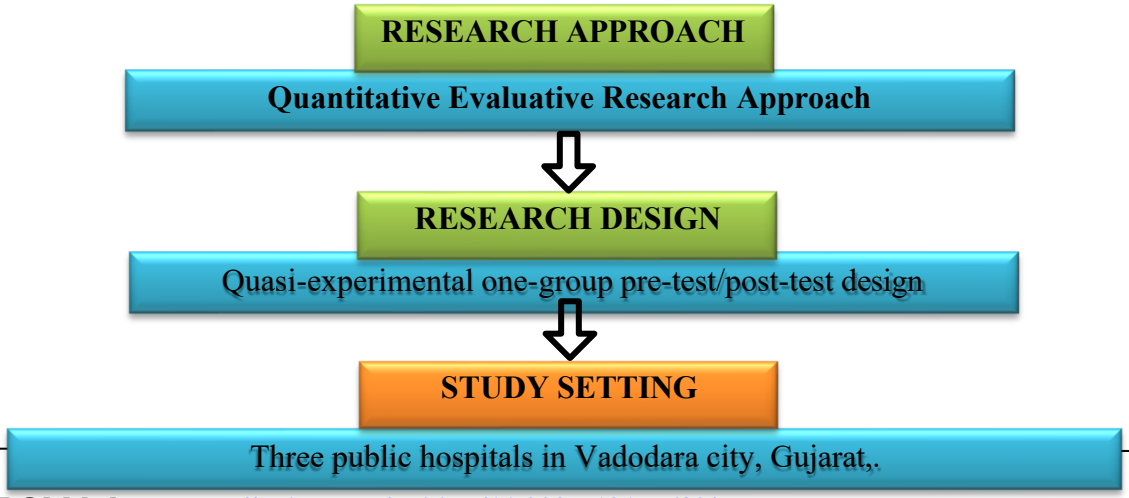
ASSUMPTIONS

1. Nurses may have varying levels of baseline knowledge regarding antenatal emergency management.
2. Contextualized training programs are more effective than generic programs in improving knowledge and preparedness.
3. Training interventions can lead to measurable improvements in knowledge and perceived preparedness.
4. Demographic factors may influence training outcome.

HYPOTHESES

1. Ho (Null Hypothesis): There is no significant difference in nurses knowledge and preparedness before and after the contextualized training program.
2. H1 (Alternative Hypothesis): Demographic factors significantly influence training outcome.

