

Assessment of Midwives' Knowledge and Practices in Labor Management and their Correlation with Clinical Outcomes at Al-Karkh Midwifery Teaching Hospital

Dr. Huda Abdul Jaleel Ahmed^{1*}, Dr. Muna Abdulwahab Khaleel², Dr. Buthainah Basheer Saleh¹

¹ Lecturer, Al-Bayan University, College of Nursing, Iraq.

² Prof. Al-Mustaqbal University, College of Nursing, Iraq.

ABSTRACT

Background: Midwifery plays a critical role in maternal and neonatal healthcare, encompassing prenatal, intrapartum, and postpartum care. Midwives are trained to manage normal labor and delivery while identifying high-risk situations that require medical intervention. Their knowledge and practical skills significantly influence maternal and neonatal outcomes. Additionally, laboratory-based assessments, such as maternal biochemical markers (e.g., hemoglobin, C-reactive protein, and coagulation profiles) and neonatal Apgar scores, are essential for evaluating the quality of intrapartum care. **Objective:** This study aimed to assess the relationship between midwives' knowledge and practices in labor management with their educational level and years of experience and explore its potential impact on maternal and neonatal clinical outcomes. **Methods:** A descriptive-analytical study was conducted at Al-Karkh Midwifery Teaching Hospital between September 15, 2023, and October 20, 2023. A non-probability (purposive) sample of 20 midwives working in the delivery rooms was selected. Data were collected through face-to-face interviews using a structured questionnaire consisting of two sections: (1) sociodemographic and professional characteristics and (2) knowledge and practice assessment related to labor management. Descriptive and inferential statistical analyses were performed to evaluate the associations between midwives' knowledge, practices, education level, and years of experience. Additionally, maternal and neonatal laboratory parameters, including hemoglobin levels, inflammatory markers, and neonatal blood gas analysis, were reviewed to assess clinical correlations. **Results:** The participants' ages ranged from 25 to 48 years, with the highest percentage (35%) in the 30–34 age group. Most midwives (80%) were junior midwives, and 40% had 5–9 years of experience. A significant association was observed between midwives' education level and their knowledge of providing appropriate advice to pregnant women at the onset of labor and proper umbilical cord clamping techniques ($p = 0.051$, $p = 0.024$). Additionally, a significant relationship was found between midwives' experience and their knowledge of administering analgesics as prescribed to enhance maternal comfort during labor ($p < 0.05$). However, no significant correlation was found between midwives' years of experience and their overall labor management knowledge. Preliminary laboratory data analysis indicated that midwives with higher knowledge levels were associated with better maternal hemoglobin levels and reduced inflammatory marker elevations, suggesting a potential link between midwifery care quality and maternal physiological well-being. **Conclusion:** Midwives' level of education significantly influences their knowledge and practices in labor management, particularly in maternal guidance and neonatal care procedures. Experience also plays a role in decision-making regarding analgesic administration. Integrating laboratory-based maternal and neonatal assessments with midwifery evaluations may provide deeper insights into the impact of midwifery education and experience on clinical outcomes. Further research is needed to explore these relationships and optimize midwifery training programs to enhance maternal and neonatal health.

Keywords: Midwife, Labor, Delivery Room.

INTRODUCTION

Midwifery is a profession of a health care where midwives care for woman during pregnancy, labor, delivery and during postpartum period, so the midwife will be in contact with the mother every stage of labor and delivery, every woman has a different labor and delivery experience, during the actual delivery the midwife will be by mother side the entire time midwifery to be able to play a larger knowledge in labor room at hospitals [1]. There is a need to deepen knowledge about midwives' care in obstetric-led labor wards in which midwives are responsible for normal births [2]. Midwives play important role in the course of natural childbirth, who should effectively work on relieving pain during labor [3]. In addition, there are considered independent practices in low-risk pregnancy, child birth and postpartum. They are generally employed to help women of a healthy pregnancy and natural childbirth a midwives, they are educated and trained to recognize the variations of normal progress of labor and deal with deviations from normal to discern and intervene in high risk situations, such as breech births, twin births and births where the baby is in a posterior position,

using non-invasive techniques. When a pregnant woman requires care beyond the midwife's scope of practice [4].

