Maternity Nurses' Role toward Safety Measures in Labor Unit

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Abstract: Background: Safety is the ultimate goal of all interantioned Labor unite at different Parts of the world. Therefore maternity murses have a Pats of roles ta promote safety measure. **Purpose of the study**: was to assess the maternity nurses' role in safety measures in the labor unit. **Design**: A descriptive research design was utilized. **Settings**: The study was conducted at the Obstetrics and Sample: A convenient sample of 80 nurses was selected from the departments of Menoufia University Hospital and Shebin El-Kom Teaching Hospital in Menoufia Governorate. **Sample**: A convenient sample of 80 nurses was selected. **Instruments**: Three instruments ere used Nurses' knowledge regarding safety measures in the labor unit observational checklist, and attitude of nurses towards safety measures in the labor unit). **Results**: It shows that 55.0% of the studied nurses had a fair knowledge level, 6.0% had a poor knowledge level, and 39.0% had a good knowledge level about safety measures in the labor unit. Also, 81.25% of the studied nurses had satisfied practice scores, while 18.75% of them had unsatisfied practices towards safety measures in the labor unit. Furthermore, 87.50% of them had a positive attitude, while 12.50% of them had a negative attitude towards safety measures in the labor unit. **Conclusion**: Over half of nurses had a fair knowledge level towards safety measures in the labor unit, around three-fourths of them had a satisfied practice level, and most of them had a positive attitude. **Recommendations**: Maternity nurses are advised to receive ongoing knowledge and skills towards safety measures in the labor unit as a part of their nursing care.

Keywords: *Maternity nurses' role, safety measures in the labor unit.*

Introduction

Patient safety is an evolving science, and there remain many unknowns, particularly concerning the burden of disease as a result of unsafe care. In some developed countries, the occurrence of adverse events is estimated to stand at 10% of admissions. In developing and transitional countries, epidemiological data are sparse, and work is in progress, led by WHO Patient Safety, to establish the nature and extent of patient harm

attributable to health care in these countries (WHO 2019).

Efforts to build safer health care systems have seen the global creation of organizations with the sole purpose of improving patient safety. National-level patient safety bodies have emerged in the last decade in a growing number of industrialized countries, including (not exclusively) Australia, Canada, England and Wales, and the USA. Most recently, and reflecting the international acknowledgement of the importance of the safety agenda beyond the West, national/hospital steering committees for patient safety have been established in several member states within the WHO region of Africa (Slawomirski, & Klazinga, 2022)

Patient safety is a global public health concern. It is a health care discipline with ever evolving advancement and complexity resulting in consequential rise in patient harm. Since the pandemic, patient safety has been threatened even more by laying bare the inadequacies of health systems. Many unsafe care practices, risks, and errors contribute to patient harm and overall economic burden. These include medical, diagnostic, and radiation errors, healthcare associated infections, unsafe surgical procedures and transfusion practices, sepsis, venous thromboembolism, and falls (Marx.2019).

Although patient safety has become an integral part of the healthcare delivery model and resources have been dedicated towards it, much still needs to be achieved. An attitude of inclusivity for all care teams and anyone in contact with the patient, including the patients themselves, would enhance patient safety. Incorporating this attitude from educational infancy will allow for better identification of medical errors and inculcate critical analysis of process improvement (Domer, et al., 2021).

Implementing the 'Just Culture' by health care organizations can build the infrastructure to eliminate avoidable harm. To reduce avoidable harm and improve safety, a constant flow of information and knowledge should be available to mitigate the risks. Lastly, proper communication and effective leadership can play an imperative role to engage stakeholders and reduce harm. Patient safety is pivotal to high-quality health care. The World Health Organization (WHO) defines patient safety as "a framework of organized activities that creates cultures, processes, procedures, behaviors, technologies and environments in health care that consistently and sustainably lower risks, reduce the occurrence of avoidable harm, make error less likely and reduce its impact when it does occur" (WHO, 2021).

Ideally, the goal of all healthcare is zero preventable harm to patients, however, we are far from this target. Medical error is a global and system wide phenomenon which is present in all aspects of medicine and resources must be implemented at every level to recognize and limit its occurrence to improve patients' wellbeing. In this chapter, we will discuss topics that pose risks to patients in healthcare and ways systems and individuals can help mitigate them (AAMC, 2019).

In terms of safety measures, maternity nurses educate and guide expectant mothers on various aspects of childbirth, including breathing

techniques, pain management options, and the importance of proper body positioning during labor. They provide continuous emotional support and reassurance, promoting a calm and comfortable atmosphere to help reduce stress and anxiety (Calcagno et al., 2023).

Maternity nurses are trained in emergency response procedures and are prepared to handle obstetric emergencies, such as postpartum hemorrhage, fetal distress, or shoulder dystocia. They collaborate closely with other healthcare professionals, such as obstetricians, anesthesiologists, and neonatal nurses, to ensure coordinated care and prompt intervention when necessary (Janssens et al., 2023).

