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The URL for journal on ISI server is https://isindexing.com/isi/journal details.php?id=14256

16TH EDITION LAUTECH JOURNAL OF NURSING

A Publication of the Faculty of Nursing Sciences,
College of Health Sciences,
Ladoke Akintola University of Technology, Ogbomoso, Nigeria

VOLUME 16, March, 2025

ISSN 2659-1405

16th Edition LAUTECH Journal of Nursing (LJN)

ISSN 2659-1405

VOLUME 16, March 2025

Address:
Faculty of Nursing Sciences,
College of Health Sciences,
Ladoke Akintola University of Technology,
P. M. B. 4000, Ogbomoso, Nigeria.
Tel: +2348033579737

Printed and published in Nigeria by
Esthom Graphic Prints
Ibadan, Oyo State
Nigeria.
+2347030298365,
E-mail: durowojuthomas@gmail.com

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3. The Journal will accordingly encourage the publication of the following categories of papers.
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In this edition, nineteen (19) manuscripts scale through the eye of the needle of the Editor-in Chief. The title of the papers in this edition are: Assessment of client satisfaction with contraceptive services in public health care facilities in Zamfara State, Nigeria; Sociocultural and economic determinants of open defecation practices in Kano State, Nigeria; effect of simulation based training on midwives' skills in managing retained placenta with umbilical vein oxytocin injection in health facilities, Osun State, Nigeria; Nurses Level Of Preparedness In Management Of Patient With Viral Hemorrhagic Fever In Emergency Ward In University Of Ilorin Teaching Hospital, **Nigeria**; Nursing Education: A Sine Qua Non For Addressing The Healthcare Demands Of The 21st Century; Influence Of Nursing Training On Their Competency In Selecting Wound Dressing Materials At A Secondary Health Facility In Ilorin, Kwara State, Nigeria; Prevalence And Outcome Of Malaria Infection Among Children Below 11 Years In A Tertiary Healthcare Facility In Benin City From 2018-2020; Factors Influencing Prevalence Of Gender Based Violence Among Men And Women In Bagudo LGA Kebbi State, Nigeria; Knowledge Of Health Implications Of Rape And Associated Factors Among Male Undergraduates In Ahmadu Bello University Zaria, Nigeria; Quackery In Nursing, The Causes, Effects And Control Measures: The Nigeria Experience; Knowledge, attitude and practice of injection safety among nurses in Nigeria: a case study of University of Ilorin Teaching Hospital Ilorin, Kwara State, Nigeria; Awareness Of Computer Vision Syndrome Among Staff Of Information Communication And Technology Unit Of University Of Benin Teaching Hospital, Benin City, Edo State, Nigeria; Utilization Of Personal Protective Equipment Against Organic Dusts Among Poultry Farmers In Ona-Ara Local Government Area, Ibadan, Nigeria; Predictors Of Surgical Site Infection Amongst Post Operative Patients In Federal Medical Centre Lokoja, Nigeria; Evaluation Of The Involvement Of Nurses In Policies And Policy Formulation In Nigeria; Determinants of Stress and Coping Mechanisms among Nurses in Aminu Kano Teaching Hospital, Kano State, Nigeria; Influence Of Nursing Training On Their Competency In Selecting Wound Dressing Materials At A Secondary Health Facility In Ilorin, Kwara State, Nigeria; Adaptation To Stress And Academic Performance Of Students In Nursing Institutions In Oyo State, Nigeria; Medication Adherence And Quality Of Life Of Hypertensive Patients Attending Selected Hospitals In Port Harcourt, Rivers State, Nigeria; Perspectives Of Youth On The Legalization Of Abortion In North Central Nigeria.

