

Nurses' compliance with guidelines for the reduction of postpartum hemorrhage

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Abstract: Postpartum hemorrhage is the single most important cause of maternal death that accounting for about 27% of all maternal deaths and it is responsible for 19.7 % of all maternal death in Egypt. The study aimed to assess nurses' compliance with guidelines for reduction of postpartum hemorrhage during third stage of labor and early postpartum period. **Design & Settings:** A descriptive exploratory research design was conducted at labor and postpartum units in three governmental maternity hospitals in Alexandria namely: El-Shatby Maternity Hospital; Dar El - Walada Hospital and Dar - Ismaeel Hospital **Subjects:** All nurses working at the previously mentioned settings were included in the study. **Tools:** Three tools were used to collect the necessary data: Socio-Demographic Structured interview schedule; Postpartum Hemorrhage Questionnaire and nurses' compliance to guidelines for reduction of postpartum hemorrhage observational checklist. **RESULTS:** The majority of nurses were fairly compliant with guidelines for reduction of post partum hemorrhage, while an equal proportion (3.7%) of them was either good or poor complaint with the guidelines. However, that no statistical significant relationship was found between nurses' knowledge and their compliance. **Conclusion:** It can be concluded that all nurses were fairly compliant with guidelines for reduction of post partum hemorrhage. **Recommendations:** Providing nurses with an instructional booklet regarding postpartum hemorrhage to enhance their knowledge and practices with periodic participation of nurses in training programs about postpartum hemorrhage to improve their knowledge, skills and ensuring from their compliance with guidelines for reduction of postpartum hemorrhage.

Keywords: compliance -postpartum hemorrhage.

1. INTRODUCTION

The postpartum period, or puerperium, starts about an hour after the delivery of the placenta and includes the following six weeks. Postpartum care should respond to the special needs of the mother and baby during this special phase and should include the prevention and early detection and treatment of complications and disease ⁽¹⁾. Birth is also a critical time for the health of the mother and her baby. Problems may arise that, if not treated promptly and effectively can lead to ill-health and even death for one or both of them. Nonetheless, the postpartum period is often neglected by maternity care. The lack of postpartum care ignores the fact that the majority of maternal deaths and disabilities occur during the postpartum period and that early neonatal mortality remains high ⁽²⁾.

Postpartum hemorrhage (PPH) is the single most important cause of maternal death that accounting for about 27% of all maternal deaths, and it is responsible for 19.7 % of all maternal death in Egypt ^(3,4). PPH is defined as blood loss of more than 500 mL following vaginal delivery or more than 1000 mL following cesarean delivery. A loss of these amounts within 24 hours of delivery is termed early or primary PPH, whereas such losses are termed late or secondary PPH if they occur 24 hours after delivery ⁽⁵⁾. It is a frequent complication of delivery and its incidence is commonly reported as 2% - 4% after vaginal delivery and 6% after cesarean section with uterine atony being the cause in about 50% cases⁽⁶⁾. The majority of these deaths occur within 4 hours of delivery, which indicates that they are a consequence of the third stage of labor ⁽⁷⁾.

In Egypt, Maternal mortality declined substantially during 1990–2015, from 106 to 33 deaths per 100,000live births, according to estimates from successive Egyptian Demographic and Health Surveys ⁽⁸⁾. Two national maternal mortality

surveys, conducted in 1992–1993 and in 2000–2001, both found that about 30% of all maternal deaths were caused by PPH due to substandard care, delay in recognizing the condition, poor antenatal care and a lack of supplies including blood⁽⁹⁾.

Risk factors of PPH are clearly documented, not all cases are expected or avoidable. Uterine atony is responsible for most cases and can be managed with uterine massage in conjunction with oxytocin, prostaglandins, and ergot alkaloids⁽¹⁰⁾. Retained placenta is a less common cause and requires examination of the placenta, exploration of the uterine cavity, and manual removal of retained tissue. Rarely, an invasive placenta causes postpartum hemorrhage and may require surgical management. Traumatic causes include lacerations, uterine rupture, and uterine inversion. Coagulopathies require clotting factor replacement for the identified deficiency⁽⁷⁾. Early recognition, systematic evaluation and treatment, and prompt fluid resuscitation minimize the potentially serious outcomes associated with postpartum hemorrhage.

