



A STUDY TO ASSESS THE EFFECTIVENESS OF SELF INSTRUCTIONAL MODULE ON KNOWLEDGE AND PRACTICES OF PARTOGRAPH DURING LABOUR AMONG 3rd YEARGNM STUDENTS IN SELECTED SCHOOL OF NURSING AT VIJAYAPUR DISTRICT, KARNATAKA

A Study to Assess Knowledge and Improve Utilization of Partograph in Labor Management

MS. NEHA SAWANT OBGY DEPARTMENT (PRINCIPAL) MANAV SADHAN VIKAS SANSTHA SCHOOL OF NURSING ANAV,
SINDHUDURG, INDIA

¹ Ms. Neha Sawant,

¹M.Sc. Nursing

¹Principal,

¹Department of Obstetrics and Gynecology Nursing

¹ Manav Sadhan Vikas Sanstha School of Nursing Anav, Sindhudurg, India

Abstract: Maternal mortality remains a major global health concern, particularly in developing countries like India. One of the effective tools for reducing maternal and neonatal complications during labor is the partograph. The partograph is a simple, cost-effective graphical tool used to monitor the progress of labor and the condition of the mother and fetus. Despite its proven benefits, its utilization is often inadequate due to lack of knowledge and skills among healthcare providers. This study aims to assess the knowledge regarding the use of partograph among staff nurses and GNM students and to improve their understanding through educational interventions. The findings of the study are expected to contribute towards improving maternal healthcare services and reducing complications associated with labor.

Index Terms - Partograph, Maternal Mortality, Labor Monitoring, Staff Nurses, GNM Students

I. INTRODUCTION

Maternal mortality is a significant global health issue, particularly in developing countries. Despite various healthcare initiatives, there has been limited progress in reducing maternal mortality rates. According to recent reports, factors such as poor access to healthcare services, lack of skilled birth attendants, and inadequate knowledge regarding labor monitoring tools contribute significantly to maternal deaths. The partograph is an essential tool in obstetric care used to monitor the progress of labor and the condition of both mother and fetus. It was first introduced by Friedman in 1954 as a graphical representation of cervical dilatation during labor. Later, Philpott and Castle improved it by adding alert and action lines to identify abnormal labor progression. The modern partograph includes parameters such as fetal heart rate, cervical dilatation, uterine contractions, maternal pulse, and blood pressure. It provides a visual representation of labor progress, allowing healthcare professionals to detect complications early and take timely action. The use of partograph is highly beneficial in preventing prolonged and obstructed

labor, which are major contributors to maternal and neonatal morbidity and mortality. Complications such as uterine rupture, postpartum hemorrhage, infection, stillbirth, and birth asphyxia can be reduced with proper monitoring. However, despite its importance, studies have shown that the utilization of partograph remains inadequate in many healthcare settings.

3.1 Population and Sample

The present study focused on 3rd year General Nursing and Midwifery (GNM) students as the target population, representing the group to which the findings were intended to be generalized. The accessible population consisted of 3rd year GNM students studying in a selected School of Nursing in Vijayapur, Karnataka.

The study comprised a sample of 60 students, selected based on predefined inclusion criteria. These participants were considered appropriate as they are directly exposed to obstetric training and clinical practice related to partograph utilization.

A purposive sampling technique was employed to select participants who fulfilled the eligibility criteria and were willing to participate in the study. This method ensured the inclusion of subjects with relevant knowledge and exposure to the study variables.

Inclusion Criteria:

Students who were studying in 3rd year GNM, enrolled in a KNC-recognized School of Nursing, and able to understand English and Kannada were included in the study.

3.2 Data and Sources of Data

For the present study, primary data were collected from 3rd year GNM students. The data were gathered using a self-administered structured knowledge questionnaire to assess the knowledge and practices regarding partograph during labor.