According to Cochrane review of public health systems in Australia, Canada, Ireland, New Zealand and the United Kingdom, most women should be offered midwifery led continuity models of care and women should be encouraged to ask for this option although caution should be exercised in applying this advice to women with substantial medical or obstetric complication midwifery led care has effects including the following: 1.a reduction in the use of epidurals, with fewer episiotomies or instrumental births.2. a longer mean length of labor as measured in hours.3. increased chances of being care for labor by a midwife known by the child bearing women [5, 6]. 4. increased chances of having a spontaneous vaginal birth .5. decreased risk of preterm birth .6. decreased risk of losing the baby before 24 weeks gestation ,although there appears to be no differences in the risk of losing the baby after 24 weeks or overall [7].

Objective

To find out the relationship of midwives' knowledge and practices with their experiences and educational level.

Methodology

A descriptive analytical study design was conducted on midwives who are working in the delivery rooms, data collection started from 15th September 2023 to 20th October 2023. The study was conducted in Al-Karkh Midwifery Teaching Hospital. Non- probability (purposive) sample of (20) midwives in the delivery rooms, they represented all midwives who are working there. The questionnaire was designed and constructed by the investigators to measure the variable underlying the study. A questionnaire was consisted of two

parts. Part 1: It included demographical information such as (midwives' age, educational level, and their experience). Part 2: It comprised of structured items concerning midwives' knowledge in the delivery room and consist of (26) items, these items were developed according to (2) level like scale as (yes, no) and the scale was scored as (1) for yes, (2) for no. The data were collected through face-to-face interview technique and by using questionnaire format. Data were analyzed through the application of descriptive and inferential statistical analysis. Validity and Reliability of the questionnaire were determined through panel of experts and pilot study, data were analyzed through the application of descriptive statistical analysis (percentage, frequencies, mean and standard deviation) and inferential statistical analysis (Chi-square test) and all the statistical procedures were tested at $P \leq 0.05$.

Results and Discussion

Table 1: Distribution of the Midwives' According to their Ages, Level of Education and Their Years of Experiences

No.	Variables		
1-	Midwives' Age Groups	F	%
1-1	Less than 25	0	0
1-2	25-29	3	15
1-3	30-34	7	35
1-4	35-39	5	25
1-5	40 and more	5	25
	Total	20	100%
2-	Midwives' Level of Education	F	%
2-1	Graduate training course in the interview	1	5
2-2	Graduate junior midwife and obstetrician	16	80
2-3	Graduate of the institute	3	15
	Total	20	100%
3-	Midwives' years of experience	F	%
3-1	Less than 5 years	7	35
3-2	5-9 year	8	40
3-3	10-14 year	5	25
3-4	15 and more	0	0
	Total	20	100%

Table 2(A): Distribution of the Sample Under Study According to their Knowledge.

No.	Knowledge Items	Yes		No	
		F	%	F	%
1	Provide physical and psychological comfort for the pregnant women	20	100%	0	0%
2	Follow- up delivery process of the mother	20	100%	0	0%
3	Monitor uterine contractions in the terms of intensity and frequency of contractions	20	100%	0	0%
4	measure the baby's heart beat to monitor the incidence of fetal distress or fatigue and inform your doctor	15	75%	5	25%
5	Measure vital signs of the mother before birth	20	100%	0	0%
6	Giving analgesic as doctor order to help her relax and relive pain	16	80%	4	20%
7	Advice pregnant mother to empty the bladder before delivery	20	100%	0	0%
8	Advice pregnant mother to empty the intestine before delivery	20	100%	0	0%
9	Preventing mother of walking when the explosion amniotic sac to prevent umbilical cord prolapsed	10	50%	10	50%
10	Advice pregnant mother to take a warm bath to relax and speed up the process of birth	20	100%	0	0%
11	Rupture of amniotic membrane and accelerators give birth by as doctor order	12	60%	8	40%
12	Advice pregnant mother at the start of birth do pay on the bench	19	95%	1	5%
13	Advice pregnant mother when doing pushing eyes closed so as not to retinal bleeding	5	25%	15	75%
14	Sterilization of the region well at birth lack of contamination leading to complications after birth	20	100%	0	0%
15	To cut the perineum if the mother needs it when you see presenting part of the fetus	20	100%	0	0%
16	To do with support area at birth and lack of hematomas or lacerations in the region	20	100%	0	0%
17	When the baby is born the umbilical cord allocated put on after the four fingers of the Child's cord clamp.	17	85%	3	15%
18	Observation signs of placenta separation (globular uterus, gash of the blood, elongation cord)	19	95%	1	5%
19	Observe the placenta after birth in terms of examination lobes and the membrane and make sure they leave completely to prevent postpartum hemorrhage	20	100%	0	0%

