

Determine of the Knowledge Regarding Placenta examination of Nurses/Midwives Who Taking Care of the mother at Maternity Teaching Hospital in Sulaimani City

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Abstract

Background: The placenta is made up of maternal and fetal tissue, with fetal tissue accounting for around a fifth of the placenta at term. Because the placenta reflects disease in both the mother and the fetus, it should be checked, it means accurate observation and examination of the placenta after it is expulsion for their completeness are of critical, immediate importance in the delivery room. **Aim:** To assess the level of knowledge of nurses/ midwives who were taking care of maternal during and after delivery, regarding the placenta and how to examine the placenta. **Method:** A descriptive-analytic study was applied at a Maternity Teaching Hospital in Sulaimani City, from August 2021 to December 2021. A purposive convenience sample consists of (87) nurses/ midwives who were working in the delivery room, Postpartum ward, and theater room (emergency – cold cases) with different qualifications, and years of experience. A structured interviewing questionnaire; includes two parts socio-demographic characteristics of the participant Nurses and Midwives and an assessment sheet of the nurses' knowledge regarding the placental examination. **Result:** Findings indicate that; over half, 57.5% of Nurses/Midwives who participated in the current study had inadequate knowledge, 36.8% of them had moderate knowledge and only 5.7% had adequate knowledge regarding the placenta and how to examine it. **Conclusion:** The current study concluded that the participants have poor knowledge of the structure and function of the placenta, as well as how to examine the placenta after delivery, due to a lack of continuing education programs.

Keywords: Knowledge, Placenta, Nurse/Midwives, Examination

Introduction

The placenta is a feto-maternal organ. It arises from the trophoblastic layer of the fertilized egg. It works closely with the mother's circulatory system to perform functions that cannot be performed by itself while the foetation is in the womb (Bligh et al., 2016). The placenta is a separate, distinct organ made up of both maternal and fetal components (Favaron, P. O., Carvalho, R. C., Borghesi, J., Anunciação, A. R. A., & Miglino, 2015).

The placenta develops gradually throughout the first trimester of pregnancy and then increases corresponding with the uterus during the fourth month. When finished, it will resemble a sponge disk. It is a temporary organ with the same genetic traits as a developing fetus. The placenta interacts with its surroundings and vice versa (Burton & Jauniaux, 2018). The fresh healthy placenta has a diameter of 15–20 cm and a thickness of 2.0–2.5 cm. It usually weighs between 500 and 600 grams (1/6 of the baby's birth weight). However, measures might vary greatly based on a variety of factors such as race, pathophysiology, and infant weight (Pozor, 2016).

The placenta's membranes are divided into two layers (the amnion and the chorion); the amniotic

membrane release amniotic fluid, which is breathed in and out by the fetus and acts as a sort of protection and cushion against the uterine walls (Ho, A., Chappell, L. C., Story, L., Al-Adnani, M., Egloff, A., Routledge, E., & Hutter, 2022). It also contributes to the maintenance of stable pressures and temperatures, allows for fetal development, and protects against infection. The amniotic membrane is responsible for the glossy look of this surface (Weinberg, 2021).

The chorion, a thicker membrane, lies beneath the amnion. This component of the placenta is continuous with the uterine wall lining. The villi emerge from the chorion and include a network of fetal capillaries (blood vessels) that provide for maximal contact area with the maternal blood (also known as the intervillous gap) for gas, nutrition, and waste alteration (Guttmacher, A. E., Maddox, Y. T., & Spong, 2014).

The placenta's fetal surface should be glossy, grey, and transparent, allowing the color of the underlying maroon villous tissue to be seen. Significant alterations, such as infarctions, can develop because of fibrin accumulating, and the surface might seem gritty for the reason of lime salt deposits (Cahill et al., 2018).

The maternal surface should be dark maroon and is

made up of lobules, typically 15 to 20 of which are known as cotyledons. Sulci, or deep waterways, separate them. Each lobule is divided into smaller sections, each containing one lobule (Koren, G., & Ornoy, 2018). These same villi emerge from the chorion and contain fetal capillaries that bathe in the intervillous area. Maternal veins and arteries are embedded in the decidua and finish in the intervillous area; they are also in continuous circulation with the maternal circulation (Walejko et al., 2018).

The umbilical cord serves as a key link between the fetus and the placenta. The development of the umbilical cord begins in the embryologic stage around week 3 with the production of the connecting stalk. By week 7, the umbilical cord, which consists of the connecting stalk, vitelline duct, and umbilical veins encircling the amniotic membrane, has fully developed (Hegazy, 2016).