Complications from PPH include orthostatic hypotension, anemia, and fatigue, which may make maternal care of the newborn more difficult. Post-partum anemia increases the risk of post-partum depression⁽¹¹⁾. Blood transfusion may be necessary and carries associated risks. In the most severe cases, hemorrhagic shock may lead to anterior pituitary ischemia with delay or failure of lactation (i.e., postpartum pituitary necrosis)⁽¹²⁾. Occult myocardial ischemia, dilutional coagulopathy, and death also may occur.

The best preventive strategy is active management of the third stage of labor. Hospital guidelines encouraging this practice have resulted in significant reductions in the incidence of massive hemorrhage⁽¹⁰⁾. Active management is the combination of an uterotonic administration (preferably oxytocin) immediately upon delivery of the baby, late cord clamping and cutting, gentle cord traction with uterine contraction when the uterus is well contracted (ie, Brandt-Andrews maneuver)⁽¹³⁾ and examination of placenta and membranes for completeness and examination of utero-vaginal canal and perineum for trauma and prompt repair if present⁽¹⁴⁾. Every attendant at birth needs to have the knowledge, skills, and critical judgment to carry out active management of the third stage of labor, as well as access to required supplies and equipment⁽¹⁰⁾.

Many health organizations including the Ministry of Health and Population have spearheaded efforts to reduce maternal mortality and PPH as a cause of maternal deaths. This national priority includes focusing on expanding health services to increase access to skilled routine and emergency obstetric care, implementing a prenatal surveillance program, which helps to monitor the quality and frequency of antenatal care visits and implementing active management of third stage of labor⁽¹⁵⁾.

Labor and postpartum nurses play a pivotal role in prevention, early recognition and management of PPH especially in the third stage of labor and early postpartum period through proper management of third stage and careful observation of the mother in the early postpartum period. Careful observation of the mother in the early postpartum period includes recording pulse and blood pressure every 15 minutes, palpating uterus every 15 min to ensure that it is well contracted, checking temperature every 4 hours, examination of lochia for amount and consistency, regular evacuation of urinary bladder, Intake and output chart, relieving mother anxiety by explaining her condition and management, administration of prophylactic antibiotic prescribed considering the risk for infections and initiation of breast feeding^(14,16).

Since all parturient women are at risk for PPH, It could therefore, be concluded that the Ministry of Health and Population in Egypt recognize the importance of implementation of PPH preventive measures, its impact on maternal morbidity and mortality and care provider specially nurses must be up to date in their knowledge and be careful to learn all practical procedures following guidelines related to medication administration and PPH-reducing practices⁽¹⁷⁾. Therefore, the present study **aims to** assess nurses' compliance with guidelines for reduction of postpartum hemorrhage .

2. MATERIALS AND METHOD

Materials

Research question:

To what extent do nurses comply with guidelines for the reduction of postpartum hemorrhage?

Operational definition:

Postpartum hemorrhage in the current study refers to hemorrhage which occurs in the third stage of labor and during the first 24 hours after delivery of placenta and membranes.

Design:

A descriptive exploratory research design was utilized in this study.

Settings:

The study was conducted at labor and postpartum units in three governmental maternity hospitals in Alexandria including El-Shatby Maternity Hospital (University Hospital); Dar El - Walada Hospital (Medical Care Organization) and Dar - Ismaeel Hospital (Ministry of Health and population).

Subjects:

All nurses working at the previously mentioned settings and providing direct care for laboring and postpartum women, 80 nurses were included in the study (51 in labor and delivery departments & 29 in post partum departments).