In summary, maternity nurses play a vital role in ensuring the safety of mothers and babies in the labor unit. Through their expertise, continuous monitoring, proactive intervention, and promotion of best practices, they contribute to creating a safe and supportive environment for childbirth. Their commitment to safety measures helps facilitate a positive experience for both the mother and the newborn while minimizing potential risks and complications (Fuseini et al., 2023).

Significance of the Study

Safety measures in the labor unit are critical for ensuring positive maternal and neonatal outcomes, minimizing risks, and enhancing the quality of care provided during childbirth. Maternity nurses play a pivotal role in implementing these safety measures, including monitoring maternal and fetal well-being, adhering to infection control protocols, and responding promptly to emergencies. Poor adherence to safety protocols can lead to increased maternal and neonatal morbidity and mortality, complications during labor, and extended hospital stays, thereby escalating healthcare costs (American College of Obstetricians and Gynecologists, 2021; World Health Organization, 2020).

Globally, maternal complications during labor contribute significantly to adverse outcomes, with hemorrhage, infections, and fetal distress being among the leading causes (Say et al., 2014). In Egypt, maternal mortality rates remain a public health challenge, with preventable causes accounting for a substantial percentage (El-Zanaty & Way, 2020). The lack of standardized safety protocols in many labor units in Egypt further exacerbates these challenges. Despite the proven effectiveness of safety bundles in reducing maternal and neonatal complications, there remains a gap in the consistent implementation of these practices across healthcare facilities. According to the literature review, a few randomized trials have been done to assess maternity nurses' role toward safety measures in the labor units. Accordingly, this study was conducted to assess maternity nurses' role toward safety measures.

Purpose:

To assess the maternity nurses' role toward safety measures in labor unit.

Research Questions

1) What is the level of knowledge of maternity nurses regarding safety measures in the labor unit?

2) What is the level of practice of maternity nurses regarding safety measures in the labor unit?

3) What is the attitude of maternity nurses towards safety measures in the labor unit?

METHODS

Research Design:

A descriptiv research design will be used.

Setting:

The present study was conducted at the obstetrics and gynecological departments of Menoufia University Hospital (MUH) and Shebin El-Kom Teaching Hospital, in Menoufia Governorate, Egypt.

Sampling:

A convenient sample of 80 maternity nurses who work in the obstetrics and gynecology departments of Menoufia University and Shebin El-Koom Teaching Hospitals was selected

Sample size:

Sample size calculator was used with a confidence level of 95%, a margin error of 5%, a population proportion of 50%, and a total population of 118 nurses. The sample size was determined to be 74 nurses and was increased to 80 nurses to ensure representativeness using Yamane's formula:

n = N / (1+N (e) 2).

n = the sample size

N = the population of the study = 118

e = the margin error in the calculation = 5%

Instruments of data collection:

Instrument one: knowledge of nurses about safety measures in the labor unit interview questionnaire:

It was designed by the researcher after reviewing the related literature (Cheng et al., 2021) to assess the nurses' socio-demographic characteristics and the nurses' knowledge regarding safety measures in the labor unit. It consisted of two parts:

- **Part 1**: Nurses' socio-demographic characteristics. It included age, residence, educational level, marital status, occupation, years of experience, and taking any training courses about safety measures.

- **Part 2**: Nurses' knowledge about safety measures in the labor unit on admission, before delivery, after delivery, before cesarean section, after cesarean section, and before discharge. The safety measures include a safe environment, mother's safety, mother's identification methods, types of communications, high alert medications, how to deal with alert medications, error prevention, whether infection is transmitted by the medical team, types of infection, infection control, type of labor unit environment, hand washing technique, transferring patients safely, way of transferring, safety obstacles, types of obstacles, labor positions, and the importance of pubic area cleaning etc.

Scoring system:

The scoring system was adopted from Cheng et al. (2021), and each item of knowledge was assigned 2 for accurate

and complete answers, 1 for accurate and incomplete answers, and 0 for wrong or do not know answers. The sum of the "known items" scores yielded the overall score. These values were converted to percentages. Overall knowledge scores were categorized as good if >75%, fair if 50%-75%, and poor if < 50%.

Instrument two: Nurses' practices' for ensuring patient safety observational checklist:

After reviewing the relevant literature (Freedman et al., 2022), the researcher developed this instrument to assess the nurses' practices' of ensuring patient safety in the labor unit, specifically with regards to their use of infection control measures and their adherence to patients' rights when it comes to medications. The nurses' adherence to safe childbirth practices was evaluated by the World Health Organization safe childbirth checklist on admission in the labor unit, throughout labor, after delivery, prior to caesarean section, following caesarean section, and prior to discharge.

Scoring system:

The scoring system was adopted from Freedman et al. (2022) and set up to give a (0) for the incorrectly done practice and a (1) for the correctly done practice. Each nurse's total score was divided into two categories: unsatisfied practice < 60% and satisfied practice ≥ 60%.