The umbilical cord is usually 55 to 60 cm long at term, with a diameter of 2.0 to 2.5 cm, and is spirally coiled to protect the vessels. The amnion wraps around the cord vessels, which are suspended in Wharton's jelly (Bligh et al., 2016). A typical cord consists of two arteries and one vein. The cord is usually situated in the center of the fetal skin, with blood vessels flowing outwards.

The umbilical arteries and veins are the lifeline that transports blood between the developing fetus and the placenta. The fetus would be unable to acquire oxygen and other nutrients or filter out carbon dioxide, urea, and other waste materials without this link to the placenta (Sibley et al., 2018).

The placenta is a fascinating and intricate organ (Kapila, V., & Chaudhry, 2020). For one reason, no organ can compete with the placenta in terms of function variety since it executes the acts of all main organ systems while they differentiate and grow in the baby. For example, there is an astounding range of morphological variation in placental types observed throughout mammals and even lower orders (Turco & Moffett, 2019). It functions as the fetus's lungs, intestines, kidneys, and liver. The placenta also has significant endocrine functions that influence maternal physiology and metabolism while simultaneously providing a safe and protected environment for the developing child (Graham & Jauniaux, 2015).

Principal placental anomalies can have an impact on both the fetus's and the mother's health. Accordingly, examining the placenta may reveal information about the impact of maternal diseases on the fetus or the cause of preterm birth, neurodevelopmental impairment, or fetal growth limitation. The advantages of placental testing include determining the cause of various unfavorable gestational outcomes, identifying infant risk factors for a long-term neurodevelopmental sequel, and improving risk assessment for upcoming gestations (Deneux-Tharoux et al., 2013).

A careful examination is required to verify that no part of the placenta or membranes has been retained

since this might result in postpartum bleeding and/or infection. The placenta should be examined as soon as possible after birth. Every placenta, whether in the delivery room or the pathology unit, should theoretically be inspected. Any skilled staff, such as a nurse or assistant, can undertake the examination; it is not essential to be a pathologist or an obstetrician.

The initial inspection is easy and just takes a few minutes, but it is quite beneficial, particularly in situations when there are no substantial clinical signs and symptoms shortly after birth. According to (Schollenberg, E., Lee, A. F., Terry, J., & Kinloch, 2019), examining the placenta is crucial since it reflects the pathophysiology of both the mother and the baby. It can provide crucial diagnostic, prognostic, and therapeutic information, as well as possibly disclose information about future pregnancies. It may also give crucial information about any probable causes of newborn sickness or death.

Subject and methods

Design of the study

A descriptive-analytic study has been chosen, this study aimed to assess the level of knowledge of nurses/ midwives who were taking care of maternal during and after delivery, regarding the placenta and how to examine the placenta) in Maternity Teaching Hospital in Sulaimani City.

Maternity Teaching Hospital is the main and only governmental maternity teaching hospital in the area. Specializes in caring for women during pregnancy and childbirth. It also provides care for newborn babies and may serve as a clinical teaching center for midwives and obstetricians. It runs by (150) Nurses and midwives during the morning and night shifts with varying experience, qualifications, and also medical staff ranging from specialist obstetricians and consultants. Approximately 400-500 deliveries are performed per month. Physicians and midwives handle all deliveries, the midwives accounted for the backbone of the delivery room. Nurses and Midwives in the three vital departments enrolled in the present study, Labor ward, Theater rooms, and the Postpartum ward.

Sample of the study

A purposive convenience sample consists of (112) nurses/ midwives who were working in the delivery room, Postpartum ward, and theater room (emergency – cold cases) with different qualifications, and years of experience at Maternity Teaching Hospital / Sulaimani City.

