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Original Article

Assessment of an Educational Program Aimed at Improving Nurses-Midwives' Knowledge about the Benefits of Immediate Skin-to-Skin Contact Post-Delivery in Kirkuk City Hospitals

Noor Raad Ridha[1,*] | Rabab Hamody Hanon[2]

[1]MSc Student @ University of Kirkuk, College of Nursing, Kirkuk, Iraq.

[2] Dr.Maternity Health Nursing. Kirkuk University, Nursing College, Maternity Health Nursing Department

[*]Corresponding Author

nsrm23013@uokirkuk.edu.iq
Rabab1983@uokirkuk.edu.iq

Abstract

Background: SSC is a professional practice by placing a newborn infant, wearing only in a diaper, directly onto the bare chest of the mother after birth. The mother positions the newborn prone and upright between her breasts, enshrouding it in a heated blanket to promote direct skin-to-skin contact. This approach facilitates the physiological stability of the neonate, encourages the prompt beginning of breastfeeding, strengthens maternal-infant attachment, and leads to enhanced short- and long-term health outcomes.

Aim:Is to evaluate nurses-midwives' existing knowledge regarding the benefits of SSC and to determine the effectiveness of an educational program in enhancing their understanding.

Methods: A quasi-experimental study using a pre-test/post-test design was applied. A purposive sample of 60 nurse-midwives was selected to participate. Participants completed a knowledge assessment before the intervention, attended an educational session about SSC, and then completed a post-intervention assessment to measure changes in knowledge.

Results: Findings indicated that prior to the educational intervention, 70% of participants had a low level of knowledge about SSC. Following the program, 83.3% of them demonstrated a good level of understanding. The average knowledge score increased significantly from 13.28 (±8.763) in the pre-test to 44.42 (±8.823) in the post-test. The Wilcoxon signed-rank test showed a Z-value of -6.684 and a p-value of .001, confirming a statistically significant improvement.

Conclusion: The results indicates that majority of nurses-midwives had inadequate knowledge of SSC prior to the educational intervention. The program had a significant positive impact on their knowledge, with statistically meaningful differences observed between pre- and post-test scores.

Recommendation: Adding the SSC into the hospital system's rules will facilitate procedures in the delivery room. planning a strategy for continuing education programs to enhance the clinical abilities of nurses and midwives every six months, and to increase their knowledge and performance in this area.

Keywords: Educational program, Knowledge, skin-to-skin-contact

Introduction

Although it may seem like a simple parenting technique, experienced mothers consider early skin-to-skin contact (SSC)—also called kangaroo mother care—to be an art form. During SSC, which occurs within the first few minutes after birth and usually lasts less than 10 minutes—the mother places her naked newborn on her bare chest or abdomen, ideally between her breasts.(Young, 2020). This early interaction fosters a strong emotional connection and allows the mother to better understand and respond to her baby's needs, thereby enhancing her confidence and attachment(Mejbil et al., 2018). In the 1970s, when there was a scarcity of incubators for preterm babies in Bogotá, Colombia, the idea of SSC became known. Instead of using an incubator, pediatricians advocated for regular skin-to-skin contact between mothers and their infants(Cañadas et al., 2022).The World Health Organization (WHO) defines skin-to-skin contact (SSC) as placing the baby in a prone posture on the mother's chest or abdomen to facilitate direct skin contact. This should ideally commence within 10 minutes of delivery and last for a minimum of 60 minutes, with early skin-to-skin contact defined as occurring within the first 23 hours post-birth(WHO, 2017). There are numerous methods for determining the appropriate timing of SSC initiation. For healthy, full-term infants, SSC is categorized into three types: immediate within the first minute after birth, early within 24 hours, and delayed SSC (Ciavarella, 2023). Applying skin-to-skin contact (SSC) methods allows mothers to maximize their chances for breastfeeding. Moreover, commencing breastfeeding together with skin-to-skin contact at birth might reduce both the incidence and severity of postnatal hemorrhage (PPH). Furthermore, lower rates of postpartum hemorrhage may lead to a reduction in maternal morbidity and mortality worldwide(Ginnane et al., 2024). Daily skin-to-skin contact between the mother and newborn is a beneficial, simple, and organic approach that may significantly alleviate postpartum symptoms of depression in women. During SSC, the naked newborn, dressed only in a diaper, is placed on the mother's bare chest.(Cooijmans et al., 2017).The SSC method was established as an alternative treatment to incubation facilities for low birth weight and preterm infants(Carneiro et al., 2024). Research indicates that daily skin-to-skin contact (SSC) in preterm infants is associated with a decrease in mother's symptoms of depression.Nurses play a crucial role in promoting skin-to-skin contact (SSC) to support newborn growth within healthcare settings, as they consistently deliver care for mothers and infants in medical facilities. Consequently, the development of their skills and abilities is crucial. The sustainability of SSC practice requires a comprehensive approach, encompassing extensive staff training programs, continuous reinforcement through practical experiences, and the promotion of constructive interactions among departments.. (Joseph, 2020).The American College of Nurse-Midwives (2019) recommends that "direct skin-to-skin contact should be initiated between mothers and their healthy newborns immediately after delivery and following the initial breastfeeding."

