

## Effectiveness of an Education Program on Nurses- Midwives' knowledge toward Postpartum Hemorrhage at Delivery Room of Maternity Hospitals in Baghdad City

فاعلية البرنامج التعليمي في معارف الممرضات القابلات باتجاه نزف ما بعد الولادة في غرفة الولادة لمستشفيات الولادة في مدينة بغداد

Azhar H. Ali, MScN\*

Dr. Ezedeen F.Bahaaldeen, PhD \*\*

\* Academic Nurse, Higher Health Institute, Al-Khadhmiaya, E-mail:azhar\_nhmh@yahoo.com

\*\* Assistant Professor, College of Nursing, University of Baghdad,

E-mail: ezedeen@yahoo.com

### المستخلص

**الهدف:** تهدف الدراسة الحالية إلى معرفة فاعلية تطبيق البرنامج التعليمي على معارف الممرضات -القابلات باتجاه الوقاية وإدارة نزف ما بعد الولادة في غرفة الولادة وإيجاد العلاقة بين معارف الممرضات- القابلات وبعض الخصائص الاجتماعية. **المنهجية:** استخدم تصميم شبه تجريبي "الاختبار وإعادة الاختبار" مع تطبيق الاختبار القبلي والاختبار البعدي لمعارف وممارسات الممرضات -القابلات باتجاه نزف ما بعد الولادة. أجريت الدراسة في ستة مستشفيات في بغداد:فاطمة الزهراء للولادة والاطفال، العلوية للولادة، بغداد التعليمي، الامامين الكاظميين التعليمي، الكرخ للولادة ومستشفى اليرموك التعليمي، للفترة من ٢٧ ايار ٢٠١٨ الى ١٠ كانون الاول ٢٠١٨، تم اختيار عينة عرضيه غير احتمالية مكونة من ٩٧ ممرضة- قابلة، وتم استخدام استبانة لرصد المعارف والتي تكونت من جزئين الجزء الاول تضمن المعلومات الديموغرافية للممرضات-القابلات والجزء الثاني تضمن معرفة الممرضات - القابلات نحو الوقاية من نزف ما بعد الولادة وادارته يتكون من ٤٣ سؤال بشكل اختيارات متعددة، تم استخدام الاحصاء الوصفي والاستنتاجي في تحليل البيانات.

**النتائج:** اظهرت نتائج الدراسة أن معارف الممرضات- القابلات حول الوقاية من نزيف ما بعد الولادة وإدارته قد تحسنت بشكل كبير بعد تعرضهن للبرنامج التعليمي.

**التوصيات:** ضرورة إجراء برنامج تدريبي دوري بانتظام في جميع مستشفيات الولادة لجميع الممرضات والقابلات في غرف الولادة، غرف العمليات، وأقسام التوليد والطوارئ، ويجب أن تكون إلزامية،

الكلمات المفتاحية : فاعلية البرنامج التعليمي، معارف الممرضات -القابلات، نزف ما بعد الولادة

### Abstract

**Objectives:** To find out the effectiveness of education program application on nurses-midwives' knowledge toward prevention and management of postpartum hemorrhage in delivery room and some socio demographic characteristics **Methodology:** a quasi -experimental "test-retest" design has carried throughout the present study with the application of a pre -test and post- test for nurses-midwives' knowledge toward postpartum hemorrhage. The study was conducted in six hospitals in Baghdad: Fatima Al - Zahra for Maternity and Pediatric, Al -Elwia maternity, Baghdad Teaching, AL-Imamine Al - Kadhimin Teaching, Al-Karckh maternity and Al-Yarmouk Teaching hospital for the period from 27<sup>th</sup> May 2018 to 10<sup>th</sup> December 2018. The sample was conducted on Non-probability (purposive sample) of (97)nurse-midwife. Who were evaluated by using as questionnaire for the nurses-midwives' knowledge which consisted of two parts; the first part included the socio-demographic characteristics of the nurses and the second part included The knowledge of nurses - midwives towards prevention and management of postpartum hemorrhage consists of 43 questions in the form of multiple choices. Descriptive statistical and inferential analyses were used to analyze the data .

**Results:** The result indicates that nurses - midwives' knowledge and practices about prevention and management of PPH have been greatly improved after their being exposed to the education program.

**Recommendation:** The necessity of making periodical training program must conduct regularly in all obstetric hospitals for all nurses and midwives in the delivery rooms, operating theaters, maternity and maternity and emergency obstetric wards, and it should be mandatory.