A researcher interviewed those who meet the inclusion criteria. The following figure shows the steps that were taken to get the final group of samples:

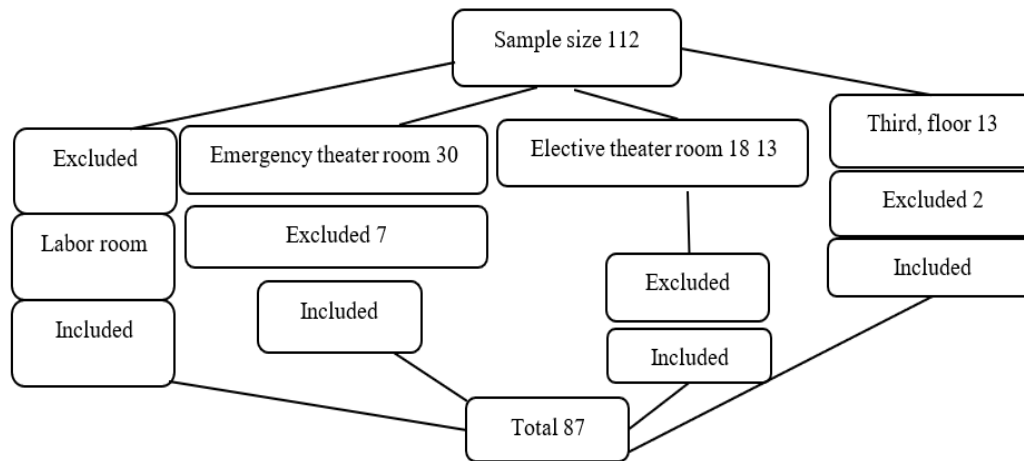


Figure (1) Flow chart shows the distribution of the study sample

Data collection instruments: The researchers created the data collecting instruments after conducting a literature analysis on the examination of the placenta.

The questionnaire addressed various variables, including socioeconomics, health conditions, and Nurses'/Midwives knowledge toward placenta examination, a structured interviewing questionnaire consisted of two parts:

▶ **Part 1** consists of closed-ended questions; it was developed to collect nurses' age, educational level, and years of experience are among the demographic features of the participants.

* The level of education of nurses and midwives is divided into 4 levels like following:

Nursing School, graduated, Secondary Nursing School, graduated, Nursing and Midwifery Institute graduated, College of nursing graduated.

▶ **Part 2** the nurses' knowledge regarding placental examination, which included the (Maternal condition for placenta examination (9 questions), Newborn indication for placenta examination (12 questions), Formation and Structure of placenta (2 questions), and characteristics of the normal placenta, as well as placental abnormalities, inform the open-ended questions (define, list and short answer), also other parts related to the main functions of the placenta.

Ethical Aspects to consider before starting the study as the following:

❖ Official authorization from the chosen settings area was gotten for the fulfillment of the current study.

❖ The purpose of the study was clarified to all nurses/midwives before using the tools to gain their certainty and trust.

❖ Oral approval was obtained from the participants of the study and privacy was assured.

❖ The data were collected and treated confidentially.

❖ Freedom to draw at any time of data collection and with no obligation.

A pilot study is conducted to test the clarity and

applicability of study tools and the time needed to fill in the questionnaire, (10) nurses were chosen. Content validity of the tools was established by submitting them to nine experts from Obstetric and gynecological nursing.

The preliminary study was done by the researcher and concluded that there were many Nurses/Midwives who should be excluded during data collection because many of them have administrative arrangement responsibilities and some of them were not available during data collection because they were permitted to give birth and some of them were affected covid-19 and they were in quarantine period.

Statistical analysis: The responses of the Nurses/Midwives' Knowledge regarding placental examination items included two answers correct answer is given 1 score and each wrong answer gives 0 scores. The calculation of overall Nurse/Midwives' Knowledge regarding placenta examination (58 items) was categorized into three groups Inadequate Knowledge (≤ 20) moderate Knowledge (21-39), and Adequate Knowledge (40-58).

Data were analyzed by using descriptive and inferential statistics. Frequency, percentage, mean, standard deviation. Once the surveys and placental data were gathered, they were entered into an excel spreadsheet and were analyzed using the SPSS software, version 22. The "Chi-square test of association" was used to evaluate the nominal distribution of data. Fisher's exact test was used in cases where the expected count of $>20\%$ of the excel cells collective achieved a score of <5 .

Results

Table (1) demonstrate the socio-demographic characteristics of a participant, more than half percent of the study sample (51.7%) their age were ≥ 40 years, and 33.4% of them were between 20-29 years old while only a few of them (14.9%) their age between 30-39 years, with mean and standard deviation of **(Mean \pm SD 36.2 \pm 10.5)**.