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EFFECT OF SIMULATION BASED TRAINING ON MIDWIVES' SKILLS IN MANAGING RETAINED PLACENTA WITH UMBILICAL VEIN OXYTOCIN INJECTION IN HEALTH FACILITIES, OSUN-STATE

LYDIA OLUBUKOLA ODESANYA; OLAYINKA A ONASOGA; OPEYEMI AFOLABI; ELISHA OLUWATOBI OLABISI

ABSTRACT

Umbilical Vein (UV) oxytocin injection is vital for managing retained placenta, reducing puerperal sepsis, bleeding, and maternal mortality. This study assessed the impact of simulation-based training on midwives' skills in managing retained placenta using UV oxytocin injection in health facilities in Osun State, Nigeria. A quasi-experimental one-group pretest-posttest design was adopted. A total of 86 midwives from 45 secondary health facilities in Osun State participated. Data on midwives' skills in UV oxytocin injection were collected using a validated checklist with a reliability coefficient of 0.88α at pre-intervention (P0), immediate post-intervention (P1), and six weeks post-intervention (P2), achieving a 100% response rate. The midwives underwent two days of training, which included video and practical demonstrations of the UV oxytocin injection procedure. Data analysis employed descriptive and inferential statistics at a 5% significance level. The respondents were predominantly female (100%), aged 41-50 years (52.3%), and Christian (81.4%). All were Yoruba, and the majority held a post-basic nursing degree (58.2%) and had 10-19 years of service (62.8%). The largest proportion was in the ADNS professional cadre (34.9%), and all worked in secondary health facilities (100%). The study observed a significant increase in the training profile of respondents post-intervention: pre-intervention (42.6%), immediate post-intervention (74%), and six weeks post-intervention (75%). The intervention, focused on intra-umbilical oxytocin injection skills for managing retained placenta, significantly improved participants' practical skills: pre-intervention (11.5%), immediate post-intervention (61.8%), and six weeks post-intervention (75.3%). This study revealed a significant difference between pre-, immediate post-, and six weeks post-intervention scores on midwives' skills in umbilical vein injection of oxytocin for the treatment of retained placenta (P = .000). Further post-hoc analysis of the observed association revealed statistically significant differences between the pre-intervention skills score and both immediate post-intervention skills score ($p < .0001$) and six weeks post-intervention skills score ($p < .0001$). In conclusion, simulation-based training significantly enhanced midwives' skills in managing retained placenta with UV oxytocin injection in Osun State health facilities. It is recommended that simulation-based training be periodically implemented for in-service training of midwives nationwide to enhance their skills.

Keywords: Midwives' skills; Oxytocin injection; Retained placenta; Simulation-based training; Umbilical vein injection

INTRODUCTION

Maternal mortality remains a significant global public health challenge, with a disproportionate burden on low- and middle-income countries, particularly in sub-Saharan Africa. The United Nations (UN) reports a global maternal mortality rate of 223 deaths per 100,000 live births in 2020, with 70% occurring in sub-Saharan Africa (UN, 2023). Nigeria experiences an alarmingly high maternal mortality rate of 540 maternal and child deaths per 1,000 live births, significantly exceeding the global average (UN, 2023). Within Nigeria, Osun state reports a concerning rate of 306 maternal deaths per 100,000 births, highlighting the pressing need for targeted interventions (UN, 2023). One of the leading causes of maternal mortality and morbidity globally is postpartum hemorrhage, to which retained placenta significantly contributes (Edwards, 2018; UN, 2023). Retained placenta is a common complication of labor, affecting 1-6% of all births, with a higher prevalence in developing countries where access to appropriate obstetrical care is limited (Kumar et al., 2021). If left untreated or if management is

delayed, retained placenta poses a high risk of bleeding and infection (Su & Chen, 2020). The estimated mortality rates from retained placenta in developing countries range from 3% to 9% (Kongwattanakul et al., 2018).

Retained placenta after vaginal delivery is diagnosed when the placenta does not spontaneously deliver within a designated time, variably defined as a period of 18–60 minutes (Perlman & Carusi, 2019). Normal placental delivery requires adequate uterine contractions, with shearing of the placenta and decidua from the uterine wall and expulsion of the tissue (McEvoy & Sabir, 2020). Retained placenta can occur due to significant uterine atony, abnormally adherent placenta (as with placenta accreta spectrum), or premature closure of the cervix before spontaneous expulsion of the placenta (Padumadasa & Goonewardene, 2021). Traditionally, the primary method of treating retained placenta has been manual removal of placenta (MROP) under anesthesia, which needs to be carried out within a few hours of delivery to avoid hemorrhage (Kongwattanakul et al., 2018). However, MROP is associated with various complications, including bleeding, infections, genital tract trauma, uterine perforation, uterine inversion, and risks associated with anesthesia. Moreover, manual placental removal carries both short- and long-term complications, including a high likelihood of retained products of conception (RPOC) necessitating further invasive procedures (Anteby et al., 2017).