The data collection was carried out over a specified period following the administration of pre-test and post-test. The pre-test was conducted prior to the intervention, followed by the administration of the Self-Instructional Module (SIM), and the post-test was conducted after the intervention to evaluate its effectiveness.

The study utilized cross-sectional data collected directly from the participants in a selected School of Nursing in Vijayapura. The data included socio-demographic variables and knowledge scores related to partograph utilization.

3.3 Theoretical framework

The variables of the present study include both dependent and independent variables. The selection of variables was based on the objectives of the study. In this study,

Dependent variable- Knowledge regarding the utilization of partograph among 3rd year GNM students.

Independent variable- The Self-Instructional Module (SIM), which is administered to improve the knowledge and practices of students regarding partograph during labor. The effectiveness of the SIM is evaluated by comparing pre-test and post-test knowledge scores.

Socio-demographic variables such as gender, religion, type of family, place of residence, family income, and source of information are also considered, as they may influence the knowledge level of the students. The conceptual basis of the study is that structured educational intervention enhances knowledge, which in turn improves clinical practice. The SIM provides systematic and organized information regarding partograph, helping students to understand its importance, components, and proper utilization during labor.

It is assumed that improvement in knowledge through educational intervention will lead to better utilization of partograph, early detection of complications, and timely management during labor, thereby contributing to improved maternal and neonatal outcomes.

RESEARCH METHODOLOGY

This chapter outlines the methodology adopted for the present study. It describes the research approach and design, study setting, population, sample and sampling technique, development and description of the research tool, as well as its validity and reliability. It also includes details of the pilot study, data collection procedure, and the plan for data analysis.

3.1 Population and Sample

The population of the present study comprised all 3rd year GNM students, who were considered as the universe of the study. These students represent the group for generalization of findings, as they are directly involved in obstetric training and partograph utilization.

The accessible population included 3rd year GNM students from a selected School of Nursing. From this population, a sample was drawn for the study.

The study comprised 3rd year GNM students, and a total of 60 participants were selected as the sample on the basis of predefined inclusion criteria. A purposive sampling technique was used to select participants who were suitable and willing to participate in the study.

3.2 Data and Sources of Data

For the present study, primary data were collected from 3rd year GNM students. The data were obtained using a self-administered structured knowledge questionnaire to assess knowledge and practices regarding partograph during labor.

The data were collected over a specific period using a pre-test and post-test method. The study utilized cross-sectional data collected directly from participants. The data collection period included the administration of the questionnaire and implementation of the SIM within the selected duration of the study.

3.3 Theoretical framework

The theoretical framework of the present study is based on the concept that knowledge enhancement through structured educational intervention leads to improvement in clinical practice. The study focuses on assessing and improving the knowledge regarding the utilization of partograph among 3rd year GNM students.

The variables of the study are categorized into dependent, independent, and socio-demographic variables.

Dependent variable- The knowledge regarding partograph during labor, which is measured through pre-test and post-test scores. **Independent variable-** The Self-Instructional Module (SIM), which is administered to improve the knowledge and practices of the students.

The study assumes that prior to intervention, students may have inadequate or moderate knowledge regarding the use of partograph. The administration of SIM provides systematic, structured, and comprehensive information about the components, interpretation, and importance of the partograph in labor management. This educational intervention is expected to enhance the cognitive understanding of the students.

Socio-demographic variables such as gender, religion, type of family, place of residence, family income, and source of information may influence the baseline knowledge of the students. These variables are considered to identify any association with knowledge levels.

The framework is based on the input-process-output model:

- **Input:** Socio-demographic characteristics and existing knowledge of students
- **Process:** Administration of Self-Instructional Module (SIM)
- **Output:** Improved knowledge and practices regarding partograph utilization

The theoretical assumption is that improved knowledge leads to better clinical decision-making and proper utilization of partograph during labor. This, in turn, helps in early detection of complications such as prolonged labor and fetal distress, enabling timely interventions and improving maternal and neonatal outcomes.