**Key words:** Effectiveness of an Education Program, Nurses- Midwives' knowledge, Postpartum Hemorrhage.

## Introduction

Postpartum Hemorrhage (PPH) is one of the most common obstetric maternal complications and is among the three most common etiologies of maternal death globally. Its incidence is increasing and it affects 1% to 5% of all the deliveries. <sup>(1)</sup> Global advocacy groups describe maternal mortality as "avoidable" and "preventable". This might be because over 70% of maternal deaths are due to five major complications (hemorrhage, sepsis, unsafe abortion, eclampsia and obstructed labour) and the clinical means to prevent either deaths arising from these complication <sup>(2)</sup>.

The World Health Organization (WHO) currently recognizes the associated risk factor with PPH as increasing maternal age, fetal macrosomia, primiparity, multiple gestations, previous Caesarean section, prolonged labor, fibroids, and episiotomy. However, many women present with these risk factors and do not develop a PPH. Therefore, the recommended practice is that women should benefit from active management of the third stage of labor, the only intervention known to prevent PPH <sup>(3)</sup>. The causes of maternal mortality in 2017 from vital registration and bibliographic data were found to be direct and indirect causes of obstetrics. PPH was the most common direct cause of maternal mortality in Iraq<sup>(4)</sup>.

Globally, 35% of maternal deaths are associated with PPH <sup>(5)</sup>. The estimated mortality rate from bleeding in developed countries was below 13.4% <sup>(6)</sup>. However, studies have shown the trend of increased incidence of PPH as a cause of severe maternal morbidity (near miss) in developed countries, such as Australia, Canada, United Kingdom and United States<sup>(7)</sup>.

## Methodology

**Design of the Study:** a quasi - experimental "test-retest" design has carried throughout the present study with the application of a pre -test and post-test for nurses-midwives' knowledge toward postpartum hemorrhage. In Baghdad maternity Hospital for the period from 27<sup>th</sup> May 2018 to 10<sup>th</sup> December 2018.

**Setting of the Study:** The study was conducted in six hospitals in Baghdad: Fatima Al - Zahra for Maternity and Pediatric, Al -Elwia maternity, Baghdad Teaching, AL-Imamine Al - Kadhimin Teaching, Al-Karckh maternity and Al-Yarmouk Teaching hospital.

**Sample of the Study:** The sample was conducted on Non-probability (purposive sample) of (97) nurse-midwife

**Instrument:** A constructional questionnaire for the nurses-midwives' knowledge was conducted by the researcher based on review of literatures and relevant references to evaluate nurses' knowledge which consisted of two parts.

**First part:** regarding nurses' demographic data that include (age, level of education, marital status, Number of years of total service, Number of years of service (experience) in the delivery room, Number of training courses related to pregnancy and childbirth, Number of training courses of Postpartum Hemorrhage...ect),

**Second part:** included the knowledge of nurses - midwives towards prevention and management of postpartum hemorrhage consists of 43 questions in the form of multiple choices.

**Validity:** the questionnaire was examined by 19 experts from different scientific branches having at least 10 years' experience in their field of work.

**Reliability of the questionnaire Items:**

The reliability had been evaluated through applying Cronbach's Alpha for (43) questions, the results was (0.9181).

**Statistical Methods:** A statistical program such as SPSS (Statistical Package for Social Science) version 22 was used to analyze the data through descriptive data analysis that included frequencies, percentages, , Mean of score and Standard Deviation as well as inferential analysis, a- Contingency Coefficients Chi Square, f- Analysis of Covariance (ANCOVA) and T-test.

**Ethical Considerations**

The Institutional Review Board (IRB) at the University of Baghdad, College of Nursing approved the study to be conducted. The study protocol meets both the global & the Committee on Publication Ethics(COPE) standards of respecting humans subjects' rights

**Results:**

Table (1): Distribution of the studied group according to (SDCv.)

SDCv.	Groups	No.	%	C.S P-value
Age Groups Yrs.	20 -	33	34	$\chi^2 = 15.124$ P=0.002 (HS)
	30 -	33	34	
	40 -	21	21.6	
	50 - 60	10	10.3	
Education Levels	Nursing School Graduate	1	1	$\chi^2 = 138.6$ P=0.000 (HS)
	Secondary Midwife Graduate	56	57.7	
	Secondary Nursing Graduate	15	15.5	
	Nursing Institute	21	21.6	
	College of Nursing	3	3.1	
	Master and more	1	1	
Marital Status	Married	64	66	$\chi^2 = 104.938$ P=0.000 (HS)
	Single	28	28.9	
	Divorced	1	1	
	Widow	4	4.1	

(\*) HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non Sig. at P>0.05; Testing based on One-Sample Chi-Square test, and the Binomial test.