Tools:

Three tools were used to collect the necessary data as follow:

Tool I: Socio-Demographic Structured interview schedule:

This tool was developed by the researchers to collect basic data about the study subjects which included the following two parts:

a. Part I: Socio-demographic data such as: age, marital status, level of education, working setting, employment position, department, years of experience and daily working hours.

b. Part II: Postpartum hemorrhage training programs such as: number of programs, time since last training programs (years), agency provided training programs.

Tool II: Postpartum Hemorrhage Questionnaire:

A self administered questionnaire was designed by the researchers after extensive review of recent & relevant literature to assess nurses' level of knowledge about post partum hemorrhage. It entailed a total of 56 closed questions regarding third stage of labor and postpartum period (18); postpartum hemorrhage (18); nurses' role in third stage of labor (11); and nurses' role in early postpartum period (9). Nurses' response was varying between: incorrect answer (1), correct but incomplete (2) and correct and complete (3).

The total score ranged between 56 and 168. Nurses' level of knowledge ranked as follows: poor for a total score of less than 94, fair for a total score ranged from 94 to less than 132 and good for a total score of 132 or more.

Tool III: Nurses' compliance to guidelines for reduction of postpartum hemorrhage observational checklist:

An observational checklist was adopted by the researchers from WHO guidelines and ministry of health guidelines in Egypt for reduction of primary postpartum hemorrhage during third stage of labor and early postpartum period^(12,18). It included items to assess nurses' compliance with guidelines for reduction of primary postpartum hemorrhage. It contained 21 items grouped into two main sections as follow: Nurse's compliance during third stage of labor (8 items) and nurse's compliance during early postpartum period (N=13). Nurses' compliance with each item of the guidelines was scored as: completely done (3); incompletely done (2) and not done (1).

The total score ranged between 21 and 63 and nurses' compliance with guidelines for reduction of primary postpartum hemorrhage were ranked as follows: poor compliance for a total score of less than 35; fair compliance for a total score of 35 to less than 49 and good for a total score of 49 or more.

Method**The study was executed according to the following steps:****1- Approvals:**

Official letter from the Faculty of Nursing -University of Alexandria was directed to the responsible authorities of the previously mentioned research settings to obtain their permission to conduct the study and collect the necessary data after explanation of research purpose.

2- Tools used:

- Tools I and II were developed by the researchers after an extensive review of recent & relevant literature,. Tool III was adopted by the researcher from WHO guidelines and ministry of health guidelines in Egypt for reduction of primary postpartum hemorrhage, it was adopted to assess nurses' compliance with guidelines for reduction of primary postpartum hemorrhage.
- Tools were tested for content validity by a jury of five experts in the field. Its reliability was tested by test-retest technique.

3- Pilot study:

A pilot study was carried out on 8 nurses from the previously mentioned settings, who were excluded from the study sample. It was performed to detect the applicability, assure clarity the tool and estimate the needed time to collect the data. After the pilot study, necessary modifications were done.

4- Consent:

The purpose of the study was explained to each nurse, and then securing the subject's informed written consent, witness consent from head nurses, keeping her privacy and right to withdraw at any time as well as assuring confidentiality of her data.

5- Collection of data:

- Collection of data was done after explanation of the purpose of the study to each nurse, and then securing the subject's informed written consent.
- The researchers observed nurses' practices during the third stage of labor and early postpartum period to assess their level of compliance with the guidelines using the observational checklist (tool III). The average time needed to complete observation during third stage of labor ranged between 10-30 minutes according to duration of third stage of labor, observation during early postpartum period start from admission of woman to postpartum department.
- After completing the observations by using tool III, tools I was completed with an individual interview with each nurses and II was distributed to be filled by nurses involved in providing direct women care during labor and early postpartum period at the break time to assess their knowledge about postpartum hemorrhage. The average time needed to complete the questionnaire ranged between 20-30 minutes depending upon the degree of understanding and response of the questionnaire sheet.
- Collection of data covered a period of 5 months from February to end June 2019, average 4-6 sheets/day from labor or postpartum nurses.