Thus, the framework highlights that an effective educational intervention like SIM plays a significant role in enhancing knowledge and promoting evidence-based clinical practice among nursing students.

3.4 Statistical tools and econometric models

This section describes the statistical methods used to analyze the data and draw meaningful inferences for the study. Appropriate statistical tools were applied to assess the effectiveness of the Self-Instructional Module (SIM) on knowledge regarding partograph among 3rd year GNM students.

3.4.1 Descriptive Statistics

- **Frequency and Percentage:**

Used to describe demographic variables and levels of knowledge regarding utilization of partograph among GNM students.

- **Mean and Standard Deviation :**

Used to assess the average and variability of pre-test and post-test knowledge scores.

3.4.2 Inferential Statistics

- **Paired t-test:**

Used to compare pre-test and post-test knowledge scores to evaluate the effectiveness of the teaching program.

- **Chi-square test (χ^2):**

Used to determine the association between knowledge levels and selected demographic variables.

Statistics were used to summarize and describe the characteristics of the study variables. Frequency, percentage, mean, and standard deviation were calculated to present the distribution of socio-demographic variables and knowledge scores of the participants.

The mean and standard deviation were used to assess the central tendency and variability of the knowledge scores in both pre-test and post-test. These measures helped in understanding the overall level of knowledge among students before and after the intervention.

3.4.3 Knowledge Scoring

The GNM students regarding utilization of partograph was assessed using a structured questionnaire consisting of 30 multiple choice questions.

- Each correct answer was given **1 mark**
- Each wrong answer was given **0 mark**
- The total score ranged from **0 to 30**

The level of knowledge was categorized as:

- **Adequate Knowledge:** >75% (23–30)
- **Moderately Adequate Knowledge:** 50–75% (15–22)
- **Inadequate Knowledge:** <50% (0–14)

3.4.3 Reliability of the Tool

The reliability of the structured knowledge questionnaire was established using the **split-half method** and analyzed by **Pearson's correlation coefficient**.

The obtained reliability coefficient was **r = 0.891**, indicating high reliability of the tool. Hence, the tool was considered reliable for data collection.

3.4.4 Data Presentation

The collected data were organized, analyzed, and presented in a systematic manner using appropriate tables and graphical representations.

Data were presented under the following sections:

- **Section I:** Distribution of demographic variables of GNM students
- **Section II:** Assessment of pre-test knowledge regarding utilization of partograph
- **Section III:** Assessment of post-test knowledge regarding utilization of partograph
- **Section IV:** Comparison of pre-test and post-test knowledge scores
- **Section V:** Association between knowledge scores and selected demographic variables

Tables, bar graphs, and pie charts were used to ensure clear understanding and interpretation of the findings.

IV. RESULTS AND DISCUSSION

4.1 Results of Descriptive Statics of Study Variables

Table 4.1: Descriptive Statics

Variable	Category	< Mean	≥ Mean	χ^2	df	P-value	Significance
Gender	Male	19	17	4.57	1	0.03	Significant
	Female	06	18				
Religion	Hindu	12	17	3.59	3	0.309	NS
	Muslim	06	12				
	Christian	04	01				
	Others	03	05				
Type of Family	Nuclear	12	18	0.901	2	0.95	NS
	Joint	08	10				
	Extended	05	07				
Residence	Rural	14	17	0.59	2	0.74	NS
	Semi-Urban	04	08				
	Urban	09	10				
Family Income	5000–10000	07	08	0.29	2	0.86	NS
	11000–15000	14	22				
	≥16000	04	05				
Source of Info	Family & Friends	09	13	3.08	3	0.37	NS
	Books & Magazines	07	12				
	Internet	05	02				
	Health Care Providers	04	08				

Table 4.1 presents the descriptive statistics of knowledge scores among 3rd year GNM students regarding partograph during labor, including minimum, maximum, mean, and standard deviation.