Instrument three: Attitude of the nurses regarding the safety measures in the labor unit Likert scaole.

This instrument was developed by a researcher based on reviewing related literature (Freedman et al., 2022). It included the nurses' attitudes towards the safety standards that are applied to safeguard the mothers, the regulations that cover the infection control measures, the environment that covers patient security, the medical staff, equipment, and services offered. It was measured using the Likert scale.

Scoring system:

Modified Likert scale: it was adopted from Ibrahim (2011) to measure the attitude of nurses regarding safety measures in labor units. The scale consisted of 20 statements, and the responses were on a three-point Likert scale.
- Positive attitude: > 75%
- Uncertain attitude: 50-75%
- Negative attitude: <50%

Validity:

It was done by three experts (two in the Maternal and Newborn Health Nursing department and one in the Obstetrics and Gynecology department), who reviewed the instruments for content accuracy and internal validity. Also, they were asked to judge the items for their completeness and clarity (content validity). Suggestions were incorporated into the instruments.

Reliability:

Test-retest Reliability was applied by the researcher to test the internal consistency of the instruments. It was done through the administration of the same instrument to the same participants under similar conditions on two or more occasions. Scores from repeated testing were compared to test

the consistency of the results over time.Reliability was assessed using Cronbach's alpha, with results showing high internal consistency: Tool one (0.91), tool two (0.86), and tool three (0.73).

Ethical Considerations:

Approval of the Ethical and Research Committee was obtained on ….no……in the Faculty of Nursing, Menoufia University. The researcher introduced herself to the nurses and explained the purpose of the study and the nature of the research to obtain their acceptance to participate in the study and to gain their cooperation. Approaches to ensure ethics were considered in the study regarding confidentiality. Confidentiality was achieved using locked papers with the names of the participating nurses replaced by numbers. The interview was individualized for each patient, and all women were informed that the information they provided during the study would be kept confidential and used only for statistical purposes. The findings would be presented as a group of data without the participant's personal information remaining. Informed oral consent was obtained from all women after an explanation of the nature and purpose of the study. Each woman was informed that participation in the study was optional, and they were given the opportunity to freely refuse participation.A formal written acceptance was obtained from each woman related to their acceptance to share in the study.

Pilot Study:

A pilot study was carried out on 10% of the total sample (8 nurses) to assess the applicability and clarity of the instruments and estimate the time required to fill out the questionnaire.

Procedure:

- An official letter was submitted from the Dean, Faculty of Nursing, Menoufia University, was directed to the responsible authorities of the previously mentioned study hospitals to obtain their permission to conduct the study. Official permission was obtained to carry out the study from the directors of the above-mentioned settings the study lasted over five months, from June 2023 to the end of October 2023. Data was collected from the obstetrics and gynecological departments of Menoufia University Hospital and Shebin El-Kom Teaching Hospital. It took two days (Sunday, Wednesday) from 9 a.m. to 1 p.m.
- At the beginning of the study, the researcher introduced herself and explained the purpose and nature of the study to the maternity nurses. The researcher interviewed all maternity nurses who agreed to participate in the study individually with a duration of 10–20 minutes for each nurse (2 nurses per day).The instruments were developed according to a review of related literature about the assessment of maternity nurses' knowledge and practice toward safety measures in the labor unit (Chang et al., 2021; Freedman et al., 2022).
- Then, the researcher started collecting data related to the socio-demographic status.

- After that, the researcher assessed the nurses' knowledge regarding the safety measures in the labor unit on admission, before delivery, after delivery, before caesarean section, after caesarean section, and before discharge. It included the specified obstetrical medications, precautions for administering medications, the factors that influenced medication errors, and infection control. It also contained questions related to the types of medication errors in the labor unit and infection control.
- It also contained questions related to the types of medication errors in the labor unit. The researcher focused on the most common medications used in the labor unit as follows: oxytocin, misoprostol, methergine, anesthetic drugs, magnesium sulfate, antibiotics, and analgesics.
- A WHO safe childbirth checklist was used to assess the nurses' practice regarding the safety measures in the labor unit on admission, before delivery, after delivery, before caesarean section, after caesarean section, and before discharge.
- Finally, the researcher assessed the nurses' attitude regarding the safety measures in the labor unit on admission, before delivery, after delivery, before caesarean section, after caesarean section, and before discharge. It included the nurses' attitudes towards the safety standards that are applied to safeguard the mother, the regulations that covered the infection control measures, the environment that covered patient security, the medical staff, equipment, and services offered.