This technique will also decrease the incidence of breastfeeding issues, which studies has shown to negatively affect children's health(Hewedy et al., 2023).

Methodology

Design and Setting

A quasi-experimental study pre-test/post-test design was carried to assess nurses-midwives‟ knowledge regarding SSC ,The study was conducted on the nurses who work in the maternity department (labor room) from Kirkuk teaching hospital & Azadi teaching hospital& Maternity&child (Al-Naser) hospital At Kirkuk Health Director.The sample recruitment takes place from December 12th 2024 to May 5th 2025.

Sample

Study sample A purposive non probability sampling technique was used to recruit 60 nurses in maternity (labor room) departments of the selected hospitals.

Inclusion Criteria: Participants were eligible they include: Nurses who consent to participate, Nurses with over two years of experience in the labor room, Nurses chosen for morning shifts, and Nurses employed in the maternity (labor room) department.

Exclusion Criteria

who declined to partake in the study, Had less than one year of experience ,Nurses participating in the pilot study, nurses chosen for night shifts, and nurses who do not work in maternity (labor room).

Methods of data Collection

Data were gathered by an organized questionnaire that was self- administered.The questionnaire is derived from a literature review and previous study (Mejbel et al., 2012; Omer, 2021; Turenne et al., 2016).

Part (1) : Nurse_Midwive Sociodemographic

Included five items covering age, marital status, educational background, place of residence, and socioeconomic status.

Part(2) :Functional characteristics

This part consist of 7 questions regarding the functional characteristics of the study samples nurse, including job description, years of service ,years of experience in midwifery, specific training about Socratic in occupation, working timeliness to work.

Part(3): Knowledge of nurses – midwives

This section focused on 4 domains assessed through close-ended items (“I know” or “I don’t know”):

1/ Nurses-midwives' Knowledge of SSC benefits for the mother (11 items)

2/ Nurses-midwives'Knowledge of SSC benefits for the newborn (8 items)

Tool Validity and Reliability

A council of nine experts verified the content validity of the educational program and the questionnaire. A doctor from the College of Medicine at the University of Kirkuk, a couple from the College of Nursing at the University of Kirkuk, the two from the College of Nursing at the University of Mosul, two from the University of Baghdad, and a couple working gynecologists were among the participants. Cronbach's alpha was employed to evaluate internal consistency, and Pearson's correlation coefficient was employed to investigate item correlations.

Data Analysis

The data and results were analyzed and interpreted by the Statistical Software for Social Sciences (SPSS), version 26.0. The computation of Mean (M), Standard Deviation (SD), Frequency (f), and Percentage (%) are fundamental elements of descriptive data analysis. Cronbach's Alpha (α), Kolmogorov-Smirnov Test, the Pearson correlation coefficient (r), Spearman's Rank Correlation Coefficient, Point Biserial Correlation, and Wilcoxon Signed-Rank Test are statistical methodologies employed in inferential data analysis.