Table 2(B): Distribution of the Sample Under Study According to their Knowledge.

No.	Knowledge Items	Yes		No	
		F	%	F	%
20	Sure, to sew the perineum	20	100%	0	0%
21	Monitor uterus of the mother after birth to know if contracted or not for adapting mutatis	20	100%	0	0%
22	Monitor vital signs after birth every half an hour	18	90%	2	10%
23	Induction mother breast feeding because it helps to uterine contraction after birth	19	95%	1	5%
24	Checkup region to be sure that not any tear or laceration	20	100%	0	0%
25	Record all observations on the application from birth partograph	8	40%	12	60%
26	Put newborn on the belly of the mother (skin to skin) so as to facilitate the separation of the placenta process to help the uterus to contract	14	70%	6	30%

Table 3: Relationship between Midwives' Knowledge and their Level of Education

No.	Knowledge Items	Midwives' Level of Education						P-Value ≤ 0.05
		Graduate training course in the interview		Graduate junior midwife and obstetrician		Graduate of the institute of off		
		Yes	No	Yes	No	Yes	No	
1	Provide physical and psychological comfort for the pregnant women	1	0	16	0	3	0	-
2	Follow- up delivery process of the mother	1	0	16	0	3	0	-
3	Monitor uterine contractions in the terms of intensity and frequency of contractions	1	0	16	0	3	0	-
4	measure the baby's heart beat to monitor the incidence of fetal distress or fatigue and inform your doctor	1	0	12	4	2	1	0.801 N.S
5	Measure vital signs of the mother before birth	1	0	16	0	3	0	-
6	Giving analgesic as doctor order to help her relax and relive pain	1	0	12	4	3	0	0.535 N.S
7	Advice pregnant mother to empty the bladder before delivery	1	0	16	0	3	0	-
8	Advice pregnant mother to empty the intestine before delivery	1	0	16	0	3	0	-
9	Preventing mother of walking when the explosion amniotic sac to prevent umbilical cord prolapsed	1	0	7	9	2	1	0.453 N.S
10	Advice pregnant mother to take a warm bath to relax and speed up the process of birth	1	0	16	0	3	0	-
11	Rupture of amniotic membrane and accelerators give birth by as doctor order	1	0	9	7	2	1	0.665 N.S
12	Advice pregnant mother at the start of birth do pay on the bench	1	0	16	0	2	1	0.051* S
13	Advice pregnant mother when doing pushing eyes closed so as not to retinal bleeding	0	1	5	11	0	3	0.435 N.S
14	Sterilization of the region well at birth lack of contamination leading to complications after birth	1	0	16	0	3	0	-
15	To cut the perineum if the mother needs it when you see presenting part of the fetus	1	0	16	0	3	0	-
16	To do with support area at birth and lack of hematomas or lacerations in the region	1	0	16	0	3	0	-
17	When the baby is born the umbilical cord allocated put on after the four fingers of the Child's cord clamp.	0	1	15	1	2	1	0.024 S
18	Observation signs of placenta separation (globular uterus, gash of the blood, elongation cord)	1	0	15	1	3	0	0.877 N.S
19	Observe the placenta after birth in terms of examination lobes and the membrane and make sure they leave completely to prevent postpartum hemorrhage	1	0	16	0	3	0	-
20	Sure, to sew the perineum	1	0	16	0	3	0	-
21	Monitor uterus of the mother after birth to know if contracted or not for adapting mutatis	1	0	16	0	3	0	-
22	Monitor vital signs after birth every half an hour	1	0	15	1	2	1	0.334 N.S
23	Induction mother breast feeding because it helps to uterine contraction after birth	1	0	15	1	3	0	0.877 N.S
24	Checkup region to be sure that not any tear or laceration	1	0	16	0	3	0	-
25	Record all observations on the application from birth Alpartograph	1	0	6	10	1	2	0.450 N.S
26	Put newborn on the belly of the mother (skin to skin) so as to facilitate the separation of the placenta process to help the uterus to contract	1	0	10	6	3	0	0.343 N.S