STATISTICAL ANALYSIS

Data were collected, tabulated, and statistically analyzed using an IBM personal computer with Statistical Package of Social Science (SPSS) version 20 (SPSS, Inc., Chicago, Illinois, USA). Where the following statistics were applied:

- **Descriptive statistics**: quantitative data were presented in the form of mean, standard deviation (SD), and range, and qualitative data were presented in the form of numbers and percentages.
- **Analytical statistics** are used to find out the possible association between the study factors and the targeted disease. The tests of significance used included the following:
  The Chi squared test is a test of significance used for comparison between two groups with qualitative variables.
  Pearson's correlation (r) is a test of significance used for correlating two quantitative variables.
  A P value of >0.05 was considered statistically non-significant.
  A P value of <0.05 was considered statistically significant.
  A P value of <0.001 was considered statistically highly significant.

RESULTS

Table (1): shows the sociodemographic data of the studied maternity nurses. It reveals that the mean age of the studied nurses was in the age group of 32.57 ± 7.65 years. Also, 75.0% of the studied nurses lived in the rural area. Meanwhile, 43.8% of them had a bachelor's degree, and 86.3% of them were married. The technical specialist position was held by 61.3% of the

studied nurses, and 51.2% of them had more than 10-year experience. Additionally, 94.8% of them had training courses.

Figure (1): displays the maternity nurses' total knowledge scores toward safety measures in the labor unit. It illustrates that 55.0% of the studied nurses had fair knowledge scores and 6.0% had poor knowledge scores toward safety measures in the labor unit. While 39.0% of them had good knowledge scores toward safety measures in the labor unit, respectively.

Figure (2): displays the maternity nurses' total practice scores toward safety measures in the labor unit. It illustrates that 81.25% of the studied nurses had satisfied practice scores, while 18.75% of them had unsatisfied practices toward safety measures in the labor unit.

Figure (3): displays the maternity nurses' total attitude scores toward safety measures in the labor unit. It illustrates that 87.50% of the studied nurses had a positive attitude, while 12.50% of them had a negative attitude toward safety measures in the labor unit.

Table (2): shows the relationship between the Sociodemographic Data of the studied nurses and their total knowledge. It shows that there was a significant statistical relationship between the total level of knowledge of the studied nurses and all their personal data at a P-value of <0.05, except for age, courses, course type, and marital status.

Table (3): shows relationship between the Sociodemographic data of the studied nurses and their total practice. It shows that there was no significant statistical relationship between the total level of practice of the studied nurses and all their personal data at a P-value of <0.05, except for position

Table (4): shows the relationship between the sociodemographic data of the studied nurses and their total attitude. It shows that there was a significant statistical relationship between the total level of attitude of the studied nurses and all their personal data at a P-value of <0.05, except for educational level.

Table (5): shows the correlation between total level of knowledge, total level of practice, and total level of attitude among the studied nurses. It shows that there was no significant statistical correlation between total level of knowledge and total level of practice among the studied nurses at a P-value of 0.859. Additionally, there was a significant statistically positive correlation between total level of attitude and total level of practice among the studied nurses at a P-value of 0.000. Moreover, there was no significant statistical correlation between the total level of attitude and the total level of knowledge among the studied nurses at a P-value of 0.885.

Table 1: Sociodemographic Data of the Studied Maternity Nurses (N = 80)

Variables	No	%
Age (in years)		
Mean ± SD	32.57 ± 7.65	
Residence		
Urban	20	25.0%
Rural	60	75.0%
Marital status		
Single	7	8.8%
Married	69	86.3%
Widow	2	2.5%
Divorced	2	2.5%
Educational level		
Technical school (5 years)	13	16.3%
Technical institute	28	35.0%
Bachelor's	35	43.8%
Postgraduate	4	5.0%
Position		
Nursing specialist	28	35.0%
Nursing supervisor	3	3.8%
Technical specialist	49	61.3%
Experience		
1-5	14	17.5%
6 -10	25	31.3%
More than 10	41	51.2%
Courses		
Yes	77	96.3%
No	3	3.8%
Courses type		
Training course	73	94.8%
Scientific course	1	1.3%
An educational course	3	3.9%