Table(1) show a highly significant differences at P<0.01 among the difference of the studied level at all Socio-Demographical Characteristics variables. Relative to subject of "Nurse/Midwife's" age groups of studied sample are seems to be similarly distributed for whom age are less than 50 years old, and they are accounted 87(89.69%), while leftover of age 50 – 60 yrs. recorded 10(10.31%). With Respect to subject of "Educational Levels", the majority of the sample are secondary midwife graduate level, and they are account for 56(57.7%), of the total sample. With Respect to Nurse/Midwife's Marital Status ,the vast majority of the sample are married, and they are accounted 64(66.0%), while leftover of single, widow, and divorced are reported 28(28.9%), 4(4.1%), and 1(1.03%) respectively

Table (2): Distribution of the studied group according to (Service yrs. &amp; Training)

Service yrs. & Training	Groups	No.	%	C.S P-value
Number of years of total service	< 1	10	10.3	$\chi^2 = 66.144$ P=0.000 (HS)
	1 - 5	51	52.6	
	6 - 10	16	16.5	
	11 - 15	8	8.2	
	16 >	12	12.4	
Number of years of service (experience) in the delivery room	< 1	28	28.9	$\chi^2 = 108.62$ P=0.000 (HS)
	1 - 5	56	57.7	
	6 - 10	7	7.2	
	11 - 15	4	4.1	
	16 >	2	2.1	
Number of training courses related to pregnancy and childbirth	Non Applicable	36	37.1	$\chi^2 = 36.814$ P=0.000 (HS)
	1 - 2	42	(68.9)	
	3 - 4	8	(13.1)	
	≥ 5	11	(18.0)	
Number of training courses of Postpartum Hemorrhage	Non Applicable	60	61.9	P=0.000 (HS)
	1 - 2	32	(89.2)	
	≥ 3	5	(10.8)	

<sup>(\*)</sup> HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non Sig. at P>0.05; Testing based on One-Sample Chi-Square test, and the Binomial test. ; % between two brackets are excluded of Non Applicable cases.

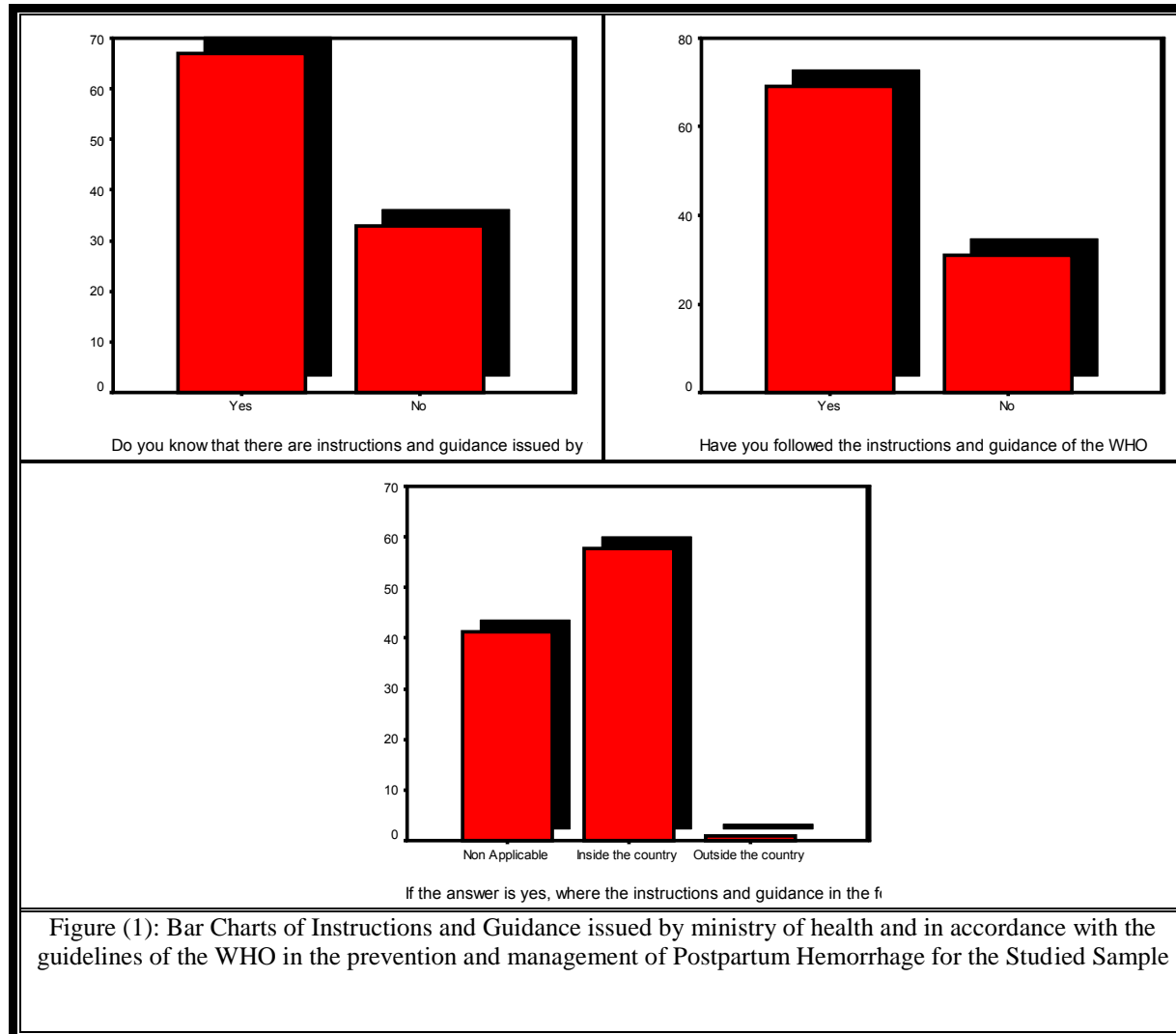
Table (2) shows the study finding With Respect to subject of "Number of years of total service", vast majority of sample had (1 - 5) yrs., and they are accounted 51(52.6%),. Regarding to the subject of having "Number of years of service (experience) in the delivery room", vast majority of sample" had (1 - 5) yrs., and they are accounted 56(57.7%),. Relative to "Number of training courses related to pregnancy and childbirth" shows that vast majority of studied "Nurse/Midwife's" had (1 - 2) number., and they are accounted 42(68.9%).Finally, "Number of training courses of Postpartum Hemorrhage" shows that vast majority of studied "Nurse/Midwife's" had (1 - 2) number, and they are accounted 32(89.2%) of the study sample.