In light of these risks, there is a growing need for effective non-surgical alternatives for managing retained placenta. One such alternative that has gained attention is the injection of uterotonics into the uterus via the umbilical vein and placenta, which presents an attractive low-cost option for managing retained placenta (Patrick et al., 2020). Umbilical vein oxytocin injection involves delivering oxytocin directly into the retroplacental myometrium by injecting the substance into the placental bed through the umbilical vein (Mohammed, 2020). In 2019, the World Health Organization (WHO) Guideline Development Group reviewed the balance between the desirable and undesirable effects of umbilical vein injection of oxytocin, along with the overall certainty of implementing the procedure, resource requirements, cost-effectiveness, acceptability, feasibility, and equity (WHO, 2020). Based on new evidence, the WHO updated its recommendations on postpartum haemorrhage prevention and management to include the administration of umbilical vein injection of oxytocin for the treatment of retained placenta (WHO, 2020).

The implementation of this policy primarily targets midwives due to their crucial role in providing care to women and new-borns during labour and childbirth. To achieve the Sustainable Development Goals of reducing the global Maternal Mortality Rate to 70 per 100,000 live births by 2030, there is a pressing need to implement innovative and high-impact interventions aimed at preventing and managing the main causes of postpartum haemorrhage, including retained placenta, and providing high-quality services in maternity care (WHO, 2023). To effectively implement these new recommendations and improve maternal health outcomes, capacity-building programs such as training and retraining to upgrade midwives' skills in managing retained placenta through simulation-based approaches are essential (Santhoshkumari & Sharmil, 2022). Simulation-based training is an effective strategy in nursing education that provides midwives with valuable opportunities to learn and apply their skills in practice. It enhances and encourages critical thinking in nursing practice (Koukourikos et al., 2021), contributing to increased professionalism, competence, and satisfaction in assigned professional roles.

The use of simulators in midwifery education helps broaden and consolidate skills, create bridges to action, add value, and promote effective practice. Simulation-based training is considered a safe method of instruction for midwives learning to cope with unforeseen

situations related to technical and non-technical skills, thereby improving their practical skills in preventing postpartum haemorrhage during labour (Baayd et al., 2023). Specific skills developed during simulation-based training include clinical skills, prompt decision-making skills, self-confidence and competence, communication skills with patients and colleagues, and the ability to handle emergency situations related to retained placenta to prevent postpartum haemorrhage and its resultant effects (Changuiti et al., 2021; Alemu et al., 2023). Lendahls and Oscarsson (2017) found that simulation training in midwifery effectively hones practical skills, fosters collaboration, and bridges the gap between theory and clinical practice. Participants felt prepared and confident, leading to improved patient safety and satisfaction. However, despite the WHO's recommendation on managing retained placenta with umbilical vein oxytocin injection, midwives in some settings are still managing retained placenta with traditional methods such as manual removal (Goddy, 2021).

Given the critical role of midwives as principal perinatal care providers, adequate training in the form of workshops would enable them to acquire new instructional skills that would enhance their practice in treating retained placenta. Prompt decision-making by midwives based on acquired skills in managing retained placenta with intra-umbilical vein oxytocin injection is key to mitigating the incidence of maternal morbidity and mortality. This study aims to investigate the effectiveness of simulation-based training in enhancing midwives' skills in managing retained placenta with intra-umbilical vein oxytocin injection, as recommended by the WHO. By addressing the skills gap regarding the new WHO recommendation and promoting its adoption among midwives in Osun State, this study has the potential to contribute to a shift in practice and potentially reduce the incidence of postpartum haemorrhage and associated maternal mortality. This study assesses the effect of stimulation- based training on midwives' skills in managing retained placenta with umbilical vein oxytocin injection in health facilities, Osun-State

Objectives of the study

The specific objectives of the study are to:

1. Assess midwives' skills in managing retained placenta with intra-umbilical vein oxytocin injection before and after intervention
2. Determine the effectiveness of simulation-based training on midwives' skills in managing retained placenta with intra-umbilical vein oxytocin injection

METHODOLOGY

Study Design: This study employs a quasi-experimental design with a quantitative approach, specifically utilizing a one-group pre-test- post-test interventional model.