6- Statistical analysis:

Analysis of data was carried out using Statistical Package for Social Sciences (SPSS) version 20. The collected data were categorized, coded, computerized, tabulated and analyzed. Frequency and distribution were used for describing and summarizing categorical data. Cross tabulation with percentages were used to explore relationships between variables. An appropriate test such as Chi-square at 0.05 level of significance was used.

3. RESULTS

Table (1) reveals that less than half (45.0%) of nurses were in their twenties with a mean of 34.9 ± 11.01 years old. About two-thirds of them (62.5%) had a diploma level, 26.3% & 11.2% of them had technical and Bachelor degree respectively. Less than two-third (63.8%) of nurses are working in labor department while more than one-third (36.2%) of them are working in postpartum department. Nurses' mean year of experience was 14.70 years Nurses' mean daily working hours was 9.24 hours where about two-thirds (66.2%) of them were working more than or equal 8 hours daily . According to table (2), a large proportion of the studied nurses (82.5%) did not participate in any training programs related to postpartum hemorrhage while the rest of them (17.5%) had attended training programs either within one year ago (71.4%) or since one year ago or more. Figure (1) explicates that about two-thirds (66.2%) of nurses had good total knowledge score about their role in reduction of postpartum hemorrhage.

Regarding nurses' compliance with guidelines during third stage of labor, table (3) illustrates that nurses were completely compliant with comparing name of oxytocic's with woman's sheet to ensure correct name and giving oxytocics according to physician's order after delivery of fetus while late cord clamping (performed 1 to 3 minutes after birth) was completely done by only (6.5%) of nurses. Early cord clamping (<1 minute after birth) was completely done by more than one-quarter (28.3%) of nurses while not applicable by the remaining (71.7%) of them. The table also clears that controlled cord traction with support of the uterus for delivery of placenta was completely done by slightly more than one-quarter (26.1%) of nurses and incompletely done by less than three-quarters (73.9%) of them. About two-thirds (63%) of nurses were incompletely compliant with avoidance of fundal pressure to assist the delivery of the placenta. Examination of placenta and membranes for completeness was completely done by slightly more than one-quarter (26.1%) of nurses while examination of utero-vaginal canal and perineum for trauma and prompt repair if present was completely done by the all nurses included in the study.

Concerning nurses' compliance with guidelines during early postpartum period table (4) denotes that nurses were incompletely compliant with recording vital signs as (pulse and blood pressure) every 15 minutes (74.1%); putting mother in a comfortable position after delivery with avoidance of supine position (25.9%); assessment of fundal level, consistency, position and shape every 15 minute after (100%); examination of lochia for amount and consistency (77.8%); encouraging mother to evacuate urinary bladder regularly (40.7%); checking temperature every 4 hours; charting intake and output (55.6%) and initiation of breast feeding after delivery (48.1%). On the other hand, all nurses (100%) were completely compliant with administration of prophylactic antibiotic prescribed by physician and notifying observations to the physician.

Finally, figure (2) shows that majority of nurses (92.6%) were fairly compliant with guidelines for reduction of post partum hemorrhage, while an equal proportion (3.7%) of them was either good and poor compliant with the guidelines. However, table (5) illustrates that no statistical significant relationship was found between nurses' knowledge and their compliance ($\chi^2 = 8.577$) ($p = 0.390$).

4. DISCUSSION

A postpartum period is the period beginning immediately after the birth of a child and extending for about six weeks and it is the most critical, important period. Nurses and midwives play a pivotal role in prevention and management of PPH especially in the third stage of labor and early postpartum period⁽¹⁹⁾.