Table (3): Distribution of the studied group according to (Previous Information about Complications)

Previous Information about Complications & Getting Information	Groups	No.	%	C.S P-value
Previous information about complications of birth, especially Primary Postpartum Hemorrhage	Yes	93	95.9	P=0.000 HS
	No	4	4.1	
Studying	No	12	12.4	P=0.000 HS
	Yes	85	87.6	
Workshop	No	77	79.4	P=0.000 HS
	Yes	20	20.6	
Training and development	No	66	68	P=0.001 HS
	Yes	31	32	
Audio and visual media	No	93	95.9	P=0.000 HS
	Yes	4	4.1	
Others	No	77	79.4	P=0.000 HS
	Yes	20	20.6	

(\*) HS: Highly Sig. at  $P < 0.01$ ; S: Sig. at  $P < 0.05$ ; NS: Non Sig. at  $P > 0.05$ ; Testing based on Binomial test.

Table (3) that the study finding with Respect to subject of "Previous information about complications of birth, especially Primary Postpartum Hemorrhage", vast majority of sample who has answered positively, and they are accounted 93(95.9%). Among those who were answered with "yes" concerning of getting information by studying was the most type of information, and they are accounted 85(87.6).



shows that the study finding with Respect to subject of asking about instructions and guidance issues, vast majority of sample who has answered positively are accounted 65(67.0%), of the sample study. Among those who were answered with "yes" concerning of followed instructions and guidance of the WHO, accounted 67(69.1%), and among them getting their instructions and guidance in the form of training courses inside Iraq are accounted 56(98.2%), and has high significant different at  $P < 0.01$

**Table (4): Summary Statistics of Knowledge of Nurses/Midwives towards prevention & management of Postpartum Hemorrhage Questionnaire's items in (Pre, and Post) Periods of proposed education program with comparisons significant**