Figure 1: Maternity Nurses' Total Knowledge Scores toward Safety Measures in the Labor Unit
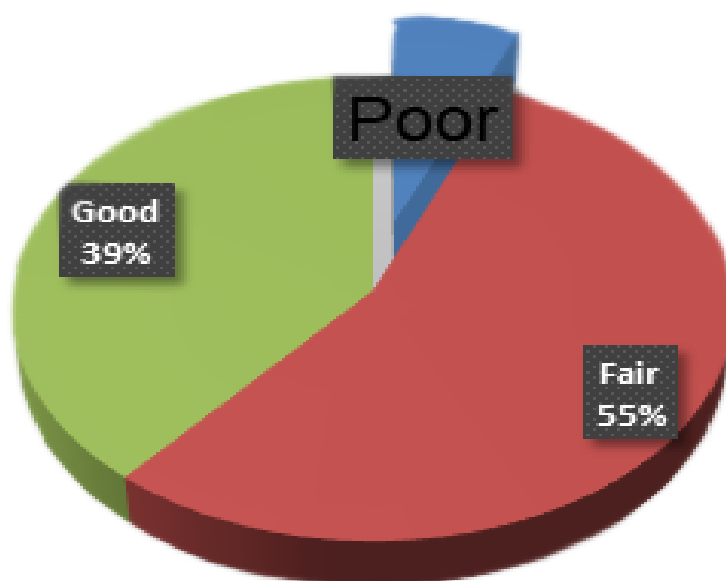
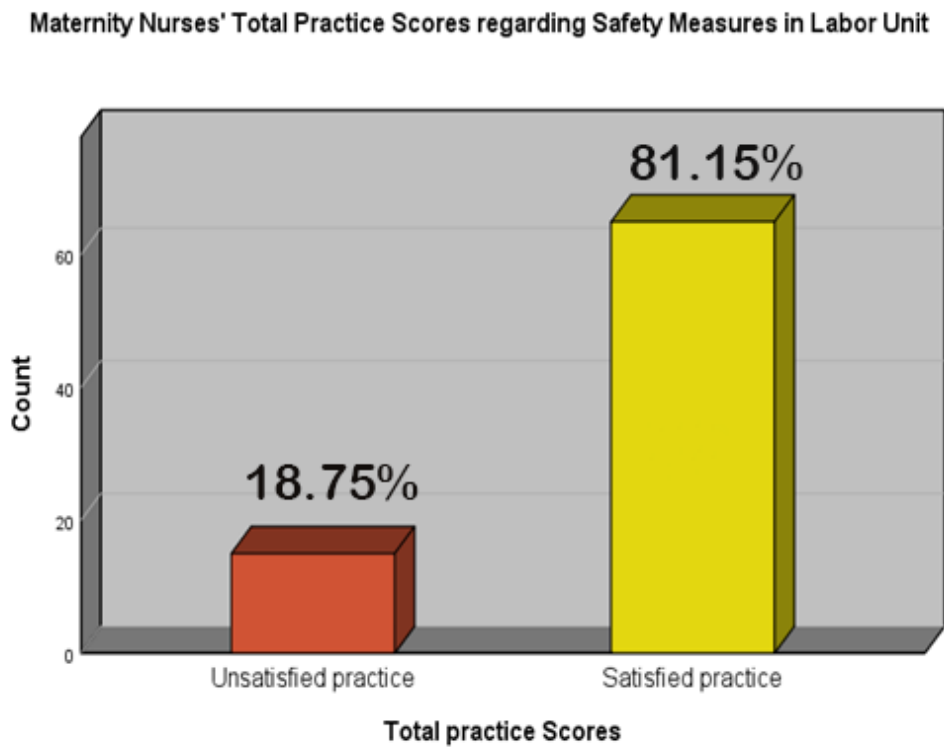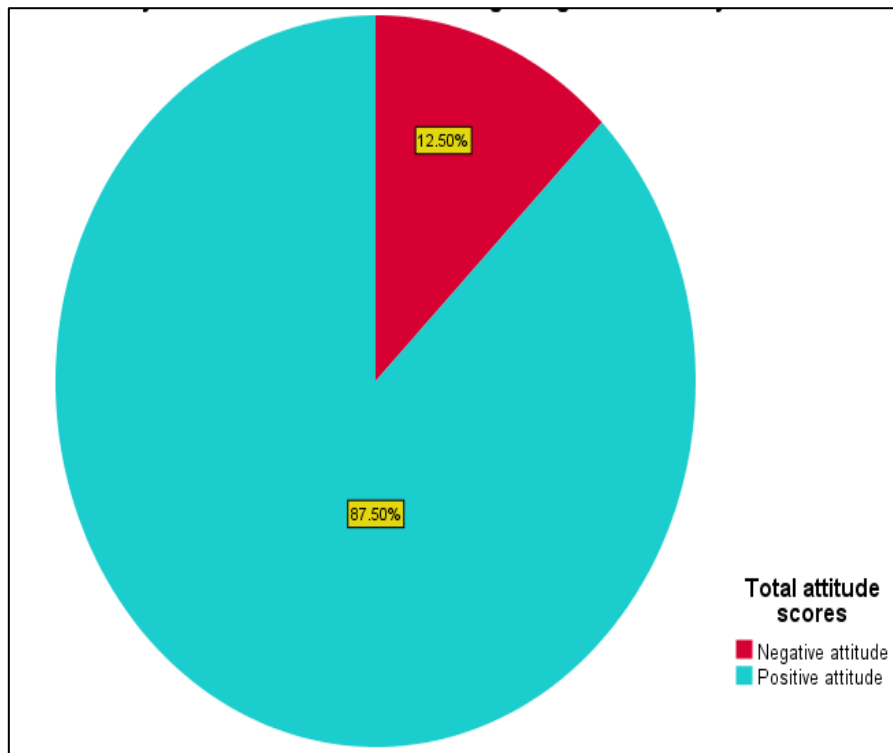**Figures (2): - Maternity Nurses' Total Practice Scores satisfaction toward Safety Measures in the Labor Unit**