On examining nurses' compliance with guidelines during third stage of labor, The present study clarified that less than three-quarters of the current study subjects performed early cord clamping (<1 minute after birth) while the minority performed late cord clamping (performed 1 to 3 minutes after birth) and this is in agree with the results of Oladapo T et al, (2009)⁽²⁰⁾ and also it is consistent with the results of Oyetunde M and Nkwonta C (2015)⁽²¹⁾ study titled "Assessment of Midwives' Competence in Active Management of Third Stage of Labor in Primary Health Centres in Anambra State, Nigeria". Who found that the majority of study subjects performed early cord clamping. This similarity may be attributed to that nurses in these three studies have neglected updating their knowledge and not implemented the recommendations of the American College of Obstetricians and Gynecologists (ACOG) 2017⁽²²⁾ which recommend a delay in umbilical cord clamping in vigorous term and preterm infants for at least 1 minute after birth and this has the benefit of increasing iron stores and decreasing anemia, which is especially important in preterm infants and in low-resource settings and preventing postpartum hemorrhage.

The current study showed that less than three-quarters of the study nurses didn't perform controlled cord traction with uterine support, this is attributed to the fact that most of controlled cord traction was done by physician. This is in contrast to the result Oladapo T et al,⁽²⁰⁾ who found that the more than two-thirds of the study subjects performed it completely and also in contrast the present study, Yaekob R and Henok⁽²³⁾. A study which found that controlled cord traction was completely done by the majority of the study subjects as they interested with performance of nurses. This may be due to lack of regular training courses and session about active management of third stage of labor.

Less than three-quarters of the current study subjects didn't examine placental and membranes completely. This result is not in accordance with findings of Oyetunde M and Nkwonta C⁽²¹⁾, Yaekob R and Henok A⁽²³⁾, Muzey F⁽²⁴⁾, Elfaki B⁽²⁵⁾ and Faiza A⁽²⁶⁾ and where the majority of subjects in these five studies examine placental and membranes completely. This discrepancy is

attributed to the fact that placental examination was mostly done by physicians in the current study and they are not a part of our sample size and the subjects in the present study are nurses only. Similar to the findings of the current study the findings of **Ahmed A** ⁽²⁷⁾ who found that the majority of study subjects didn't examine completely to placenta and membranes. This may be attributed to nurses' overload, where they are assigned to a large number of mothers.

Regarding nurses' compliance with guidelines during early postpartum period, it was observed that assessment of fundal level every 15 minute after delivery was incompletely done by all the current study postpartum nurses, and this disagrees with the result of **Yaekob R and Henok A** ⁽²³⁾ study who found that it was done with majority of study subjects. This is attributed to shortage of nurses.

Concerning examination of lochia for amount and consistency in early postpartum period, the current study showed that most of the study nurses didn't do it completely and these are similar to the findings of the current study, the findings of **Ahmed A** ⁽²⁷⁾ who found that the majority of study subjects didn't examine completely to lochia for amount and consistency in early postpartum period while these findings is not agree with studies of **Yaekob R and Henok A** ⁽²³⁾, **Elfaki B** ⁽²⁵⁾ and **Faiza A** ⁽²⁶⁾ which found that examination of lochia for amount and consistency in early postpartum period were completely done by the majority of the student subjects in these studies. This may be related to pressure of the work and increased number of cases according to number of nurses and shortage of staff.

In relation to postpartum uterine massage, it was observed that it was not done by most of the current study subjects, this could be attributed to the fact that uterine massage in the current study was done only in case of uterine atony as it is first choice in management of uterine atony while it was done by the majority of study subjects to all postpartum woman in the study of **Oyetunde M and Nkwonta C** ⁽²⁸⁾.

Unfortunately less than three-quarters of the present study subjects did not put postpartum woman in comfortable position and this result similar to result of **Bulndi B et al, (2017)** ⁽²⁹⁾ study titled "Knowledge and Management of Post-Partum Hemorrhage Among Skilled Birth Attendants in Primary Health Centers of Jos North LGA, Plateau State" who found that the majority of the present study subjects did not put postpartum woman in comfortable position.