Knowledge of Nurses/Midwives towards prevention & management of Postpartum Hemorrhage	Resp.	Pre					Post					C.S. (*) P-value
		No.	%	MS	SD	EV	No.	%	MS	SD	EV	
Postpartum hemorrhage is :	False	65	67	0.33	0.47	L	0	0	1.00	0.00	H	P=0.000 HS
	True	32	33				97	100				
Postpartum hemorrhage is divided into two types :	False	73	75.3	0.25	0.43	L	8	8.2	0.92	0.28	H	P=0.000 HS
	True	24	24.7				89	91.8				
What is the size of blood loss after vaginal delivery, where PPH can be considered ?	False	66	68	0.32	0.47	L	0	0	1.00	0.00	H	P=0.000 HS
	True	31	32				97	100				
What is the blood volume that is normal after the caesarean section ?	False	67	69.1	0.31	0.46	L	13	13.4	0.87	0.34	H	P=0.000 HS
	True	30	30.9				84	86.6				
What is the most common cause of PPH ?	False	87	89.7	0.10	0.31	L	12	12.4	0.88	0.33	H	P=0.000 HS
	True	10	10.3				85	87.6				
It is not considered a cause of uterine atony (i.e. uterine weakness and weakness contractions of tension) :	False	63	64.9	0.35	0.48	M	18	18.6	0.81	0.39	H	P=0.000 HS
	True	34	35.1				79	81.4				
Identify the phrase that is free of the risk factors causing uterine atony :	False	64	66	0.34	0.48	M	14	14.4	0.86	0.35	H	P=0.000 HS
	True	33	34				83	85.6				
The Factors affecting uterine contractions are :	False	34	35.1	0.65	0.48	M	2	2.1	0.98	0.14	H	P=0.000 HS
	True	63	64.9				95	97.9				
What are the least dangerous factors for tearing ?	False	75	77.3	0.23	0.42	L	19	19.6	0.80	0.40	H	P=0.000 HS
	True	22	22.7				78	80.4				
Causes of tears that lead to the occurrence of primary PPH are	False	55	56.7	0.43	0.50	M	23	23.7	0.76	0.43	H	P=0.000 HS
	True	42	43.3				74	76.3				
The best time to episiotomy to avoid tearing is :	False	14	14.4	0.86	0.35	H	3	3.1	0.97	0.17	H	P=0.000 HS
	True	83	85.6				94	96.9				
Causes of hemorrhage related to placenta	False	66	68	0.32	0.47	L	11	11.3	0.89	0.32	H	P=0.000 HS
	True	31	32				86	88.7				
Causes of disruption of coagulation factor and platelets that lead to PPH	False	67	69.1	0.31	0.46	L	4	4.1	0.96	0.20	H	P=0.000 HS
	True	30	30.9				93	95.9				
What is the least dangerous factor for PPH ?	False	81	83.5	0.16	0.37	L	27	27.8	0.72	0.45	H	P=0.000



	True	16	16.5				70	72.2				HS
The factor that is considered the least risk of the other contributing factors contributing to the bleeding due to problems that occurred during the previous pregnancy	False	63	64.9	0.35	0.48	M	21	21.6	0.78	0.41	H	P=0.000 HS
	True	34	35.1				76	78.4				
The factor that is considered the least risk of other contributing factors that contribute to bleeding during the current pregnancy :	False	57	58.8	0.41	0.49	M	2	2.1	0.98	0.14	H	P=0.000 HS
	True	40	41.2				95	97.9				
Select the phrase that do not have signs and symptoms of PPH?	False	53	54.6	0.45	0.50	M	3	3.1	0.97	0.17	H	P=0.000 HS
	True	44	45.4				94	96.9				
Signs of primary PPH :	False	67	69.1	0.31	0.46	L	22	22.7	0.77	0.42	H	P=0.000 HS
	True	30	30.9				75	77.3				
The phrase that lacks the specifications and indications of vaginal hemorrhage is :	False	56	57.7	0.42	0.50	M	4	4.1	0.96	0.20	H	P=0.000 HS
	True	41	42.3				93	95.9				
Methods used to diagnose PPH are :	False	22	22.7	0.77	0.42	H	2	2.1	0.98	0.14	H	P=0.000 HS
	True	75	77.3				95	97.9				
What is the most accurate way to estimate blood loss ?	False	61	62.9	0.37	0.49	M	3	3.1	0.97	0.17	H	P=0.000 HS
	True	36	37.1				94	96.9				
Which of the following methods are considered as a way to prevent PPH :	False	42	43.3	0.57	0.50	M	14	14.4	0.86	0.35	H	P=0.000 HS
	True	55	56.7				83	85.6				
Among the measures you take to prevent tears during the second stage of labor are	False	64	66	0.34	0.48	M	10	10.3	0.90	0.31	H	P=0.000 HS
	True	33	34				87	89.7				
Of the measures avoided by the midwife/ nurse after the birth of the placenta to prevent PPH are :	False	84	86.6	0.13	0.34	L	7	7.2	0.93	0.26	H	P=0.000 HS
	True	13	13.4				90	92.8				
What is the way that misoprostal (cytotec) can't be given :	False	39	40.2	0.60	0.49	M	2	2.1	0.98	0.14	H	P=0.000 HS
	True	58	59.8				95	97.9				
One of the reasons for not having an early clip of umbilical cord is:	False	77	79.4	0.21	0.41	L	6	6.2	0.94	0.24	H	P=0.000 HS
	True	20	20.6				91	93.8				
The benefits of encouraging mothers to early breastfeed after birth include :	False	39	40.2	0.60	0.49	M	4	4.1	0.96	0.20	H	P=0.000 HS
	True	58	59.8				93	95.9				
The way to give medicines for the accelerated delivery is :	False	78	80.4	0.20	0.40	L	11	11.3	0.89	0.32	H	P=0.000 HS
	True	19	19.6				86	88.7				
What is the first line of medication to treat and prevent PPH ?	False	74	76.3	0.24	0.43	L	9	9.3	0.91	0.29	H	P=0.000 HS
	True	23	23.7				88	90.7				
What is the first nursing intervention (nursing procedure) to treat PPH in the delivery room ?	False	85	87.6	0.12	0.33	L	9	9.3	0.91	0.29	H	P=0.000 HS
	True	12	12.4				88	90.7				
The first action by the midwife\ nurse to the mother toward management of PPH	False	62	63.9	0.36	0.48	M	9	9.3	0.91	0.29	H	P=0.000

