

## Competence of Midwives Regarding Prevention of Postpartum Hemorrhage in Maternity Hospitals - Sudan 2017

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### Introduction

Postpartum hemorrhage is the major cause of maternal mortality worldwide. Maternal death from obstetrical hemorrhage in the Sudan contributed to 31.2% of the reported maternal mortality cases in 2015. **The aim** of this study was to assess the competence of midwives regarding prevention of postpartum hemorrhage. **Methods:** The study is a descriptive cross-sectional hospital-based study conducted at three maternity hospitals (Omdurman Maternity Teaching Hospital, Omdurman New Saudi Hospital and Sa'ad Abuelella University Hospital) (80 midwives were enrolled in the study. The data were collected by using a questionnaire and an observation checklist, and then they were processed by using the Statistical Package for Social Sciences (SPSS) – version (16), and presented in simple frequency tables, figures and cross tabulation.

**Results:** this study found out that: (41.7%) of the respondent midwives had poor knowledge regarding the prevention of postpartum hemorrhage; there is significant relationship between the knowledge of midwives about management of postpartum hemorrhage and their age, years of experience, and qualification ( $p$  value=0.001, 0.003, and <0.00.1 respectively); (48.8%) of the respondent midwives had good practice on the prevention of postpartum hemorrhage.

**Conclusions:** more than forty percent of midwives had poor knowledge; and more than half of them had poor practice, on the prevention of postpartum hemorrhage.

**Key words:** Postpartum, Midwives, Hemorrhage, Maternal mortality, Competence.

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## المستخلص

خلفية : يعتبر نزيف مابعد الولادة من الحالات الطارئة والاكثر خطورة التي تواجه القابلة وهو أحد الاسباب التي تزيد من معدل الامراض والوفيات فى العالم، وتبلغ نسبة الوفيات من نزيف مابعد الولادة فى السودان ٣١,٢% حسب تقرير عام ٢٠١٥ لوفيات الأمهات.

الاهداف : تهدف الدراسة الى تقييم كفاءة القابلات في الوقاية من نزيف مابعد الولادة .

منهجية البحث : إن الدراسة الحالية هي عبارة عن دراسة وصفية مقطعية أجريت في ثلاثة مستشفيات ( مستشفى الدايات بامدرمان –مستشفى السعودي ومستشفى سعد ابو العلا الجامعي ) على (٨٠) قابلة، حيث تم جمع البيانات بواسطة استبيان وقائمة ملاحظة مرجعية، ومن ثم تم تحليلها بواسطة برنامج الحزمة الاحصائية للعلوم الاجتماعية، الاصدار (١٦) وتم عرضها فى جداول ورسوم بيانية.

النتائج : أبانت الدراسة أن ٣٢,٥% من القابلات المشاركات لديهن خبرة من ٤-٠ سنوات، ٦٧,٥% منهن تم تدريبهن على الوقاية من نزيف مابعد الولادة؛ فيما يتعلق بالمؤهل التعليمي وجدت أعلى نسبة عند الحاصلات على الدبلوم وهى ٤٠%، وأدنى نسبة عند الحاصلات على الدراسات العليا وهى ١,٢%. أيضا أشارت الدراسة الى أن ٣٦,٢% من القابلات لديهن معرفة جيدة بطرق الوقاية من النزيف بينما ٢٢,٢% معرفتهن ضعيفة. عموما وجدت هذه الدراسة أن ٤١,٧% من القابلات المشاركات في الدراسة لديهن معرفة ضعيفة تجاه الوقاية من نزيف مابعد الولادة. وفيما يخص الجانب العملى، تبلغ نسبة القابلات اللواتي لديهن ممارسة عملية جيدة في الوقاية من نزيف مابعد الولادة 48.8% وجدت الدراسة الي ان هناك علاقة احصائية بين معرفة القابلات لمعالجة نزيف ما بعد الولادة وبين اعمارهن –سنين الخيره – ومؤهلاتهم المهنية علي النحو المتتالي(0.001, 0.003, 0.001) > 0.001) , الخلاصة : خلصت الدراسة ان مستوى معرفة القابلات وأداؤهن لطرق الوقاية من النزيف مابعد الولادة ضعيف.

. كلمات مفتاحية : فترة النفاس- القابلات-نزيف ما بعد الولادة - - وفيات الامهات -كفاءة.

## Introduction:

Postpartum hemorrhage (PPH) is an obstetrical emergency that can follow vaginal or cesarean delivery. It is a major cause of maternal morbidity, and one of the top three causes of maternal mortality in both high and low-income countries, although the absolute risk of death from PPH is much lower in high income countries (1 in 100,000 deliveries in the United Kingdom versus 1 in 1000 deliveries in the developing world)<sup>(1)</sup>.