Figure 3: Maternity Nurses' Total Attitude score toward Safety Measures in the Labor Unit

Table 2: Relationship between the Sociodemographic Data of the Studied Nurses and Their Total Knowledge Scores (N = 80)

Variables	Total knowledge scores						X^2	P-value
	Poor		**Fair**		**Good**			
	No	**%**	**No**	**%**	**No**	**%**		
Age (in years)								
Mean ± SD	33.40± 4.83		33.68± 8.30		30.87± 6.88		F 1.267	0.287
Residence								
Urban	4	80.0%	9	20.5%	7	22.6%	8.648	0.013
Countryside	1	20.0%	35	79.5%	24	77.4%		
Marital status								
Single	0	0.0%	5	11.4%	2	6.5%		
Married	5	100.0%	36	81.8%	28	90.3%	3.073	0.800
Widow	0	0.0%	2	4.5%	0	0.0%		
Divorced	0	0.0%	1	2.3%	1	3.2%		
Educational level								
Technical institute	0	0.0%	17	38.6%	11	35.5%	17.791	0.007
Bachelor's	5	100.0%	12	27.3%	18	58.1%		
Postgraduate	0	0.0%	3	6.8%	1	3.2%		
Technical school	0	0.0%	12	27.3%	1	3.2%		
Position								
Nursing specialist	5	100.0%	11	25.0%	12	38.7%		
Nursing supervisor	0	0.0%	3	6.8%	0	0.0%	14.960	0.021
Technical specialist	0	0.0%	30	68.2%	18	58.1%		
Another remembers	0	0.0%	0	0.0%	1	3.2%		
Experience								
1 to 5	0	0.0%	13	29.5%	1	3.2%		
6 to 10	5	100.0%	6	13.6%	14	45.2%	24.812	0.000
More than 10	0	0.0%	25	56.8%	16	51.6%		
Courses								
Yes	5	100.0%	42	95.5%	30	96.8%	0.296	0.863
No	0	0.0%	2	4.5%	1	3.2%		
Courses type								
Training course	4	80.0%	40	95.2%	29	96.7%		
Scientific course	0	0.0%	0	0.0%	1	3.3%	6.272	0.180
An educational course	1	20.0%	2	4.8%	0	0.0%		

Table 3: Relationship between the Sociodemographic Data of the Studied Nurses and Their Total Practice Scores (N = 80)

Variables	Total practice scores				X^2	P-value
	Unsatisfied practice		Satisfied practice			
	No	%	No	%		
Age (in years)						
Mean ± SD	31.13± 6.20		32.90± 7.95		F 0.653	0.422
Residence						
Urban	5	33.3%	15	23.1%	0.684	0.509
Countryside	10	66.7%	50	76.9%		
Marital status						
Single	1	6.7%	6	9.2%	1.122	0.772
Married	14	93.3%	55	84.6%		
Widow	0	0.0%	2	3.1%		
Divorced	0	0.0%	2	3.1%		
Educational level						
Technical institute	2	13.3%	26	40.0%	5.775	0.123
Bachelor's	10	66.7%	25	38.5%		
Postgraduate	0	0.0%	4	6.2%		
Technical school	3	20.0%	10	15.4%		
Position						
Nursing specialist	0	0.0%	29	44.6%	12.308	0.006
Nursing supervisor	0	0.0%	3	4.6%		
Technical specialist	15	100.0%	33	50.8%		
Experience						
1 to 5	4	26.7%	10	15.4%	1.368	0.505
6 to 10	5	33.3%	20	30.8%		
More than 10	6	40.0%	35	53.8%		
Courses						
Yes	15	100.0%	62	95.4%	0.719	1.000
No	0	0.0%	3	4.6%		
Courses type						
Training course	15	100.0%	58	93.5%	1.021	0.600
Scientific course	0	0.0%	1	1.6%		
An educational course	0	0.0%	3	4.8%		

Table 4: Relationship between the Sociodemographic Data of the Studied Nurses and Their Total Attitude Scores (N = 80)