measures is :	True	35	36.1				88	90.7				
Signs of separation of the placenta are :	False	38	39.2	0.61	0.49	M	4	4.1	0.96	0.20	H	P=0.000 HS
	True	59	60.8				93	95.9				
The necessary procedures that taken by the midwife towards management PPH is :	False	48	49.5	0.51	0.50	M	5	5.2	0.95	0.22	H	P=0.000 HS
	True	49	50.5				92	94.8				
Signs of the rupture uterus are :	False	77	79.4	0.21	0.41	L	16	16.5	0.84	0.37	H	P=0.000 HS
	True	20	20.6				81	83.5				
Select the phrase that do not have signs of cervical tear :	False	66	68	0.32	0.47	L	17	17.5	0.82	0.38	H	P=0.000 HS
	True	31	32				80	82.5				
Treatment options for PPH may include :	False	82	84.5	0.15	0.36	L	11	11.3	0.89	0.32	H	P=0.000 HS
	True	15	15.5				86	88.7				
When the placenta is not separated automatically within 30 minutes after the birth of the child, the midwife / nurse performs the following procedure :	False	78	80.4	0.20	0.40	L	7	7.2	0.93	0.26	H	P=0.000 HS
	True	19	19.6				90	92.8				
Is not considered a surgical treatment for PPH :	False	24	24.7	0.75	0.43	H	6	6.2	0.94	0.24	H	P=0.000 HS
	True	73	75.3				91	93.8				
It is not considered complications that lead to PPH :	False	74	76.3	0.24	0.43	L	21	21.6	0.78	0.41	H	P=0.000 HS
	True	23	23.7				76	78.4				
Select the phrase that are free of signs of shock :	False	37	38.1	0.62	0.49	M	7	7.2	0.93	0.26	H	P=0.000 HS
	True	60	61.9				90	92.8				
The duties of nurse midwives should be avoided toward the mother suffering from shock is :	False	46	47.4	0.53	0.50	M	2	2.1	0.98	0.14	H	P=0.000 HS
	True	51	52.6				95	97.9				
One of the main reasons for the development of PPH :	False	63	64.9	0.35	0.48	M	3	3.1	0.97	0.17	H	P=0.000 HS
	True	34	35.1				94	96.9				
The wrong practices carried out by the nurse / midwife in delivery rooms, all of them, except :	False	75	77.3	0.23	0.42	L	4	4.1	0.96	0.20	H	P=0.000 HS
	True	22	22.7				93	95.9				

<sup>(\*)</sup> HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; Testing based on a McNemar test. ; EV: Evaluated by L : (Low), M : (Moderate), and H : (High)

Table (4) The results indicated that the knowledge of nurses / midwives revealed that most were at a low and moderate level in all knowledge-related questions before the beginning of knowledge an education program and became high level after follow up of an education program posttest , Except for three questions related to the best time to cut the perineum, the methods of diagnosis of bleeding, and with regard to surgical treatments, this began with a high level of knowledge and remained conservative at the higher knowledge level after follow up of an education program posttest.

**Table(5): Relationships (Analysis of Covariance) concerning Knowledge in light of SDCv., and service years and training variables**

Source of Variation (S.O.V.)	Type III Sum of Squares	d.f.	Mean Square	F-value	Sig. Levels	C.S. (*)
Intercept	46779.3	1	46779.3	470.1	0.000	HS
Age Group	102.4	3	34.1	0.343	0.794	NS
Education Levels	162.9	5	32.6	0.327	0.895	NS
Marital Status	478.8	3	159.6	1.604	0.196	NS
No. of yrs. of total service	527.4	4	131.8	1.325	0.269	NS
No. of yrs. of service (experience) in the delivery room	83.2	4	20.8	0.209	0.933	NS
No. of training courses related to pregnancy and childbirth	601.7	3	200.6	2.016	0.119	NS
Error	7363.7	74	R-Squared = 0.215			
Total	804357.4	97				

(\*) HS: Highly Sig. at  $P < 0.01$ ; Non Sig. at  $P > 0.05$ ; Statistical hypothesis based on Analysis of Covariance (ANCOVA).