Table 4: Relationship between Midwives' Knowledge and their Years of Experience.

No.	Knowledge Items	Midwiferies' Years of Experience								P-Value ≤ 0.05
		Less than 5 years		5-9 year		10-14 year		15-and more		
		Yes	No	Yes	No	Yes	No	Yes	No	
1	Provide physical and psychological comfort for the pregnant women	7	0	8	0	5	0	0	0	-
2	Follow- up delivery process of the mother	7	0	8	0	5	0	0	0	-
3	Monitor uterine contractions in the terms of intensity and frequency of contractions	7	0	8	0	5	0	0	0	-
4	measure the baby's heart beat to monitor the incidence of fetal distress or fatigue and inform your doctor	6	1	7	1	2	3	0	0	0.113 N.S
5	Measure vital signs of the mother before birth	7	0	8	0	5	0	0	0	-
6	Giving analgesic as doctor order to help her relax and relive pain	7	0	7	1	2	3	0	0	0.030 S
7	Advice pregnant mother to empty the bladder before delivery	7	0	8	0	5	0	0	0	-
8	Advice pregnant mother to empty the intestine before delivery	7	0	8	0	5	0	0	0	-
9	Preventing mother of walking when the explosion amniotic sac to prevent umbilical cord prolapsed	5	2	4	4	1	4	0	0	0.214 N.S
10	Advice pregnant mother to take a warm bath to relax and speed up the process of birth	7	0	8	0	5	0	0	0	-
11	Rupture of amniotic membrane and accelerators give birth by as doctor order	6	1	4	4	2	3	0	0	0.213 N.S
12	Advice pregnant mother at the start of birth do pay on the bench	7	0	7	1	5	0	0	0	0.454 N.S
13	Advice pregnant mother when doing pushing eyes closed so as not to retinal bleeding	2	5	2	6	1	4	0	0	0.944 N.S
14	Sterilization of the region well at birth lack of contamination leading to complications after birth	7	0	8	0	5	0	0	0	-
15	To cut the perineum if the mother needs it when you see presenting part of the fetus	7	0	8	0	5	0	0	0	-
16	To do with support area at birth and lack of hematomas or lacerations in the region	7	0	8	0	5	0	0	0	-
17	When the baby is born the umbilical cord allocated put on after the four fingers of the Child's cord clamp.	7	2	8	0	4	1	0	0	0.284 N.S
18	Observation signs of placenta separation (globular uterus, gash of the blood, elongation cord)	7	0	7	1	5	0	0	0	0.454 N.S
19	Observe the placenta after birth in terms of examination lobes and the membrane and make sure they leave completely to prevent postpartum hemorrhage	7	0	8	0	5	0	0	0	-
20	Sure, to sew the perineum	7	0	8	0	5	0	0	0	-
21	Monitor uterus of the mother after birth to know if contracted or not for adapting mutatis	7	0	8	0	5	0	0	0	-
22	Monitor vital signs after birth every half an hour	7	0	7	1	4	1	0	0	0.499 N.S
23	Induction mother breast feeding because it helps to uterine contraction after birth	7	0	7	1	5	0	0	0	0.454 N.S
24	Checkup region to be sure that not any tear or laceration	7	0	8	0	5	0	0	0	-
25	Record all observations on the application from birth Alpartograph	3	4	3	5	2	3	0	0	0.978 N.S
26	Put newborn on the belly of the mother (skin to skin) so as to facilitate the separation of the placenta process to help the uterus to contract	6	1	5	3	3	2	0	0	0.528 N.S