The present study clarified that nurses had obtained fair total score of compliance with guidelines of reduction of postpartum hemorrhage. The result of the present study matches study done by **Oluwaseun R (2015)** ⁽³⁰⁾ study titled "assessment of midwives on active management of third stage of labour in osogbo, nigeria" and also similar to **Ahmed A (2016)** ⁽²⁷⁾. Their results had indicated that the majority of study subjects had obtained fair total score of compliance. This may be attributed to many causes, which include: the lack of guidelines, shortage of staff and inadequate training about prevention of PPH. These training programs are very important to improve nurses' performance and increase awareness about their role in preventing and reducing postpartum hemorrhage.

The finding of the current study indicated that no statistical significant difference was found between level of nurses' knowledge and their compliance with guidelines of reduction of postpartum hemorrhage. The current finding is not consistent results of **Oluwaseun R** ⁽³⁰⁾ study who found that there was positive significant relationship between knowledge and practices. This finding was not expected since elder nurses or longer years of experience where supposed to have better knowledge and good compliance but lack of training programs and absence of postpartum hemorrhage preventing guidelines to be followed may be the reasons for obtained fair total score of knowledge and compliance. Health care providers specially nurses must be up to date in their knowledge and be careful to compliance to reduction of postpartum hemorrhage.

5. CONCLUSION

It can be concluded that all nurses were fairly compliant with guidelines for reduction of post partum hemorrhage.

6. RECOMMENDATIONS

- Providing nurses with an instructional booklet regarding PPH to enhance their knowledge and practices.
- The nursing curriculum should be revised and updated to include guidelines about caring of postpartum hemorrhage.
- Periodic participation of nurses in training programs about PPH to improve their knowledge, skills and ensuring from their compliance with guidelines for reduction of PPH.

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APPENDICES-A

Table (1): Distribution of the studied nurses according to their socio-demographic characteristics

Socio- demographic characteristics	No.(80)	%
Age		
<20-	36	45.0
30-	21	26.3
≥40	23	28.7
Min. – Max.	19.0 – 60.0	
Mean ± SD.	34.9 ± 11.01	
Level of education		
Diploma	50	62.5
Technical	21	26.3
Bachelor	9	11.2
Employment position		
Staff nurse	71	88.8
Supervisor	9	11.2

Department		
Labor	51	63.8
postpartum	29	36.2
Years of experience		
<15	44	55.0
15 –	18	22.5
25 –	14	17.5
≥35	4	5.0
Min. – Max.	0.33 – 40.0	
Mean ± SD.	14.70 ± 10.15	
Daily working hours		
<8	27	33.8
≥8	53	66.2
Min. – Max.	6.0 – 12.0	
Mean ± SD.	9.24 – 2.37	

Table (2): Distribution of the studied nurses according to their participation in postpartum hemorrhage training programs

Postpartum hemorrhage training programs	No.(80)	%
Training programs		
No	66	82.5
Yes	14	17.5
Time since last training program (years)		
<1 year	10	71.4
≥1 year	4	28.6
Min. – Max.	0.04 – 2.0	
Mean ± SD.	0.83 ± 0.66	
Agency provided training program/s		
EL-ShatbyMaternity University Hospital	14	100.0
Other	0	0

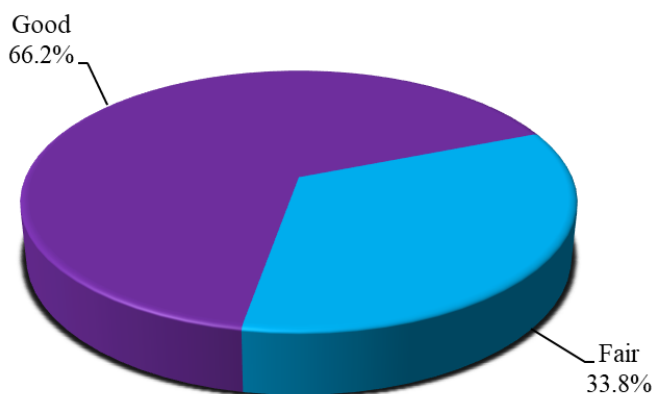


Figure (1): Distribution of the studied nurses according to their total knowledge score regarding their role in reduction of postpartum hemorrhage (n=80)