Variables	Total attitude scores				X^2	P-value
	Negative attitude		Positive attitude			
	No	%	No	%		
Age (in years)						
Mean ± SD	32.40± 9.52		32.60± 7.42		F 0.006	0.939
Residence						
Urban	2	20.0%	18	25.7%	0.152	0.696
Countryside	8	80.0%	52	74.3%		
Marital status						
Single	3	30.0%	4	5.7%	6.819	0.078
Married	7	70.0%	62	88.6%		
Widow	0	0.0%	2	2.9%		
Divorced	0	0.0%	2	2.9%		
Educational level						
Technical institute	5	50.0%	23	32.9%	8.249	0.041*
Bachelor's	1	10.0%	34	48.6%		
Postgraduate	0	0.0%	4	5.7%		
Technical school	4	40.0%	9	12.9%		
Position						
Nursing specialist	0	0.0%	28	40.0%	7.048	0.070
Nursing supervisor	1	10.0%	2	2.9%		
Technical specialist	9	90.0%	39	55.7%		
Another remembers	0	0.0%	1	1.4%		
Experience						
1 to 5	2	20.0%	12	17.1%	2.476	0.290
6 to 10	1	10.0%	24	34.3%		
More than 10	7	70.0%	34	48.6%		
Courses						
Yes	9	90.0%	68	97.1%	1.237	0.334
No	1	10.0%	2	2.9%		
Courses type						
Training course	9	100.0%	64	94.1%	0.558	0.756
Scientific course	0	0.0%	1	1.5%		
An educational course	0	0.0%	3	4.4%		

Table 5: Correlation between total level of knowledge, total level of practice, and total level of attitude among the studied nurses

Variables	Total knowledge	
	r	P-value
Total Practice	0.020	0.859
Variables	Total Attitude	
	r	P-value
Total Practice	0.479	0.000**
Variables	Total Attitude	
	r	P-value
Total Knowledge	0.016	0.885

DISCUSSION

The findings of the current study succeeded in answering both research questions. Findings are discussed in the following sequences: 1: Personal data of the studied maternity nurses. 2: Maternity nurses' knowledge regarding safety measures in the labor unit 3: Maternity nurses' practice regarding safety measures in the labor unit 4: Maternity nurses' knowledge and attitude regarding safety measures in the labor unit. 5: Relations and correlations between variables among the studied maternity nurses.

Regarding the maternity nurses' total knowledge scores regarding safety measures in the labor unit, more than half of the studied nurses had poor knowledge scores, and thirty of them had good knowledge scores regarding safety measures in the labor unit. This finding comes in agreement with Rostom et al. (2021), who reported in their study that more than a third had poor knowledge. Supporting this result, Brasaite et al.'s (2017) study, which was conducted in three regional hospitals in Western Lithuania to "assess health care professionals' knowledge regarding patient safety," showed that most health care professionals had low levels of safety knowledge. Also, this finding comes in agreement with Zhong et al. (2023), who conducted a study entitled "Linking Patient Safety Climate with Missed Nursing Care in Labor and Delivery Units: Findings from the Labor RNs" in India and reported that most respondents reported a perception of a good safety climate in their units. On the contrary, these findings were inconsistent with those of Ibrahiem et

al. (2018), who reported that most of the study sample had poor knowledge scores regarding safety measures in the labor unit. From the researcher's point of view, this result might be due to a lack of course refreshment information on safety measures in the labor unit, and it might be since nurses had not received training courses related to safety measures in the labor unit and a lack of educational programs in the hospital due to a shortage of staff.

Concerning the maternity nurses' total practice scores regarding safety measures in the labor unit, it shows that most of the studied nurses had unsatisfied practice regarding safety measures in the labor unit. On the contrary, these findings were inconsistent with Ibrahiem et al.'s (2018), who revealed that most nurses were lowly satisfied with safety measures and nursing care in the labor room. Moreover, Rostom et al. (2021) reported in their study that two-thirds of the studied nurses had unsatisfactory practices regarding safety measures.

In harmony with this result, Al-Rafay et al. (2018), who studied "Assessment of nurses' performance regarding international patient safety goals in primary health care settings, "found that more than three-quarters of the studied nurses had unacceptable practices regarding patient and client safety. Also, Webair et al. (2019) showed that most of the studied sample had appropriate practice. These results were due to a lack of services and resources and a shortage of nurses' numbers and knowledge because of insufficient training courses. From the

researcher's point of view, the best practical performance level of the studied nurses in the current study may be linked to the nurses' capability and interest to update their knowledge and upgrade their practice.

Regarding the nurses' total attitude scores regarding safety measures in the labor unit, this study shows that most of the studied nurses had a negative attitude regarding safety measures in the labor unit. This finding comes in agreement with Haghdoost et al. (2022), who conducted a study entitled "Iranian midwives' awareness and performance of respectful maternity care during labor and childbirth" in Iran and reported that most of the studied nurses had a negative attitude regarding safety measures in the labor unit. Moreover, Rostom et al. (2021) reported in their study that more than half of the studied samples have a negative attitude toward safety measures. Similarly to the findings of Sharif et al. (2016), who showed in their study of "Knowledge, attitude, and performance of nurses toward hand hygiene in hospitals" that most of the studied sample had a negative attitude. Also, Brasaite et al. (2016), found in their study of "Health care professionals' attitudes regarding patient safety: a cross-sectional survey" that nurse had negative safety attitudes. Additionally, Alsulami et al. (2019), who mentioned in their study of "Knowledge, attitude, and practice on medication error reporting among health practitioners in a tertiary care setting in Saudi Arabia," found that most the studied nurses had an unfavorable attitude towards medication error reporting.