$P > 0.05$ ; Statistical hypothesis based on Analysis of Covariance (ANCOVA).

Table (5) Results shows that weak relationships are proved with (Age Groups, Education levels, Marital Status, number of yrs. of total service, number of yrs. of service (experience) in the delivery room, and number of training courses related to pregnancy and childbirth), since no significant relationships were accounted at  $P > 0.05$ .

## Discussion

Sample of the study consisted of (97) nurses-midwives who working in delivery room at Maternity Hospitals in Baghdad City. The study result show that relative to subject of age groups of studied sample are seems to be similarly distributed for whom age are less than 50 years old, This result is consistent with two studies previously conducted at Thaba-Tseka district in Lesotho and in Walden University, who also found that The average age and the standard deviation of the participants who completed the quality improvement training was 40.27 and 8.82, respectively <sup>(8) (9)</sup>.

With Respect to "Educational Levels", the majority of the sample are secondary midwife graduate level, (Table 1). This result is consistent with study conducted at Ribat University Hospital and Omdurman Maternity Hospital Thaba-Tseka district in Lesotho who also found that the majority of the sample are secondary midwife graduate level, <sup>(10)</sup>. In addition of Diploma in Nursing and Midwifery <sup>(8)</sup>.

Relative to Marital Status , the vast majority of the sample are married, This result is consistent with study conducted in Africa who found that the majority of the sample are married <sup>(11)</sup>.

with Respect to "Number of years of total service", vast majority of in present study " nurses \ midwives " had (1-5) yrs., (table 2), This result is consistent with study conducted at Thaba-Tseka district in Lesotho reported that Most of the participants had 2 years or below of experience whereas had between 3 and 5 years working experience that mean the vast majority of studied sample had (1-5) yrs. <sup>(8)</sup>.

Regarding to "Number of years of service (experience) in the delivery room", vast majority of sample had (1-5) yrs. This result is consistent with study conducted in Walden University have stated that There were 25 participants' years of experience in nursing varied from 6 years to 30 years, distributed for whom years of experience as a labor/delivery or postpartum nurse and or obstetric nurse are less than 6 years, and they are accounted 6(40%). <sup>(9)</sup>.

Relative to "Number of training courses related to pregnancy and childbirth" and Number of training courses of PPH shows that vast majority of studied " nurses \ midwives " had (1 - 2) number, This result is consistent with study who illustrates the attendance of the studied nurses of any educational training related to placental examination during their work years, this study agreement with present study in that the most number of participants in the program did not attend any training courses related to pregnancy and childbirth or training courses of PPH <sup>(12)</sup>.

Respect to "Previous information primary PPH", vast majority sample who has answered positively, and getting information by studying, This result is consistent with study conducted in Al-Sudan who reviewed that, only 30% of them received in service training about PPH <sup>(13)</sup>.

Postpartum hemorrhage guideline development and implementation is an important (worldwide) topic as the incidence is still rising <sup>(7)</sup>.

Table (4) shows a summary statistics of knowledge related to questionnaire's items along studied (Pre, and Post) periods due to applying program of knowledge part concerning 43 multiple choice questions leading to nurses \ midwives towards prevention and management of postpartum hemorrhage in delivery room .

Reported from A Prospective Study Department of Obstetrics and Gynecology who found that educational programs (both simulation and didactic) for the prevention and management of PPH led to significant improvements in the knowledge of obstetric nurses <sup>(14)</sup>.

The above studies reinforce that educational interventions on prevention and management of PPH have the potential to bring significant improvements in the knowledge and ability of obstetric and postpartum nurses to decrease the incidence of PPH.

Table (5) The findings indicated that there was no statistical significant difference between Nurse- Midwives Knowledge and some socio demographic characteristics such as age ,educational level ,Marital Status , No. of yrs. of total service, No. of yrs. of service (experience) in the delivery room, No. of

training courses related to pregnancy and childbirth, this result agree with study in Kiambu District as finding show the relationship between midwives age and their and active management of third stage of labor practice didn't yield statistical significant<sup>(15)</sup>. These result agree with another study in Baghdad city stated that there are no statistically significance relationships between knowledge of midwives regarding prevention of primary postpartum hemorrhage and their marital status, years of experience, training course, location of delivery, number of birth attendants and number of assigned primary postpartum hemorrhage, this mean there is no different in their level of knowledge with all these variables but These result disagree relationships between knowledge of midwives regarding prevention and management of primary postpartum hemorrhage and their ages and levels of education , this mean their level of knowledge is better with increased their education level and age<sup>(16)</sup>.

### Recommendations

1- The necessity of making periodical training program must conduct regularly in all obstetric hospitals for all nurses and midwives in the delivery rooms, operating theaters, maternity and maternity and emergency obstetric wards, and it should be mandatory.