The World Health Organization defines postpartum hemorrhage (PPH) as "excessive bleeding from genital tract at any time following of delivery up to six weeks after delivery ,during vaginal delivery as blood loss of greater than 500 c"<sup>(2)</sup>. The effect of the blood loss is more important than the amount of blood. For clinical purposes, any blood loss that has the potential to produce hemodynamic compromise is considered a PPH <sup>(2)</sup>.

PPH is often classified as primary/immediate/early, occurring within 24 hours of birth, or secondary/delayed/late, occurring more than 24 hours post-birth to up to 12 weeks postpartum. In addition, PPH may be described as third or fourth stage depending on whether it occurs before or after delivery of the placenta respectively. The overall prevalence of PPH worldwide is estimated to be 6 to 11 percent. There are several possible reasons for severe bleeding during and after the third stage of labor: uterine atony, trauma, retained or adherent placental tissue, clotting disorders and inverted or ruptured uterus. More than one of these can cause postpartum hemorrhage. Uterine atony is the leading cause of immediate PPH (75–90 %). Postpartum hemorrhage remains the leading cause of maternal mortality and severe morbidity in Africa and around the globe<sup>(2)</sup>.

Maternal death from obstetrical hemorrhage in the Sudan contributed to (31.2%) of the reported maternal mortality cases in 2015<sup>(3)</sup>. Multiple studies have suggested that many deaths associated with PPH could be prevented with prompt recognition and more timely and adequate treatment. Prevention of PPH should begin in the antenatal period by assessing pregnant women's risk factors at every antenatal visit. Midwives are central to the effective prevention, recognition and treatment of PPH. They need to be aware of the risk factors for this condition and take appropriate action when they are identified <sup>(4)</sup>. All protocols of management of post partum hemorrhage consider midwives to have the major role in the prevention of PPH; a midwife is often the first professional who discovers the bleeding and starts ABC for its

management. Sudan is a large country with limited resources, so the most convenient way to follow in order to reduce maternal death is through the training of midwives rather than establishing more maternal hospitals, and postpartum hemorrhage is the direct cause of death. There is an urgent call to pay more attention to the knowledge, attitude and practice of midwives regarding postpartum hemorrhage<sup>(5)</sup>.

### **Operational definition:**

#### **Competency:**

The word competency has a wide variety of definitions and meanings. According to the national competency standards of the Australian Nursing and Midwifery Council (ANMC), competence was described as "the combination of skills, knowledge, attitude, values and abilities that underpin effective and/or superior performance in a profession/occupation area". Also it was described in the clinical practice as "what an individual is able to do" by Ottawa conferences recommendations 2010. They use many tools for competence assessment, but self-assessment has been reported as the most common form of competence assessment<sup>(8)</sup>.

### **Research Methodology:**

This is a descriptive cross-sectional study conducted at three maternity hospitals based in Khartoum State. These three specialized maternity hospitals are:

#### **Omdurman Maternity Teaching Hospital (Labor rooms):**

Omdurman maternity teaching hospital have been and still the 1st and largest specialized maternity hospital in Sudan, situated on the eastern side of Al-Mawrada Street. It was established in 1957 mainly to provide training for midwives graduating from the nearby midwifery school, and then it gradually progressed until it became a national training center in obstetrics. It provides maternity healthcare services to women from different states of the country.

#### **Omdurman New Saudi Hospital (labor room):**

The Saudi hospital was established in 1986 as a donation from the Kingdom of Saudi Arabia as a specialized hospital in obstetrics and gynecology. In 1997, it was supported by Ministry of

Health of Khartoum State. It is located to the west of Omdurman Islamic University (Girls Campus).

**Sa'adAbuelella University Hospital (labor room):**

It is a specialized maternal hospital in southern Khartoum, Khartoum State located in Al-Shuhada Locality between street No- 61 and Mohamed Najeeb Street. The hospital consists of antenatal clinic, caesarian and normal labor wards, gynecology ward, nursery unit, a laboratory, a pharmacy and fertility center. The study enrolled all permanent staff of midwives (and "nurse midwives")(a nurse holding a general nursing certificate and a certificate of midwifery **“certified nurse midwives** “holds master degree ), who work in labor room of maternity hospitals in Khartoum state in study period. The total sample size was (80) midwives. The *total coverage technique* was adopted to draw the sample of the study, as the total census was less than (200) (7).