RESEARCH METHODOLOGY



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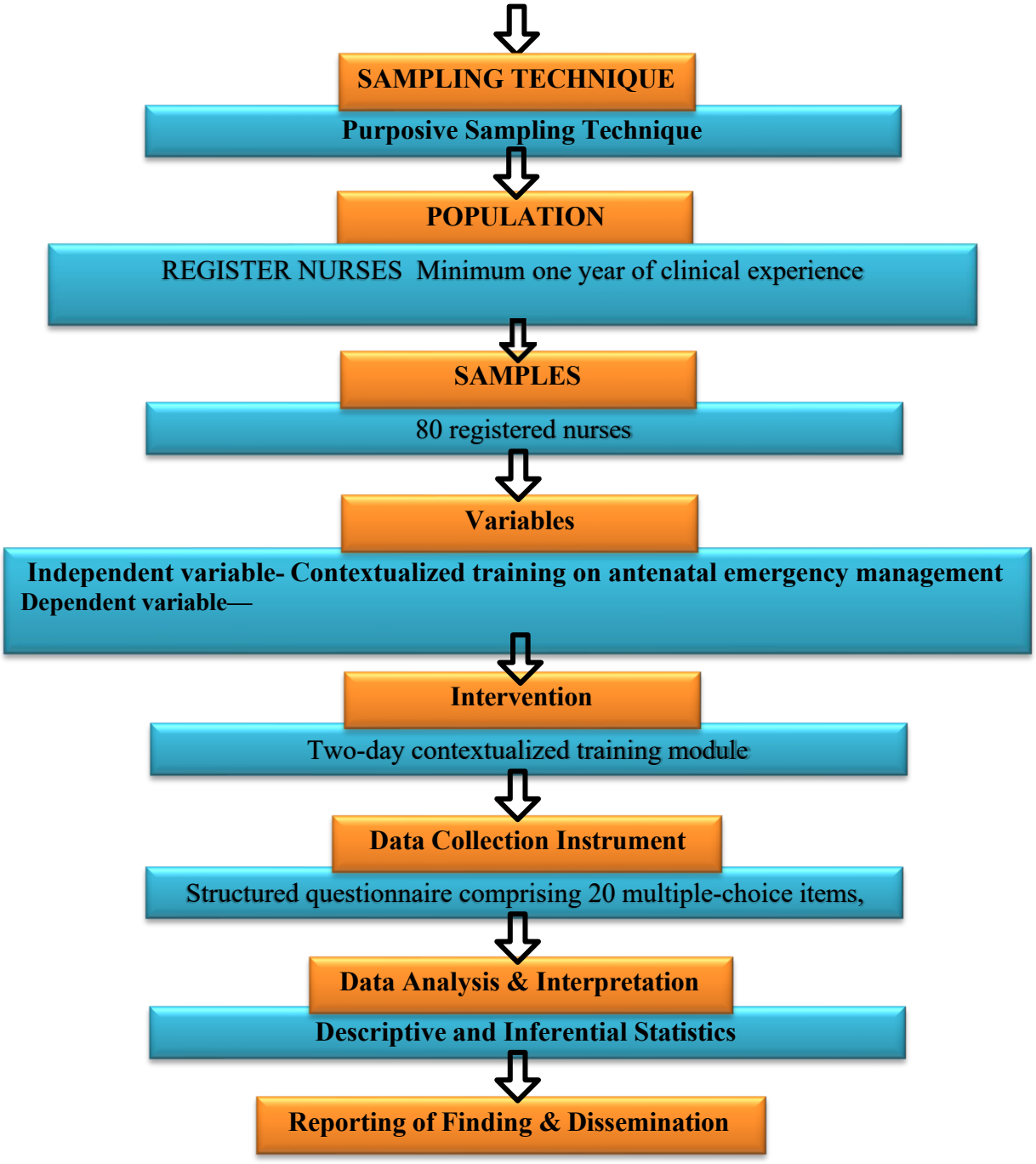

Figure-1: Schematic Presentation of Research Methodology

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RESULT

Table 1: Demographic Profile of Participants (n = 80)

Variable	Category	Frequency (n)	Percentage (%)
Age Group	25–35 years	52	65%
	36–45 years	18	22.5%
	>45 years	10	12.5%
Educational Qualification	General Nursing & Midwifery (GNM)	48	60%
	B.Sc. Nursing	24	30%
	Postgraduate (M.Sc./Diploma)	8	10%
Years of Experience	≤5 years	44	55%
	>5 years	36	45%
Prior Emergency Training	Yes	22	27.5%
	No	58	72.5%

The demographic profile of the 80 participating nurses reveals a workforce predominantly composed of young professionals, with 65% aged between 25 and 35 years. This age group typically represents early-career nurses who are actively engaged in clinical practice and open to skill enhancement. Their receptiveness to training interventions makes them an ideal target for capacity-building programs.

In terms of educational background, the majority (60%) held a General Nursing and Midwifery (GNM) qualification, followed by 30% with a Bachelor of Science in Nursing (B.Sc.) and 10% with postgraduate credentials. This distribution reflects the staffing norms in public hospitals, where GNM-qualified nurses form the backbone of maternity services. The presence of higher-qualified nurses also provides opportunities for peer mentoring and leadership in emergency response.

Regarding clinical experience, 55% of nurses had five or fewer years of service, while 45% had more than five years, indicating a balanced mix of novice and seasoned practitioners. This diversity allows for comparative analysis of training impact across experience levels and supports the tailoring of content to varying competency stages.