Results and Discussion

Table 1: The distribution of Nurse-Midwives by Socio-Demographic Characteristics

The findings in Table (1) detail the demographic details of the 60 nurses involved in the study.The results demonstrate that the highest percentage of nurse-midwives is comprised of younger individuals, Forty percent of the total population is within the age group of 20 to 29 years , followed by an age group of 30 – 39 years (37.7%). The average age for nurse-midwives refers to 33.5 ± 7.7 years. My result agreement with a study conducted in Kirkuk city hospitals(Mehammed-Ameen et al., 2019) who found most of nurses age between (20_29)years.The findings of participants outcomes results showed that most of the nurse-midwives were in the early age group this may because midwives often start young due to the demanding nature of the profession, the direct transition from education, and the need for a sustainable workforce with long career spans.These findings are congruent with the study by(Hussein & Abbas, 2021),in Baghdad City/Iraq which showed that more than (20%) of total nurse-midwives were between the age group (21 and 27) years.Ongoing the interpretation of patients' nurse-midwives findings results in a marital status variable showing more than half of nurse-midwives are married, while one-third of them are still unmarried because this age is the appropriate period for marriage according to the sample community. This finding agreed with a study by (Hamood & Khairi, 2017) in Bagdad which found that most midwife was married with (47%) from total sample.

By reviewing the findings of the level of education for nurse-midwives reveals that one third of sample are with bachelor degree in nursing (30%) followed by one quarter who graduated from nursing preparatory schools (25%). My study agreement with a study conducted by (Shakor & Salih, 2020) in Kirkuk city hospitals they founded a (35%) of nurses have bachelor drgree in nursing.In controversial to this finding a study done by(Ali & Ghafel, 2022) found the proportion ratio more than two-third of the total sample had midwifery secondary school. The present study indicated that most participants were categorized as "Urban Residency," aligning with previous research conducted in Saudi Arabia by (Abdulghani et al., 2020). Over three-quarters of the study participants were categorized as having "high" or "moderate" economic status. This finding aligns with comparable studies conducted by (Esan et al., 2020) in Nigeria.

Table (1):

List	Characteristics		F	%
1	**Age (year)** **M±SD= 33.5 ± 7.7**	20 –29	24	40
		30 –39	22	36.7
		40 –49	12	20
		50 and more	2	3.3
		Total	***60***	***100***
2	**Marital status**	Married	33	55
		Unmarried	22	36.7
		Divorced	3	5
		Widowed	2	3.3
		Total	***60***	***100***
3	**Level of education**	Nursing Intermediate school	4	6.7
		Nursing preparatory school	15	25
		Midwifery Preparatory sch.	8	13.3
		Nursing Diploma	4	6.7
		Midwifery Diploma	11	18.3
		Bachelor	18	30
		Total	***60***	***100***
4	**Residency**	Urban	49	81.7
		Rural	11	18.3
		Total	***60***	***100***
5	**Perceived socioeconomic status**	Low	1	1.7
		Moderate	17	28.3
		High	42	70
		Total	***60***	***100***

f: Frequency, %, %: Percentage, M: Mean, SD: Standard deviation

Table (2): Distribution of Nurse-Midwives according to their Professional Characteristics

List	Characteristics		F	%
1	**Job description**	Nurse	36	60
		Nurse-midwife	7	11.7
		Midwife	17	27.3
		Total	***60***	***100***
2	**Years of experience in nursing** **M±SD= 10 ± 6**	1 – 5	11	18.3
		6 – 10	26	43.3
		11 – 15	17	28.3
		16 – 20	0	0
		21+	6	10
		Total	***60***	***100***
3	**Years of experience in midwifery** **M±SD= 4.7 ± 4.6**	1 – 5	41	68.3
		6 – 10	13	21.6
		11 – 15	4	6.7
		16 – 20	1	1.7
		21+	1	1.7
		Total	***60***	***100***
4	**Training courses**	None	29	48.4
		1 – 3	23	38.3
		4 – 6	6	10
		7 +	2	3.3
		Total	***60***	***100***
5	**Practice in occupation**	Hospital only	38	63.3
		Public & private Hosp.	21	35
		Hospital & home	1	1.7
		Midwife's home	0	0