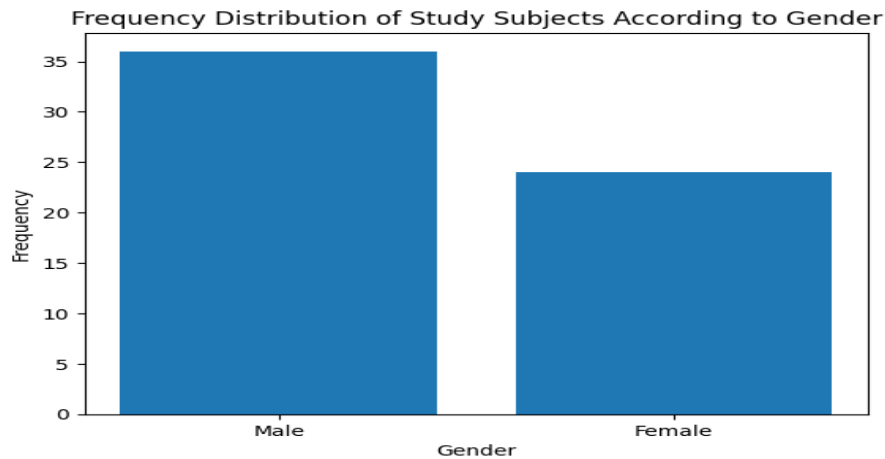
The descriptive statistics indicate that the **mean pre-test knowledge score was 6.3**, whereas the **mean post-test knowledge score increased to 26.1**, showing a significant improvement after the intervention. The **mean difference was 19.8**, indicating a substantial gain in knowledge following the Self-Instructional Module (SIM).

The standard deviation of the difference was **4.91**, which indicates moderate variability in the knowledge scores among the participants.

The results clearly demonstrate that the knowledge scores were significantly improved in the post-test compared to the pre-test, indicating the effectiveness of the intervention.

4.2 Distribution of Knowledge Scores

Gender	Frequency (f)	Percentage (%)
Male	36	60.0%
Female	24	40.0%
Total	60	100.0%



The bar diagram shows that the majority of study subjects were male (36), compared to female subjects (24), indicating higher male participation in the study.

4.3 Level of Knowledge

The paired *t*-test analysis showed a mean difference of **-19.80** between pre-test and post-test knowledge scores, with a standard deviation of **4.91** and standard error of **0.63**. The calculated *t* value was **-31.22** with **df = 59**, and the **p-value < 0.0001**, indicating a highly significant difference. This result demonstrates that the Self-Instructional Module (SIM) was **effective in improving the knowledge** of 3rd year GNM students regarding the use of partograph during labor.

Comparison of Mean Knowledge Scores

The mean post-test scores were higher than pre-test scores across all categories:

- **Inadequate Knowledge:**

Pre-test = 5.8 → Post-test = 13.8

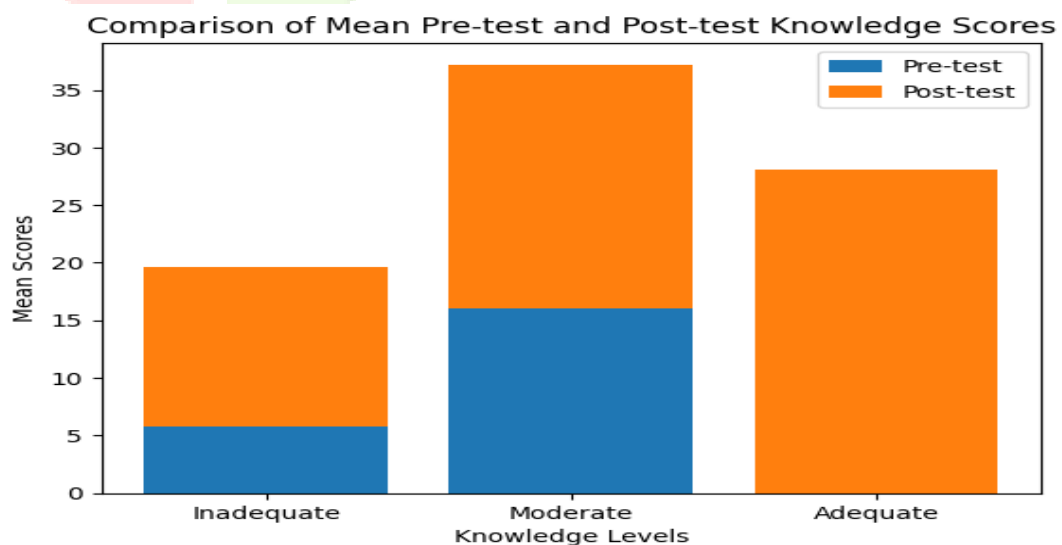
- **Moderately Adequate Knowledge:**

Pre-test = 16.0 → Post-test = 21.2

- **Adequate Knowledge:**

Pre-test = 0 → Post-test = 28.1

These findings indicate a **significant enhancement in knowledge levels** after the intervention.



The graph shows that the mean post-test knowledge scores are higher than the pre-test scores across all categories. There is a marked improvement particularly in the adequate knowledge category, which was absent in the pre-test but significantly increased in the post-test. This clearly indicates the effectiveness of the Self-Instructional Module (SIM) in enhancing knowledge regarding the utilization of partograph.

II. ACKNOWLEDGMENT

The authors would like to express their sincere gratitude to all those who contributed to the successful completion of this study. Special thanks are extended to the management and faculty of the School of Nursing for their continuous support, guidance, and encouragement throughout the research process.

The authors are also thankful to all the participants for their cooperation and willingness to take part in the study. Their valuable responses made this research possible.

The authors acknowledge the guidance of their research supervisor for providing constant support, valuable suggestions, and expert advice during the study

REFERENCES

1. Friedman E. Graphic analysis of labour. *Am J Obstet Gynecol*. 1954;68:1568–75.
2. World Health Organization. *The World Health Report 2005: Make Every Mother and Child Count*. Geneva: WHO; 2005.
3. World Health Organization. *Trends in Maternal Mortality 1990–2015*. Geneva: WHO; 2015.
4. Padubidri VG. *Textbook of Obstetrics*. 2nd ed. New Delhi: BI Publications; 2006.
5. Dutta DC. *Textbook of Obstetrics*. 6th ed. Calcutta: Central Publications.
6. Dalal AR, Purandare AC. The partograph in childbirth: an absolute essentiality or a mere exercise? *J Obstet Gynecol India*. 2018;68(1):3–14.
7. Lavender T, Alfievic Z, Walkinshaw S. Effect of different partogram action lines on birth outcomes: A randomized controlled trial. *Obstet Gynecol*. 2006;108(2):295–302.
8. Qureshi ZP, Sekadde-Kigundu C, Mutiso SM. Rapid assessment of partograph utilization in selected maternity units in Kenya. *East Afr Med J*. 2010;85(6):235–241.
9. Magon N. Partograph revisited. *Int J Clin Case Investig*. 2011;3:6.
10. Türkmen H, Yörük S. Determination of midwives' knowledge level regarding partograph training. *J Anatolia Nurs Health Sci*. 2021;24(2):148–155.
11. Gupta MK, Raghav P, Gautam V, et al. Improving knowledge and utilization of partograph by skilled birth attendants. 2020.
12. Brits H, Joubert G, Mudzwari F, et al. The completion of partograms: knowledge, attitudes and practices of midwives. 2020.
13. Bedwell C, Levin K, Pett C, et al. A realist review of the partograph. 2017.
14. Opiah MM, Ofi AB, Essien EJ, et al. Knowledge and utilization of the partograph among midwives. *Afr J Reprod Health*. 2012;16(1):125–132.
15. Salunkhe JA. Effectiveness of self-instructional module on knowledge of partograph among nursing students. 2012.