Notably, only 27.5% of participants had received prior emergency obstetric training, highlighting a significant gap in continuing professional development. The absence of structured exposure among the remaining 72.5% underscores the urgency of implementing contextualized modules that address local clinical realities and reinforce national guidelines.

Overall, the demographic profile suggests that the study successfully engaged a representative sample of nursing staff from Vadodara's public hospitals, with a mix of educational levels, experience, and training backgrounds. These characteristics enhance the generalizability of findings and support the relevance of contextualized training as a scalable intervention for improving maternal care quality.

Table 2: Knowledge Scores Before and After Training Intervention (n = 80)

Assessment Phase	Mean ± SD	Score Range	Interpretation
Pre-test	11.6 ± 2.3	6–17	Moderate knowledge

Assessment Phase	Mean ± SD	Score Range	Interpretation
Post-test	17.8 ± 1.9	13–20	High knowledge
Paired t-test	t = 14.62, df = 79, p < 0.001	—	**Statistically significant improvement**

The analysis of knowledge scores reveals a **substantial and statistically significant improvement** in nurses' understanding of antenatal emergency management following the contextualized training intervention. The **mean pre-test score of 11.6 (±2.3)** indicates a **moderate baseline level of knowledge**, suggesting that while participants had some familiarity with emergency protocols, critical gaps remained in areas such as emergency identification, initial stabilization, and referral procedures.

Post-intervention, the **mean score increased to 17.8 (±1.9)**, reflecting a **high level of knowledge acquisition** across all five assessed domains. The **score range narrowed** from 6–17 (pre-test) to 13–20 (post-test), indicating greater consistency in understanding and reduced variability among participants. This suggests that the training was effective not only in raising overall knowledge levels but also in standardizing comprehension across the cohort.

The **paired t-test result (t = 14.62, df = 79, p < 0.001)** confirms that the observed improvement is **statistically significant**, ruling out the possibility of random variation. This validates the effectiveness of the contextualized training module, which incorporated simulation, case-based learning, and protocol walkthroughs tailored to the local clinical environment.

The magnitude of change also reflects the intervention's success in addressing previously underemphasized areas such as documentation standards, emergency kit usage, and interprofessional communication. These findings align with prior studies (e.g., Rajan & Menon, 2024; Sharma & Thomas, 2023) that advocate for experiential and context-sensitive training to enhance clinical preparedness among nursing staff.

In summary, the training intervention significantly elevated nurses' knowledge and confidence in managing antenatal emergencies, reinforcing the value of integrating such modules into routine in-service education within public health institutions.

Table 3: Associations Between Demographic Variables and Knowledge Gain (n = 80)

Variable	p-value	Statistical Significance	Interpretation
Education Level	0.008	Significant	Higher education correlated with greater knowledge improvement
Years of Experience	0.015	Significant	Experienced nurses showed stronger post-training gains
Prior Emergency Training	0.001	Highly Significant	Previous exposure enhanced responsiveness to contextualized training

The inferential analysis revealed statistically significant associations between select demographic variables and the magnitude of knowledge gain following the training intervention.

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Education Level (p = 0.008)

Nurses with **higher educational qualifications** (B.Sc. Nursing and above) demonstrated significantly greater improvement in post-test scores compared to those with GNM-level training. This suggests that **baseline academic preparation enhances receptivity to structured learning**, particularly when training incorporates clinical reasoning and protocol-based decision-making. These findings align with Gupta & Das (2023), who reported that educational attainment positively influences health professionals' engagement with continuing education.

Years of Experience (p = 0.015)

Participants with **more than five years of clinical experience** showed stronger knowledge gains than their less experienced counterparts. This may reflect their **greater contextual familiarity**, ability to relate training content to real-world scenarios, and deeper understanding of institutional workflows. Experienced nurses may also be more adept at integrating new knowledge into existing practice frameworks, reinforcing the value of **experience-informed learning**.