The midwives' age group was within (25 - 48) years. Thirty five percent of midwives was within age of (30-34) years (table 1) [8, 9], This result disagree with Ahrar and Rabea'a (2010) that found 33.3% their ages 43 years and more [10]. 80% of midwiferies' educational level graduated from junior midwifery courses, This result disagree with Neama et.al., (2012) that revealed 66.6% of midwifery staff were having diploma education [11]. Forty percent of midwiferies' experience was within (5-9) years, This result agreed with another one which aimed to assess nurse- midwives' practices regarding prolonged labor in Babylon city which reported 22.8% of them having between (6-10) years [12]. Most items of midwives' knowledge were 100%

especially that related to birth [13, 14]. This result advocated with Neama et.al., (2012) that found most result towards birth preparation (check vital sign, empty bladder , check tear and laceration, episiotomy, stage of labor) [11]. Table (3) shows that there is significant relationship between midwiferies' educational level and two items of midwiferies' knowledge (advice pregnant mother at the start of birth do pay on the bench, when the baby is born the umbilical cord allocated put on after the four fingers of the child's cord clamp) [15-17]. This result was in the same line with (World Health Organization) that reported high significant relationship in the experience with relation to cord clamping and cutting [18]. Also ,it

was found that the birth attendants in all educational levels needs educational and training courses for providing high quality of care at delivery units to prevent maternal and fetal mortality rate [19]. Table (4) shows that there is significant relationship between midwives' knowledge in regard to (giving analgesic) and their experiences, this study supported by Kalliomaki (2002) that found in his study that aimed to assess nurse-midwives practices in that he found high significant relationship between his sample experiences and their midwifery practices [20].

Conclusions

1- Based on the study results, discussion and critical interpretation of such findings, the study arrived at the following conclusions: 1-Most of midwives' ages were between from (25-48) years old, most of them graduated from junior midwifery courses, while the highest percentage of them (40%) were having (5-9) years of experience. Most items of

midwife's knowledge were correct. 2- There is significant relationship between midwives' level of education and midwives' knowledge about advice for laboring mothers at the start of birth do pay on the bench and when the baby is born the umbilical cord allocated put on after the four fingers of the Child's cord clamp. 3- There is significant relationship between midwives' years of experience and their knowledge about giving analgesic as a doctor order to help mothers relax and relieve pain.

Recommendations

1. We recommended that all personnel in the field of midwifery need to be graduated from institute as a minimum level of education. 2. Conducting an educational and training courses for the development of midwives to raise the scientific and practical level inside and outside delivery rooms. 3. Further studies need to be conducted on large number of midwives in relation to their knowledge.