Table (3): Distribution of nurses' compliance with guidelines during third stage of labor

Nurses practices during third stage of labor	n= 51							
	Complete done		Incomplete done		Not done		NA	
	No.	%	No.	%	No.	%	No.	%
Comparing name of Oxytocic's with woman's sheet	46	100	0	0.0	0	0.0	0	0.0
Giving Oxytocics according to physician's order	46	100	0	0.0	0	0.0	0	0.0
Late cord clamping (performed 1 to 3 minutes after birth).	3	6.5	10	21.7	33	71.7	0	0.0
Early cord clamping (<1 minute after birth) (in acase of asphyxia)	13	28.3	0	0.0	0	0.0	33	71.7
Controlled cord traction with uterine support	12	26.1	34	73.9	0	0.0	0	0.0
Avoidance of fundal pressure	17	37.0	29	63.0	0	0.0	0	0.0
Examination of placenta and membranes	12	26.1	34	73.9	0	0.0	0	0.0
Examination of utero-vaginal canal and perineum	46	100	0	0.0	0	0.0	0	0.0

N.B: 5 nurses without observation.

Table (4): Distribution of nurses' compliance with guidelines during early postpartum period

Nurses practices during early postpartum period	(n=29)							
	Complete done		Incomplete done		Not done		NA	
	No.	%	No.	%	No.	%	No.	%
Record pulse and blood pressure every 15 minutes.	0	0.0	20	74.1	7	25.9	0	0.0
Putting mother in a comfortable position after delivery with avoidance of supine position.	1	3.7	7	25.9	19	70.4	0	0.0
Assessment of fundal level, consistency, position and shape every 15 minute after delivery.	0	0.0	27	100	0	0.0	0	0.0
Slight uterine massage in case of uterine atony.	6	22.2	0	0.0	0	0.0	21	77.8
Examine lochia for amount and consistency.	5	18.5	21	77.8	1	3.7	0	0.0
Encourage mother to evacuate urinary bladder regularly.	3	11.1	11	40.7	13	48.1	0	0.0
Check temperature every 4 hours.	0	0.0	11	40.7	16	59.3	0	0.0
Intake and output chart.	12	44.4	15	55.6	0	0.0	0	0.0
Immediate initiation of breast feeding after delivery.	14	51.9	13	48.1	0	0.0	0	0.0
Administration of prophylactic antibiotic prescribed by physician.	27	100	0	0.0	0	0.0	0	0.0
Relieve anxiety by explaining her condition and management.	0	0.0	3	11.1	24	88.9	0	0.0
Encourage mother for early ambulation.	0	0.0	0	0.0	27	100	0	0.0
Observations notified to the physician.	27	100	0	0.0	0	0.0	0	0.0

N.B: 2 nurses without observation



Figure (2): Number and percent distribution of the studied nurses according to their total compliance with nurse's role in reduction of postpartum periods

Table (5): Relationship between overall total compliance score and overall total knowledge score

Total knowledge score	Total compliance score						χ^2	P
	Poor (n = 1)		Fair (n = 71)		Good (n = 1)			
	No.	%	No.	%	No.	%		
Poor <94	0	0.0	1	1.4	0	0.0	8.577	0.390
Fair 94 - <132	1	100.0	56	78.9	0	0.0		
Good =>132	0	0.0	14	19.7	1	100.0		

χ^2 , p: χ^2 and p values for Chi square test

^{MC}p: p value for Monte Carlo for Chi square test

*: Statistically significant at $p \leq 0.05$

N.B: 7 nurses without observation.