Prior Emergency Training (p = 0.001)

The most robust association was observed with **prior exposure to emergency obstetric training**, which emerged as **highly significant**. Nurses who had previously attended workshops or simulation sessions demonstrated **enhanced responsiveness to the contextualized module**, likely due to **reinforcement of existing knowledge and improved cognitive scaffolding**. This finding supports the principle of **layered learning**, where repeated, context-specific exposure leads to deeper retention and clinical confidence.

DISCUSSION

The findings of this study provide compelling evidence that **contextualized training interventions significantly enhance nurses' knowledge and preparedness** in managing antenatal obstetrical emergencies. The observed increase in mean knowledge scores—from **11.6 ± 2.3 (pre-test)** to **17.8 ± 1.9 (post-test)**—was statistically significant ($p < 0.001$), affirming the efficacy of the training module in bridging critical knowledge gaps.

The **greatest improvements were noted in emergency identification and protocol adherence**, which are foundational to timely and effective clinical response. These domains are often underemphasized in conventional in-service training, yet they directly influence maternal outcomes. The results align with the work of **Rajan & Menon (2024)**, who highlighted the transformative impact of **simulation-based and scenario-driven training** in enhancing clinical decision-making and reducing response time during obstetric emergencies.

The study also revealed that **education level and prior emergency training** were significant predictors of knowledge gain. Nurses with higher academic qualifications (B.Sc. Nursing and above) demonstrated greater post-test improvement, suggesting that **baseline theoretical grounding facilitates deeper engagement with applied learning**. Similarly, participants with prior exposure to emergency obstetric training responded more effectively to the contextualized module, supporting the concept of **layered learning**, wherein repeated, context-specific reinforcement leads to sustained competency development.

The **positive qualitative feedback** further underscores the value of **experiential learning modalities** such as simulation, role-play, and protocol walkthroughs. Participants reported increased confidence, improved clarity in referral procedures, and enhanced teamwork during emergency scenarios. These findings resonate with **constructivist learning theory**, which posits that learners construct knowledge more effectively through active participation and reflection.

Importantly, the study situates its intervention within the broader framework of India's **Reproductive and Child Health (RCH) program** and the **LaQshya initiative**, both of which advocate for improved quality of care in labor rooms and maternity wards. However, implementation challenges—such as lack of standardized training content, limited educator capacity, and variable institutional support—continue to hinder progress. This study demonstrates that **contextualized, facility-level training** can serve as a scalable and sustainable model for workforce development in maternal health.

In the context of Vadodara's public hospitals, where nurses manage high antenatal caseloads under resource constraints, the intervention proved both feasible and impactful. By aligning training content with **local clinical workflows, cultural norms, and referral systems**, the module enhanced relevance and retention, thereby contributing to **clinical readiness and respectful maternity care**.

CONCLUSION

The present study affirms that **contextualized training is a highly effective strategy** for enhancing nurses' knowledge and clinical preparedness in managing antenatal obstetrical emergencies. The statistically significant improvement in post-intervention knowledge scores, coupled with positive qualitative feedback, underscores the value of **interactive, locally adapted educational modules** in strengthening emergency response capacity.

By incorporating **simulation exercises, case-based discussions, and protocol walkthroughs**, the training module addressed critical gaps in emergency identification, initial management, and referral coordination—domains essential to reducing maternal morbidity and mortality. The intervention's success among nurses with varied educational backgrounds and experience levels further highlights its **scalability and relevance across diverse public health settings**.

Integrating such contextualized modules into **routine in-service education**, supported by **ongoing mentorship and institutional reinforcement**, can contribute meaningfully to the goals of the **Reproductive and Child Health (RCH) program** and the **LaQshya initiative**. Ultimately, empowering nursing personnel with context-sensitive competencies is a vital step toward **delivering timely, respectful, and evidence-based maternal care** in India's public hospitals.

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