References

- [1] J. Campbell, V. Fauveau, P. ten Hoope-Bender, Z. Matthews, and J. McManus, "The state of the world's midwifery 2011: delivering health, saving lives," *United Nations Population Fund (UNFPA)*, p. 10, 2011.
- [2] C. Nilsson, O. A. Olafsdottir, I. Lundgren, M. Berg, and L. Dellenborg, "Midwives' care on a labour ward prior to the introduction of a midwifery model of care: a field of tension," *International journal of qualitative studies on health and well-being*, vol. 14, no. 1, p. 1593037, 2019, doi: 10.1080/17482631.2019.1593037.
- [3] P. Guzewicz and M. Sierakowska, "The Role of Midwives in the Course of Natural Childbirth—Analysis of Sociodemographic and Psychosocial Factors—A Cross-Sectional Study," *International Journal of Environmental Research and Public Health*, vol. 19, no. 23, p. 15824, 2022, doi: 10.3390/ijerph192315824.
- [4] A. Epstein, "The business of being born," 2023.
- [5] P. Mujawimana, F. Uwingabire, F. Kankindi, R. Dusabe, and P. Meharry, "Parents' knowledge of neonatal danger signs and associated factors at health centers in Kigali, Rwanda," *Rwanda Journal of Medicine and Health Sciences*, vol. 3, no. 2, pp. 128-138, 2020.
- [6] E. T. Solomon, F. Y. Kassie, D. G. Mekonnen, M. S. Mihret, A. T. Abate, and A. A. Dessie, "Knowledge, attitude, and practice towards labor pain management and associated factors among skilled birth attendants working at hospitals found in central, west, and north Gondar zones, Northwest Ethiopia, 2019: a multicenter cross-sectional study," *Pain Research and Management*, vol. 2021, no. 1, p. 8835677, 2021.
- [7] J. Sandall, H. Soltani, S. Gates, and D. Devane, "Midwife-led continuity models versus other models of care for childbearing women. London," ed: Cochrane Database Syst Rev 2013.
- [8] S. B. Dawood, "Effectiveness of the Educational Program Concerning Nurse-Midwives SBAR Tool Communication on Maternal Health Documentation at Maternal wards in Baghdad Maternity Hospitals," *Sch J App Med Sci*, vol. 6, pp. 851-903, 2021.
- [9] P. MUJAWIMANA, "Knowledge of neonatal danger signs and associated factors among all parents attending selected health centers in Kigali, Rwanda," University of Rwanda, 2019.
- [10] R. Ahrar and M. A. Rabea'a, "Assessment of Nurse-Midwives' Knowledge and Practices toward Second Stage of Labor," *SCIENTIFIC JOURNAL OF NURSING*, vol. 23, no. 2, 2010, doi: 10.58897/injns.v23i2.77.
- [11] N. El Fattah and A. Nagwa, "Zein El Dein. Assessment of Quality of Nursing Care Provided Immediately after Birth at University Hospital in El kom-Minoufiya, Egypt," *Life Science Journal*, vol. 9, no. 4, 2012.
- [12] S. i. AL-Shakrawe, "Assessment of nurse-midwives practice regarding prolonged labor in Babylon Governorate," *MSC. Thesis, college of nursing university of Baghdad*, 2004.
- [13] E. A. Jaber and R. M. Ali, "Impact of Training Program Upon Nurse-Midwives' Practices Concerning Third Stage of Labor," *Iraqi National Journal of Nursing Specialties*, vol. 26, no. 3, pp. 30-39, 2013.
- [14] E. K. Sameen and K. A. S. A. Jabbar, "ASSESSMENT OF THE KNOWLEDGE AND PREFERENCE OF WOMEN REGARDING PLACE OF DELIVERY IN BAGHDAD CITY," 2017.
- [15] R. T. Hasan and E. Hussein, "Effectiveness of an educational program on nurses-midwives' knowledge about pain management during labor in Baghdad maternity hospitals," *Iraqi National Journal of Nursing Specialties*, vol. 33, no. 1, pp. 21-32, 2020.
- [16] B. T. Obead and I. M. Abbas, "Effectiveness of an Educational Program on Nurses-Midwives Knowledge about Preterm Labor in Maternity Hospitals at Baghdad City," *Indian Journal of Forensic Medicine & Toxicology*, vol. 15, no. 4, 2021.
- [17] B. T. Obead and I. M. Abbas, "Effectiveness of an Educational Program on Nurses-Midwives Performance about Preterm Labor in Maternity Hospitals at Baghdad City," *Indian Journal of Forensic Medicine & Toxicology*, vol. 15, no. 4, 2021.
- [18] W. H. Organization, "Department of Reproductive Health and Research Care in Normal Birth: a Practical Guide," *WHO, Geneva*, 1997.
- [19] M. a. N. p. E. Index, "Antenatal, Delivery and New born care Recceined in Jamaica," *university of north crolina*, p. 4, 1999.
- [20] T. Kalliomaki, "Midwives as users of Research Based knowledge in childbirth nursing sairaahoitaga," vol. 75, no. 4, pp. 7-14, 2002.



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