The relevant data of the study were collected using a structured questionnaire and an observational checklist. The information collected included, in addition to the personal data, the knowledge of the midwives about the definition, types, causes, risk factors, assessment, signs and symptoms, prevention, complications and management of postpartum hemorrhage. The practice of midwives regarding: the prevention of postpartum hemorrhage (uterotonic administration, cord clamp, control cord traction, uterine message). each question scoring from poor to very good modified based on multiple likert scale which consists in each question a 4-point likert items <sup>(8)</sup> Data analysis was carried out by the Statistical Package for Social Science (SPSS) version 16.0: measures include: percentage and mean, and the binary outcome variable was created. Graphical presentation include: bar graphs and pie graphs. The level of significance selected for this study was p value equal to or less than (0.05).

Association between demographic(age , years of experience, training course and qualification of midwives) and independent variable (level of knowledge of midwives about prevention of postpartum hemorrhage ) was made to test the significance between them .The study proposal was ethically cleared by the Ethical Committee of Al-Neelain University and a written agreement was taken from the Ministry of Health of Khartoum State – Department of Research

Management, and the managers of hospital in which the study was conducted. Then a verbal consent was obtained from each one of the participants (midwives).

**Results:**

**Table (1): Demographic variables of the study sample (n=80).**

Variable	Frequency	Percentage %
Age		
< 25	19	23.8
25__34	18	22.5
35__ 44	11	13.8
45__54	22	27.5
>55	10	12.5
Total	80	100
Years of experience		
0__ 4	25	31.2
5__9	24	30
10__14	9	11.2
15__19	11	13.8
>20	11	13.8
Total	80	100
Qualification		
Certificate	19	23.8
Diploma	32	40
Bachelor	28	35

Masters	1	1.2
Total	80	100

The most frequent age group among the study population was less than (25) years old .Regarding their qualification, about (40%)of the respondent had a diploma degree. Regarding experience, (31.2%) of the respondent has had experience range between (0-4) years.

**Table (2): Distribution of study sample according to their level of knowledge regarding**

Component	True		False		Do not know		Mean
	Frequency	Percentage%	Frequency	Percentage%	Frequency	Percentage%	
Administration of a uterotonic	69	86.2	1	1.2	10	12.5	86%
Cord clamping and cutting	40	50	27	33.8	13	16.2	50%

**prevention of postpartum hemorrhage (n=80)**

Controlling cord traction	58	72.5	9	11.2	13	16.2	73%
Uterine massage	69	85	5	6.2	7	8.8	86%
Total	236	73.6	42	13	43	13.4	74%

Table (2) show the distribution of study sample according to their level of knowledge regarding prevention of postpartum hemorrhage .the author found that ( 86.2%) ,(50%) , (72.5%),(85%) were administer of uterotonic, perform cord clamping and cutting , controlling cord traction and apply uterine massage consequently

Figure (I): Distribution of the study sample according to their knowledge regarding uterine massage (n=80).

In this figure (87.5%) of the study population were perform uterine massage as an active management of the third stage of labor is associated with reduced blood loss, reduced risk of postpartum hemorrhage

Table (3): Overall knowledge of the study sample regarding prevention of postpartum hemorrhage (n=80).

Level	Frequency	Percentage%
V. good	299	23.3
Good	252	19.5
Fair	200	15.5
Poor	539	41.7

Level	Frequency	Percentage%
V. good	299	23.3
Good	252	19.5
Fair	200	15.5
Total	1290	100

This table is represent the overall result of the study population, most of them (41.7%) had a poor knowledge regarding prevention of postpartum hemorrhage

Table (4): Association between the level of knowledge of study sample about the prevention of postpartum hemorrhage and demographic characteristics (n=80)

Age	Level of knowledge								p-value	
	Very good		Good		Fair		Poor			Total
	Count	%	count	%	count	%	count	%	Count %	
<25	5	6.2	5	6.2	2	2.5	7	8.8	19 23.8	.554
25_34	3	3.8	7	8.8	4	5.0	4	5.0	18 22.5	
35_44	1	1.2	1	1.2	7	8.8	2	2.5	11 13.8	
45_54	1	1.2	13	16.2	5	6.2	3	3.8	22 27.5	
>55	3	3.8	3	3.8	2	2.5	2	2.5	10 12.5	
Total	13	16.2	29	36.2	20	25.0	18	22.5	80 100.0	
Years of experience									.009	
0-4	6	7.5	8	10.0	2	2.5	9	11.2		25 31.2
5-9	3	3.8	4	5.0	12	15.0	5	6.2		24 30.0
10-14	0	.0	4	5.0	4	5.0	1	1.2		9 11.2
15-19	1	1.2	6	7.5	2	2.5	2	2.5		11 13.8
>20	3	3.8	7	8.8	0	.0	1	1.2		11 13.8
Total	13	16.2	29	36.2	20	25.0	18	22.5	80 100.0	
Training									.239	
Yes										
	11	13.8	20	25.0	11	13.8	12	15.0		54 67.5
	2	2.5	9	11.2	9	11.2	6	7.5	26 32.5	