		Client's home	0	0
		Total	***60***	***100***
6	**Working shift**	Morning	60	100
		Night	0	0
		Total	***60***	***100***
7	**Interest to work in Midwifery**	No	24	40
		Yes	36	60
		Total	***60***	***100***

f: Frequency, %: Percentage, M: Mean, SD: Standard deviation

The data analysis in Table (2) show the professional characteristics of nurse-midwives ,The years of experience in nursing indicates that higher proportion of nurse-midwives Approximately more than one third precent of the sample have "6 – 10" years.The distribution of experience among nurse-midwives, characterized by a greater percentage possessing "1–5" years of midwifery experience. this study align findings in Australia by (Sheehy et al., 2019)This study indicates that numerous midwives are either in the early periods of their profession or have gone into midwifery professions following previous nursing experience.This may because the years of experience category signifies an important professional phase that integrates job stability with new clinical skills, thereby improving midwives' effectiveness in delivering quality care. This group is frequently favored in healthcare employment because of its combination of skill and relatively moderate employment costs in comparison to other experience levels.The participants comprised nurses with a minimum of five years of experience at hospitals associated with Mashhad Medical University. The requirements of five years of experience was derived from Benner, who considers it essential for professional advancement. They possessed 5 to 20 years of professional experience in Iran by (Amiri & Heydari, 2017). This may be because this period was considered essential for advancement in the profession. The findings indicate that most competent nurse-midwives began their professional life in nursing first before shifting to midwifery. The progressive development in this field has led to a larger accumulation of nursing experience compared to midwifery, highlighting the notable difference in average years of experience between the two professions.

Regarding participation in training courses about skin-to skin contact, a significant proportion has not participated in such courses half of them . About third of them that they participated in "1 – 3" training courses.The study's findings are not consistent with A study conducted by (Almutairi,

2022)in Saudi Arabi, that third of nurses did not receive training on SSC during orientation, while 42.5% perceived SSC guidelines and protocols as unclear and lacking comprehensiveness. This may because that nurse possessed a moderate understanding of SSC, revealing significant correlations among their knowledge, attitudes, education, and the execution of SSC practices.These finding agree with A study by (Abd Elhakm & Elbana, 2018) in Benha, Egypt. Shows that just 23% of nurses and midwives engaged in training courses aimed at enhancing their knowledge and practical skills by . The low participation rate may because a larger problem of inadequate training facilities or dedication to job development for skin-to-skin contact (SSC).This result contradict by A study (Adeli & Azmoudeh, 2016) in Iran. This cross-sectional study was conducted on 50 midwives working in hospitals of Torbat Heydariyeh, Iran in 2015, Over 90% of midwives identified training programs, service accessibility, and adequate facilities as significant factors in the effective implementation of SSC.The participation' rate in training courses relevant to this vital practice can be ascribed to numerous primary issues, Insufficient Institutional Support For Continuing Education, there is a significant

lack of institutional support from hospitals and healthcare organizations for the ongoing professional development of nurses and midwives. Hospital administrations frequently neglect to commit essential resources—be they financial or logistical—to support consistent and focused training programs. Moreover, personnel are infrequently allocated designated time away from clinical responsibilities to participate in these courses.Concerning interest for working in midwifery, more than half of nurse-midwives are responding their interest to work in midwifery, while more than third forty have no interest. these finding agree with A research conducted among preparatory students in Ethiopia indicated that merely 18.1% want to pursue a profession in midwifery. The reasons for the disinterest were a lack of enthusiasm for the field (49.4%), apprehension over blood exposure (17.4%), the view of the occupation as stressful (11.2%), excessive workload (3.7%), and inadequate information about the profession (0.2%), The perceived public disdain for the profession and the necessity of nightshift work constituted substantial obstacles(Tadesse et al., 2020) in Ethiopia.So, the very limited interest in a long-term career in midwifery , this may be linked to various causes and interrelated variables. The challenges encompass the emotionally and physically demanding elements of midwifery, frequently resulting in professional burnout; insufficient financial and professional rewards that fail to acknowledge the job's difficulty; inadequate methods for ongoing professional development, leading to job decline; and, in certain instances, midwifery being chosen as an additional or externally influenced career choice rather than a personally driven aspiration. These issues may collectively prevent midwives' commitment for years to the profession.