2- It is very necessary refresh the information and practices of the nurses- midwives by doing the study on the larger sample.

### References:

1-- Bingham, D., & Jones, R. (2012). Maternal death from obstetric hemorrhage. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 41(4), 531-539. doi.org/10.1111/j.1552-6909.2012.01372.x.

2- Mercy. A. and Julia. H .(2014). Please understand when I cry out in pain: women's accounts of maternity services during labour and delivery in Ghana, *BMC public health*, 5(1), 140. Available at <https://doi.org/10.1186/1471-2458-5-140.a>

3- Kongnyuy, E. J., Mlava, G., & Van Den Broek, N. (2009). Using criteria-based audit to improve the management of postpartum hemorrhage in resource limited countries: a case study of Malawi. *Maternal and child health journal*, 13(6), 873. DOI 10.1007/s10995-008-0408-3.

4- A researcher with reliance on statistics from the Ministry of Health, Department of Vital Statistics (PPH): Postpartum hemorrhage.

5- World Health Organization(2009). WHO guidelines for the management of postpartum haemorrhage and retained placenta . [cited 2012 Aug 20]. Available from: [http://whqlibdoc.who.int/publications/2009/9789241598514\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598514_eng.pdf)

6- World Health Organization ( 2012 )WHO recommendations for the prevention and treatment of postpartum haemorrhage.Geneve: [cited 2015 Aug 20]. Available from : [http://www.who.int/reproductivehealth/publications/maternal\\_perinatal\\_health/9789241548502/en/](http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/9789241548502/en/).

7- Knight, M., Callaghan, W. M., Berg, C., Alexander, S., Bouvier-Colle, M. H., Ford, J. B., ... & Oats, J. (2009). Trends in postpartum hemorrhage in high resource countries: a review and recommendations from the International Postpartum Hemorrhage Collaborative Group. *BMC pregnancy and childbirth*, 9(1), 55. Available from : <http://www.biomedcentral.com/1471-2393/9/5>.

8- - Fungai. M.(2015). Knowledge, attitudes and practices of nurse-midwives related to obstetric care at Thaba-Tseka district in Lesotho (Doctoral dissertation). Student number: 45491364.

- 9- Lisa N. (2017). Prevention and Management of Postpartum Hemorrhage, Walden University, 2017 at: <http://scholarworks.waldenu.edu/dissertations>.
- 10- Balsam B. M., B.Sc, PHD, (2015). Assessment of Nurse Midwives' Knowledge Regarding Nursing Care of Post-Partum Hemorrhage at Ribat University Hospital and Omdurman Maternity Hospital. (dissertation).
- 11- Samuel .K., Franklin L. O., Emmanuel K.A., Anastasia A.O. (2018). Knowledge, attitude and practices of Ghanaian midwives regarding the use of ophthalmic medications among pregnant women. International journal of Africa nursing sciences, 8, 59-65. Available from: <https://doi.org/10.1016/j.ijans.2018.03.002>.
- 12- Hanan E. H., Shaimaa H.M., Neama A. A. (2017). Protocol for improving nursing performance towards placental examination at labor units: URL: <http://dx.doi.org/10.5430/cns.v5n2p1>. Available at: [https://www.researchgate.net/publication/312075967\\_Protocol\\_for\\_improving\\_nursing\\_performance\\_towards\\_placental](https://www.researchgate.net/publication/312075967_Protocol_for_improving_nursing_performance_towards_placental)
- 13- Faiza.A.N. (2015). Knowledge and Practice of Nurse Midwives Regarding Management and Prevention of Postpartum Hemorrhage in Three Selected Teaching Hospitals-Khartoum State-Sudan 2014. Indian Journal of Applied Res, 2015; 5(4): 634-8.
- 14- Kumar, N., Kant Singh, N., & Rudra, S. (2016). Role of Simulation based teaching in Management of Postpartum Hemorrhage amongst Postgraduate Students of Department of Obstetrics and Gynecology: A Prospective Study. Future of Medical Education Journal, 6(1), 31-35. doi:10.22038/FMEJ.2016.6906.
- 15- Elizabeth, M.M. (2015). Competence of midwives in prevention and management of postpartum Haemorrhage at Kiambu District Hospital labour ward, Kiambu County (Doctoral dissertation, University of Nairobi). REG.NO: H56/67862/2013. Email address: elizamutunga@gmail.com.
- 16- Jaber, E. A., & Abbas, I. M. (2011). Assessment of licensed indigenous midwives' knowledge concerning prevention and management of postpartum hemorrhage in Baghdad city. nursing national Iraqi speciality, 24(2), 1-12