No	13	16.2	29	36.2	20	25.0	18	22.5	80	100.0	
Total											
Qualification											
Certificate	0	.0	10	12.5	7	8.7	2	2.5	19	23.7	.094
Diploma	8	10.0	12	15.0	7	8.8	5	6.2	32	40.0	
B.Sc.	5	6.2	6	7.5	6	7.5	11	13.8	28	35.1	
M.Sc.	0	.0	1	1.2	0	.0	0	.0	1	1.2	
Total	13	16.2	29	36.2	20	25.0	18	22.5	80	100.0	

As regards the correlation between the prevention of PPH with age, years of experiences , training and qualification, there is no statistically significant relationship between them (p= 0.554,.009,.239and 0.094) respectively.

**Discussion:**

Regarding socio-demographic data, 27.5% of the midwives under study were within the age group between (45\_54), compared with a correspondent study conducted in Nairobi by Mutung E.M. in 2015 which revealed that 63.3 % of the respondents were aged between (35-44) years<sup>(4)</sup>.

Regarding the experience of midwives, 31.2% of the sample had experience between 0-4 years old. This may be due to the fact that the population of the study in general had a few years of experience. This result disagrees with the study conducted in Nairobi by Mutung E.M 2015 which revealed that 59.1% of the respondents had worked in a labor ward setting for (0-4) years<sup>(4)</sup>.

For qualification, the highest percentage was found to be related to diploma 40% and bachelor 35%, while post-graduate had the lowest percentage (1.2%). This can be explained by the fact that there is general shortage in post-graduate midwifery staff in Sudan. This result also disagrees with Mutung's study E.M 2015<sup>(4)</sup>.

The current results showed that most of the study sample 67.5% had attended training and 32.5% had not. This can be attributed to the immense workload and shortage of staff. It

disagrees with a similar study conducted in Khartoum state by Balsam, B.M 2015 which revealed that only 35.1% had received training<sup>(5)</sup>.

Prevention of PPH is the mainstay and cornerstone to achieve MDG. In this study, 41.7% of the study sample had poor knowledge regarding the prevention of postpartum hemorrhage, 58.3% had good knowledge, which is not enough if compared with their practice about prevention of PPH which was 48.8%. This finding disagrees with another which was study conducted in Khartoum State by Faiza, A, N in 2015<sup>(2)</sup>.

About the performance of uterine massage, 67.8% of the study population did not do it properly; all midwives must have skills to practice these procedures properly in order to reduce the incidence of PPH. This can be explained by the fact that the study population did not have enough skills about the components of Active Management of Third Stage of Labor (AMTSL).

When comparing the variables of: age, years of experience and qualification with the knowledge of the study sample regarding the causes of PPH, the result showed that there is no statistically significant relationship between them ( P-value was=.428, .340,.481 respectively).

As regards the correlation between the prevention of PPH with age and qualification, there is no statistically significant relationship between them (p= 0.554, 0.094) respectively.

There is statistically significant relationship between the prevention of PPH with the years of experience (p-value=0.009).

As for the association between knowledge about the management of PPH with age, years of experience and qualification, there is a statistically significant association between them (p-value= 0.001, .003, and <,.001 respectively).

Regarding the knowledge about causes, risk factors, prevention and management, these variables have no statistically significant relationship with training (p-value=.703, .155, .239, .425 respectively); this can be explained by the fact that training was for a short time or was inadequate

As for delivery observation, there is a clear discrepancy between knowledge and practice of midwives regarding placenta examination; only 48.8% of them examined the placenta after child delivery; this may be partly attributed to workload and shortage of staff.

Infection control is a priority; so midwives should prepare the environment, equipment, and should consider the methods of infection control. The practice of study sample was 63.7%; this means that the study sample had not enough practice on infection control.

Regarding the practice of episiotomy, 63.8% of study sample avoided routine episiotomy. This result disagrees with a correspondent study conducted in Khartoum state by Fayiza, A, N in 2015 which revealed that fifty percent of study sample avoided routine episiotomy.<sup>(2)</sup>

Regarding the practice of uterotonic administration, it is done properly by 68.3% of the respondents.

Regarding cord traction control, it was applied properly by about 51.3% of study sample.

About the performance of uterine massage, 67.8% of the study sample did not do it properly; all midwives must have skills to practice these procedures properly in order to reduce the incidence of PPH. This can be explained by the fact that the study population did not have enough skills about the components of Active Management of Third Stage of Labor (AMTSL).

**Limitations of the study**

The study was conducted on midwives only, so generalization is limited to the practicing midwives and not to the other skilled birth attendants who also play a role on the prevention and management of PPH. Some of members of study population refused to participate in this study.

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