The results revealed that the highest proportion of the study sample (80.5%) was married, (17.2%) were single, and only (2.3%) of the participant were widowed. The findings show that educational

background of more than half (67.8 %) of Nurses and Midwives were Nursing and Midwifery Institute graduates, (25.3%) of them, had Secondary nursing school degrees, while the fewest of them graduated from Nursing school (2.3%) and College of Nursing

(4.6%). The results point out that the highest percentage (65.5%) of the participant were governmentally employed, and (35.5%) of them had a contract.

Table 1: Nurses/ midwives socio-demographic data part one:

Socio-demographic characteristics		N (87)	
		FrequencyF	Percentage%
Age of nurse and midwife (years)	20-29 years 30-39 years ≥ 40 years	291345	33.414.951.7
Mean± SD 36.2±10.5			
Marital status	Married Single Widowed	70152	80.517.22.3
Education	Nursing school graduated Secondary nursing school graduated Nursing and Midwifery Institut graduated College of Nursing graduated	222594	2.325.367.84.6
Employment	Government Employment Contract	5730	65.534.5

Table (2) demonstrate that the majority of the study sample (74.7%) didn't have an extra job in the private sector, while (25.3%) of them gave care in private hospitals. More than half (66.7%) were working the night shift, and (33.3%) of them were the morning shift. Tale 2 shows that more than half of Nurses and Midwives have done approximately 1-5 delivery in one shift, and (48.3%) of them they have done 6-10 delivery per shift. Regarding their experience in the health sector, more than half (57.5%) of the participants had >10 years of experience, and (36.8%) of them their experience was 1-10 years, while a few (5%) Nurses / Midwives had < 1-year experience. Their workplace was divided into two areas (labor room and theater room), those who had >10 years of experience in the labor room represented (21.8%) percent of the study sample, and those who had 1-10 years were the lowest (3.4%) and (13.8%) of the participant had < 1-year experience in the labor room, on the other hand, the finding of this table shows that the maximum percent

(32.2%) of Nurse/Midwives their experience in theater room were 5-10 years, while (17.2%) had < 5 years of experience and those who had >10years represent (11.5%) of the participant. The result of the present study indicates that the majority of Nurses/ Midwives (81.6%) didn't participate in any training course regarding examination of the placenta only a few of them (18.4%) have participated. Regarding the number of Nurses/Midwives who were involved in giving care to a mother, (69%) of them said 3 Nurses/Midwives were involved, and (31%) of them said 2 Nurses/Midwives were involved. Table 2 indicated that only (18.4%) of Nurses/Midwives had information regarding the placenta and how to examine the placenta, about the main source of their information about the examination of the placenta (8.1%) of them they got from personal experience, (6.9%) from academic study, and few of them (1.1%) (2.3%) from the previous training course and through their coworkers.

Table 2: Nurses/Midwives' Professional Background:

Professional Background	FrequencyF	Percentage%
Do you have an extra job (private sector)? Yes No	2265	25.374.7
Working shifts Morning shift Night shift	2958	33.366.7
The average number of delivery 1-5 Delivery 6-10 Delivery	4542	51.748.3
Years of experience as a nurse in the health sector < 1 year 1-10 years >10 years	53250	5.736.857.5
Years of experience in labor room < 1 year 1-10 years >10 years	12319	13.83.421.8
Years of experience in a theater room < 5 years 5-10 years >10 years	152810	17.232.211.5
Participation in training courses regarding the delivery of the placenta and how to examine it. Yes No If the answer is yes... The total duration of the course 1-5 days >5 days Time for last training < 1 year 1-5 years >5 years	20671648102	23.0.77.018.44.69.2 11.52.3
How many nurses/midwives are involved in giving care to a mother? 2 Nurse 3 Nurse	2760	31.069.0
Do you have information regarding the placenta examination? Yes No If the answer is yes, Source of information regarding placenta examination? Academic study Previous training course in the hospital Coworkers Personal experience	16716127	18.481.66.91.12.3 8.1

Table 3: Nurse/ Midwives Knowledge regarding placenta examination

NO.	Nurse/ Midwives Knowledge regarding placenta examination	Mean ±SD
1.	Maternal condition	3.96±2.80
2.	Newborn indication for placenta	4.88±3.49
3.	Formation of placenta	0.89±0.77
4.	Structure of placenta	7.40±5.34
5.	Function of placenta	2.13±1.38

Overall knowledge		
	F	%
Inadequate knowledge	50	57.5
Moderately knowledge	32	36.8
Adequate knowledge	5	5.7

Table (4) findings indicate that only 5.7% of study had adequate knowledge regarding the Nurses/Midwives who participated in the current placenta and how to examine it.