Table (3): Assessment of Nurses-Midwives' Knowledge about the Benefits of Skin Contact for the Mother during Pretest and Posttest (N=60)

List	Knowledge about the Benefits of Skin Contac for the Mother	Scale	Pre-test			Post-test		
			f (%)	M	Ass.	f (%)	M	Ass.
1	Skin contact improves the physical health of the newborn	Incorrect	27(45)	.55	Fair	3(5)	.95	Good
		Correct	33(55)			57(95)		
2	Helps to make breastfeeding successful from the first attempt	Incorrect	42(70)	.30	Poor	3(5)	.95	Good
		Correct	18(30)			57(95)		
3	Makes the mother feel comfortable and satisfied	Incorrect	49(81.7)	.18	Poor	3(5)	.95	Good
		Correct	11(18.3)			57(95)		
4	Promotes a mother's love for her newborn	Incorrect	45(75)	.25	Poor	8(13.3)	.87	Good
		Correct	15(25)			52(86.7)		
5	Reduces the stress and fear of the mother around the newborn	Incorrect	40(66.7)	.33	Poor	5(8.3)	.92	Good
		Correct	20(33.3)			55(91.7)		
6	Accelerates the time of placenta discharge	Incorrect	41(68.3)	.32	Poor	9(15)	.85	Good
		Correct	19(31.7)			51(85)		
7	It works to shrink the uterus and return it more quickly	Incorrect	42(70)	.30	Poor	10(16.7)	.83	Good
		Correct	18(30)			50(83.3)		
8	Helps to secrete the natural hormone oxytocin in the mother's body	Incorrect	45(75)	.25	Poor	6(10)	.90	Good
		Correct	15(25)			54(90)		
9	Reduces the chances of postpartum bleeding	Incorrect	51(85)	.15	Poor	4(6.7)	.93	Good
		Correct	9(15)			56(93.3)		
10	Maintains the mother's temperature and does not expose her to chills	Incorrect	46(76.7)	.23	Poor	5(8.3)	.92	Good
		Correct	14(23.3)			55(91.7)		
11	Increases the mother's desire to breastfeed	Incorrect	41(68.3)	.32	Poor	8(13.3)	.87	Good
		Correct	19(31.7)			52(86.7)		
Total Average				***.29***	***Poor***		***.90***	***Good***

The findings in Table (3) demonstrate a significant improvement in nurses-midwives' knowledge about the benefits of skin contact for mothers after the intervention. During the pretest, the majority of participants scored poorly across most knowledge items, with incorrect responses ranging from 45% to 85%, and an average knowledge score of 0.29, categorized as poor. In contrast, the posttest results revealed a marked increase in correct responses, with over 83% answering correctly for all items, and the total average score improved to 0.90, categorized as good. This large increase b proves that effectively planned education and intervention can substantially enhance nurse-midwives' comprehension of the significance of skin-to-skin contact in maternal and neonatal care.

The results correspond with constructivist learning theory (Lima et al., 2017)in Brazil.These findings emphasize the important need for continuous training and the inclusion of basic maternal-newborn care topics in formal education and practice, which will help improve nursing skills and better maternal and neonatal health results .Furthermore, these finding agree with a study by (Turenne et al., 2016) in Canada that evaluating nurses' knowledge, education, beliefs, and practices concerning SSC revealed that the average total score for SSC knowledge was 13.6 (SD = 2.3), suggesting a low level of knowledge among the participants. The study demonstrated notable positive correlations between SSC implementation and nurses' knowledge, The findings confirm the essential importance of education in enhancing SSC practices among nurses.A cross-sectional descriptive study by (Hawsawi et al., 2022) in Saudi Arabia that assessing nurses' knowledge and views about SSC indicated that 37.5% of nurses were uncertain about SSC's effect on mitigating the risk of poor brain development in neonates. The research identified substantial relationships between the implementation of SSC and nurses' knowledge levels ($r = 0.297$, $p = 0.031$), education ($r = 0.85$, $p = 0.015$), and beliefs ($r = 0.31$, $p = 0.024$), underscoring the significance of sufficient information, education, and affirmative beliefs in advancing SSC practices. These results demonstrate the efficacy of the training intervention employed in the study, this may because that knowledge is dynamic and may be enhanced by ongoing education. This enhancement demonstrates the capacity of well-organized training programs to transform concepts and furnish healthcare workers with the requisite information to elevate the quality of care delivered.Although knowledge markedly improved post-intervention, the durability of implementation and ongoing training is crucial. The expertise of midwives may decline over time without regular training opportunities to refresh these principles. Consequently, it is essential to incorporate these training courses into continuous professional development programs that ensure the continual enhancement of skills and knowledge.