From the researcher's point of view, this result may be due to decreased knowledge leading to decreased understanding, decreased critical thinking skills and problem-solving abilities, and unawareness of best practices and attitudes in nursing. But when nurses have a greater understanding of evidence-based guidelines, protocols, and procedures, they are more likely to implement them in their attitudes. This can result in improved patient outcomes, increased efficiency, and an overall better quality of care.

Regarding the relationship between the personal data of the studied nurses and their total knowledge scores, there was a significant statistical relationship between the total level of knowledge of the studied nurses and all their personal data, except for courses, course type, and marital status. This finding comes in agreement with Rostom et al. (2021), who illustrated in their study that there was a highly statistical relationship between marital status, education, occupation, and experience and a statistically significant relation between total knowledge score and age, training course. These findings go in the same line with Asadollah et al. (2015), who reported in their study of "Nurses' knowledge regarding hand hygiene and its individual and organizational predictors" that work experience had a significant relationship with the satisfactory level of knowledge for nurses. From the researcher's point of view, these results mean that when nurses age, experience, and qualifications increase, their knowledge is affected.

Regarding the relationship between the personal data of the studied nurses and their total level of practice, there was no significant statistical relationship between the total level of practice of the studied nurses and all their personal data, except for position. On the contrary, these findings were inconsistent with those of Ibrahiem et al. (2018) who revealed that a significant correlation was found between both nurses' practices regarding safety measures &nursing care in the labor room in relation to their level of education (highly qualified nurse), experience, and training programpre-intervention, while a significant correlation was found between their level of education (highly qualified nurse) and experience post-intervention.

This finding was in accordance with Fashafsheh et al. (2016), who studied "Midwives and Nurses Compliance with Standard Precautions in Palestinian Hospitals" and showed that there is an association between age, education, work experience, and compliance with standard precautions. At the same time, there was no significant association between training courses and compliance with standard precautions

Regarding the relationship between the personal data of the studied nurses and their total level of attitude, there was a significant statistical relationship between the total level of attitude of the studied nurses and all their personal data, except for educational level. From the researcher's point of view, these results mean that when nurses age, experience, and qualifications increase, their level of attitude is affected.

Regarding the correlation between total level of knowledge, total level of practice, and total level of attitude, there was no significant statistical correlation between total level of knowledge and total level of practice among the studied nurses. Additionally, there was a significant statistically positive correlation between the total level of attitude and the total level of practice among the studied nurses. Moreover, there was no significant statistical correlation between the total level of attitude and the total level of knowledge among the studied nurses. From the researcher's point of view, this may be because nurses have a high level of knowledge, attitude, and practice.

Moreover, these findings disagree with those of Ibrahiem et al. (2018), who revealed that there was a significant correlation between nurses' practices and their knowledge about safety measures and nursing care in the labor room, while between nurses' practices and their knowledge about safety measures and nursing care in the labor room. Additionally, Rostom et al. (2021) reported in their study that there was a highly statistically significant relationship between total knowledge score and total practices regarding safety measures, and Al-Rafay et al. (2018) demonstrated that there was a statistically significant positive correlation between total knowledge and total practice for studied nurses regarding international patient goals.

CONCLUSION

In conclusion, based on the results of this study, it can be concluded that over half of the nurses who were examined had a fair knowledge level towards safety measures in the labor unit, over one-third had a good knowledge level of them, and a small percentage had a poor knowledge level of them. This answered the first study question, which was: What is the level of knowledge of maternity nurses regarding safety measures in the labor unit? Also, the results of the current study indicated that around three-fourths of the nurses under study had a satisfied practice level, while approximately one-fifth had a dissatisfied practice level towards safety measures in the labor unit. This answered the second study question, which is: What is the level of practice of maternity nurses regarding safety measures in the labor unit?

Furthermore, regarding safety measures in the labor unit, most of the nurses who were studied had a positive attitude, while roughly one-tenth had a negative attitude. This answered the third study question, which is: What is the level of attitude of maternity nurses regarding safety measures in the labor unit? This suggested that there is a relationship between the nurses' knowledge and satisfied clinical practice, which in turn reflects a positive attitude. Thus, the study findings answered the research questions.

RECOMMENDATIONS

1) Maternity nurses should to receive ongoing knowledge and skills towards safety measures in the labor unit as a part of their nursing care.

2) A colored, illustrated brochure is recommended to be available and distributed to all maternity nurses regarding safety measures in the labor unit.

3) Enhance the administrative support and motivation system for maternity nurses towards safety measures in labor units.

4) An information dissemination campaign should be conducted to increase maternity nurses' knowledge and improve practice towards safety measures in the labor unit.

Suggestions for future studies

- Written policies, protocols of care, and guidelines should be developed to improve the quality of nursing care rendered to pregnant women in the labor unit.
- Further research needs to be conducted on a larger sample size in different hospital settings to attain more generalized results.

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