Variables	N=87						Total	
	Inadequate knowledge		Moderately knowledge		Adequate Knowledge		F	%
	F	%	F	%	F	%		
Age 20-29 years 30-39 years ≥ 40 years	15926	51.769.2 57.8	12317	41.423.137.8	212	6.97.74.4	291345	100
P. value 0.0001 Highly Significant df= 4								
Marital status Married Single Widowed	4361	61.440.0 50.0	2381	32.953.350.0	410	5.76.70	7015 2	100
P. value 0.003 Significant df=6								
Education Nursing school graduated Secondary nursing school , graduated Nursing and Midwifery Institute, graduated College of Nursing graduated	21533 0	10068.2 56.90	07232	031.839.725.0	0023	003.475.0	22258 5	100
P. value 0.0001 Highly Significant df= 2								
Employment Government Employment Contract	3416	59.655.2	2012	35.137.9	32	5.36.9	5730	100
P. value 0.124 Not Significant df= 4								

Table (5) the result shows that there was a highly significant (P. value 0.000) association between Nurses/Midwives' overall knowledge with their age and significantly with marital status (P. value 0.003), but there was no significant association between employment and overall knowledge

Table 6 demonstrates that statistically highly significant (P. value 0.002) association between working in a private hospital with the overall knowledge, and a significant association with their knowledge and working shift (P. value 0.029), the finding shows that no significant association with an average number of delivery which they have done

per one shift and they are overall of knowledge. In addition, the current study indicates that there was a highly significant association (P. value 0.0001) between the Nurse's/Midwives' experience in the health sector, labor room, and theater room and overall of their knowledge. On the other hand, there was no significant association between the study sample's participation in the training course with their knowledge, according to the results. There were statistically significant associations between the number of nurses who give care to mother and their information about the placenta and how to examine it with overall knowledge.

Variables	N=87						Total	
	Inadequate knowledge		Moderately knowledge		Adequate Knowledge		F	%
	F	%	F	%	F	%		
Do you have an extra job (privet sector)? Yes No	1040	45.561.5	12 20	54.530.8	05	07.7	2265	100
P. value 0.002 Highly Significant df= 2								
Working shifts Morning shift Night shift	1634	55.258.6	1220	41.434.5	14	3.46.9	1958	100
P. value 0.029 Significant df=2								
The average number of delivery 1-5 Delivery 6-10 Delivery	2525	55.659.5	1913	42.231.0	14	2.29.5	4542	100
P. value 1.000 Not Significant df= 2								
Years of experience as a nurse in the health sector < 1 years 1-10 years >10 years	121919	60.055.957.6	6141 2	30.041.2 36.4	212	10.02.96.1	203433	100
P. value 0.0001 Highly Significant df=4								
Years of experience in labor room <1 year 1-10 years >10 years	20152	54.140.55.4	222	33.333.333.3	370	30.070.00.0	25244	100
P. value 0.0001 Highly Significant df= 4								
Years of experience in the theater room <5 years 5-10 years >10 years	1011	83.38.38.3	310	75.025.0 0	1260	66.733.30	2581	100
P. value 0.0001 Highly Significant df= 4								
Participation in training courses regarding the delivery of the placenta and how to examine it. Yes No	1832	48.664.0	1616	43.232.0	32	8.14.0	3750	100

Table 6: The relationship between Nurses/Midwives' Professional Background with the level of knowledge								
P. value 0.312 Not Significant df= 4								
How many nurses/midwives are involved in giving care to a mother? 1 Nurse 2 Nurse	1832	66.753.3	824	29.640.0	14	3.76.7	2760	100
P. value 0.02 Significant df= 2								
Do you have information regarding the placenta examination? Yes No	3713	52.181.3	293	40.618.8	50	7.00	7116	
P. value 0.009 Significant df= 6								

Discussion

As nursing care is the main critical component of therapy in the labor unit, Nurses' Knowledge deficit and poor manipulation of the third stage of labor surely will interfere with their ability to achieve positive pregnancy care outcomes. Therefore, this study aimed to determine the Nurse's/ Midwives' knowledge regarding placenta examination.