Table (4): Assessment of Nurses-Midwives' Knowledge about the Benefits of Skin Contact for the Newborn during Pretest and Posttest (N=60

List	Knowledge about the Benefits of Skin Contact for the Newborn	Scale	Pre-test			Post-test		
			f (%)	M	Ass.	f (%)	M	Ass.
1	Stimulates the newborn's immune system	Incorrect	39(65)	.35	Fair	2(3.3)	.97	Good
		Correct	21(35)			58(96.7)		
2	Improves the growth process of the newborn	Incorrect	48(80)	.20	Poor	3(5)	.95	Good
		Correct	12(20)			57(95)		
3	Helps build bonds of love and affection between mother and newborn	Incorrect	38(63.3)	.37	Fair	4(6.7)	.93	Good
		Correct	22(36.7)			56(93.3)		
4	Helps regulate the percentage of oxygen in the blood of the newborn	Incorrect	48(80)	.20	Poor	8(13.3)	.87	Good
		Correct	12(20)			52(86.7)		
5	Regulates the newborn's heartbeat	Incorrect	43(71.7)	.28	Poor	9(15)	.85	Good
		Correct	17(28.3)			51(85)		
6	Helps improve the breathing process of the newborn	Incorrect	52(86.7)	.13	Poor	11(18.3)	.82	Good
		Correct	8(13.3)			49(81.7)		
7	Regulates the temperature of the newborn	Incorrect	37(61.7)	.38	Fair	7(11.7)	.88	Good
		Correct	23(38.3)			53(88.3)		
8	Helps stimulate long, quiet sleep of the newborn	Incorrect	37(61.7)	.38	Fair	6(10)	.90	Good
		Correct	23(38.3)			54(90)		
Total Average				***.27***	***Poor***		***.90***	***Good***

The findings in Table (4) shows A significant improvement in nurses-midwives' understanding of the benefits of skin-to-skin contact (SSC) following the educational intervention correlates closely with current literature emphasizing the value of focused education in promoting evidence-based maternity practices. In the pretest, knowledge levels were generally low, with incorrect responses ranging from 61.7% to 86.7% across the items, and an average score of 0.27, categorized as poor. For instance, only 13.3% correctly identified that skin contact improves the newborn's breathing, and 20% understood its role in regulating oxygen levels in the blood. In contrast, the posttest results show a dramatic increase in correct responses, with over 81% of participants providing accurate answers for all items and the total average score rising to 0.90, categorized as good. Prior to the intervention, the clear lack of understanding—particularly about the physiological advantages of SSC such as respiratory control and oxygen saturation—indicates a considerable knowledge gap among healthcare practitioners.This discovery is congruent with the results of (Moore et al.,

2016) in Italy,who confirm that rapid skin-to-skin contact greatly contributes to newborn respiratory stability, thermoregulation, and the promotion of early mother-infant bonding. Similarly, the World Health Organization WHO (Lopes, 2017). underlines the necessity of equipping nurses and midwives with up-to-date training to ensure the effective .These findings agree with An educational intervention by (Abuhammad et al., 2024) in Jorden .in a newborn intensive care unit (NICU) markedly enhanced nurses' knowledge, attitudes, and views of kangaroo mother care (KMC), a kind of skin-to-skin contact (SSC). The study indicated that following the intervention, there was a statistically significant enhancement in knowledge, These data underscore that educational interventions can significantly improve nurses' comprehension and use of SSC procedures..

The finding demonstrate substantial enhancements in nurse-midwives' knowledge subsequent to the intervention. At first, pretest scores revealed inadequate knowledge levels, so many participants failed to identify essential mother benefits, including enhanced physical health of the newborn (45% wrong responses) and effective breastfeeding initiation (70% wrong responses). Additionally, awareness regarding the advantages of newborn care was minimal, with merely 20% accurately recognizing that skin-to-skin contact aids in regulating oxygen levels.These findings correspond with other research indicating an increasing unawareness among healthcare providers concerning the advantages of SSC(Moore et al., 2016) in Italy.

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