Eighty-seven Nurses/ Midwives were participate in this study. The Mean age of participants was (Mean \pm SD 36.2 \pm 10.5), the research outcomes specified the age distribution of the respondents while revealing that the highest age group is (\geq 40) years which made up (51.7%) of the secondary age category (20-29) years which constituted (33.4%). It also indicated that older nurse midwives made up the majority of the other groups. This distribution is approximately close to the results of A quasi-experimental study done by (El-Khawaga, D. S. A. E. Y., Ahmed, M. H., & Elwelely, 2019) in which the mean age of their participants was (33.72 \pm 9.894).

Our findings indicate that more than half of Nurses/Midwives 51.7% work in the delivery and theaters room, in middle age and above, the policy of the hospital supports them because according to their ages they have a good experience, regarding difficult labor.

The findings show that the educational background of more than half (67.8 %) of Nurses and Midwives were Nursing and Midwifery Institute graduates, the same result as the previous study done by (Muzeya & Julie, 2020), most of the respondents (84.5%, n = 84) reported their primary level qualification into the midwifery year of study as an education degree, with a Diploma in Nursing, in contrast to our findings, a descriptive cross-sectional study was done in Narayana Medical College and Hospital to assess the Knowledge regarding the assessment of placenta among staff nurses and nursing students they concluded that (93.34%) studied B.Sc Nursing (Ahmed et al., 2018).

The descriptive study concluded that less than half (47.3%) of the study sample have 6 – 10 years of experience, these results disagree with the finding of the current study, which illustrates that more than half (57.5%) of the participants had >10 years of experience, in the other hand A quasi-experimental study was done by (Abd-Allah, N., Nasr, E., & Hassan, 2017) among 30 nurses in all general hospitals in Port Said city, indicated that (56.6%) of nurses they had less than 10 years of experience in

the health sector. Maternity Teaching Hospitals have governmental and contract Nurses/midwives, 65.5% of the study sample were government employees, contracts they were newly graduated mostly from an institute, and they should be assistants to the old Nurses/Midwives in giving care to mothers.

It is obvious, from those Eighty-seven Nurses/ Midwives, a quarter of 25.3% was working in the private sector, plus the public sector, also this is in the same line with the previous study done by (Ahmed et al., 2018) that 36.7% of the study sample work in a private hospital. Moreover, The existing study discovered a statistically significant link between working in a private hospital and overall knowledge. This result implies that if they have good knowledge and are improving their performance in the public sector, it will be reflected in the private sector because the same Nurses/Midwives are providing healthcare in both.

The current study indicates that only 23% of nurses and midwives participated in the training courses to improve their knowledge and practical performance; there was no significant association between the study sample's participation in a training course with their overall knowledge. our finding is much better than the quasi-experimental study done by (Mohamed Abd Elhakm & Mostafa Elbana, 2018), which concluded that only 10.8% of the study sample participated in the training courses (n=55).

The findings show that the participants have poor knowledge of the structure and function of the placenta, as well as how to examine the placenta after delivery, due to a lack of continuing education programs. On the other hand, the Maternity Teaching Hospital is the only governmental hospital in the area and has a large number of patients who put a huge strain on the nurses and midwives, lowering the quality of healthcare. This result is not consistent with a descriptive cross-sectional study which concluded that the majority of study samples had moderate knowledge regarding assessing the placenta (K., 2018).

The current finding indicates that there was a highly significant relationship between Nurses'/Midwife age and marital status and their overall knowledge, implying that the majority of them seem to have poor knowledge and follow traditional performance so even though they lack the authority to forward their education.

Because nurses are the largest group of healthcare workers and are accountable for the quality of care provided to patients, their perspectives on the

success of their treatment are critical; they should have a diverse set of holistic skills, and evidence of nursing interventions is available. To determine the efficacy of therapy, they should also consult with other health professionals. They should also have the fundamental information and abilities to provide safe care, as well as be properly trained in practical and technical procedures to be able to use this knowledge. This study suggests that to carry out placenta examination skills effectively, regardless of the training program used, clinical nurses should undergo retraining every 6 months.

Otherwise, more than half of the participants had >10 years of experience in labor and delivery service, but unfortunately, the majority of the nurses/midwife had a knowledge deficit concerning the placenta examination.

Conclusion

The findings of the current study concluded that the participants have poor knowledge of the structure and function of the placenta, as well as how to examine the placenta after delivery and follow traditional performance also; the finding indicates that there was a highly significant relationship between Nurse/ Midwife's age and their overall knowledge.

Recommendation

Based on these findings, there should be an aforesight effort to upgrade nurse's/midwives' knowledge and performance and develop a plan for continuing education programs every six months to improve their clinical skills.

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