Study Setting: The research was conducted in secondary health facilities across Osun State, Nigeria. Osun State, located in South-West Nigeria, is bordered by Ekiti and Ondo states to the east, Kwara State to the north, Ogun State to the south, and Oyo State to the west. The state, named after the River Osun, has a rich cultural heritage with major sub-ethnic groups of the Yoruba people, including Ife, Ijesha, Oyo, Ibolo, and Igbomina. The state capital is Osogbo.Osun State was created on August 27, 1991, from part of the old Oyo State and has 69 local government areas. The state covers an area of 9,251 square kilometers and is home to various ethnic groups, with Yoruba being predominant. The people of Osun State practice Islam, Christianity, and traditional faiths. The state's health sector includes 45 secondary healthcare facilities, which employ 88 midwives in labor wards.

Population: The target population included all midwives working in the maternity units of secondary health facilities in Osun State. This population consisted of 88 midwives working in labor wards. The inclusion criteria for the study were that all midwives working in labor

wards of secondary health facilities in Osun State and currently registered with the Nursing and Midwifery Council of Nigeria were considered. The exclusion criteria entail midwives on maternity leave during the training period and those not working in labour wards of the selected health facilities. The study involved all 88 midwives working in the secondary health facilities. Given the relatively small population size,

Sampling: Total population was used.

Instrumentation: Several instruments were utilized for data collection in this study. The primary tools were an observational checklist and an interventional guide. The observational checklist was developed based on literature reviews of nursing practices and the specific procedure of intra-umbilical vein oxytocin injection. This checklist, used during the Objective Structured Clinical Examination (OSCE), consisted of 18 items designed to evaluate midwives' skills in performing the injection procedure. The scoring system for the checklist was as follows: a score of 2 was given for steps completed correctly, 1 for steps partially completed, and 0 for steps not completed. Participants' overall scores were calculated as the average percentage of checklist parameters met. The interventional guide was designed to provide comprehensive training to the midwives. This guide was developed from a thorough review of existing literature on the procedure of intra-umbilical vein oxytocin injection, ensuring that the training was based on current best practices. The guide included detailed instructions and practical demonstrations using a retained placenta simulator and video projections.

Validity and Reliability of the Instrument: To ensure the validity of the instruments, they were reviewed by the researcher's supervisor and other experts in the field of research and statistics. This review process ensured face and content validity, with necessary amendments made based on expert feedback. The content validity index (CVI) was calculated to quantitatively assess the extent to which the items represented the intended domain. Using Lawshe's method, experts rated the relevance of each item on a four-point scale. The item-level CVI (I-CVI) and scale-level CVI (S-CVI) were calculated, resulting in a high S-CVI of 0.91, indicating strong content validity.

The reliability of the instruments was evaluated through a pilot test involving 10 midwives from a secondary health facility in Oyo State. The internal consistency was assessed using Cronbach's alpha, calculated with IBM SPSS version 25. The Cronbach's alpha values for the skills subscale was 0.879, indicating strong internal consistency.

Quasi-experimental studies are effective for evaluating the impact of an intervention by measuring dependent variables before and after the implementation. The focus of this study is on assessing the skills of midwives in managing retained placenta with umbilical vein oxytocin injection. The dependent variables were measured at three intervals: before the training, immediately after the training, and six weeks post-training. The data collection was performed using self-administered questionnaires to capture sociodemographic information and checklists to evaluate midwives' skills in handling retained placenta through umbilical vein oxytocin injection. This design allows for the evaluation of the training's immediate and short-term effects on the participants' skills.

Method of Data Collection: Data collection began with obtaining a letter of introduction from the Dean of the School of Nursing at Babcock University. Ethical approval was then secured from the Babcock University Health Research and Ethical Committee (BUHREC), followed by obtaining permission from the Osun State Hospital Management Board (OSHMB). Upon receiving the necessary approvals, the data collection proceeded in the selected hospitals. A two-day workshop was conducted for the midwives from the selected secondary health facilities across the state. The researcher, along with recruited research assistants who were health workers from

tertiary health facilities, facilitated the training. These assistants underwent a day-long training session to ensure they were well-prepared to assist in the training program. The training sessions included practical demonstrations using a retained placenta simulator and video projections to enhance understanding. Participants were informed about the study's aims, and informed consent was obtained from each participant. Confidentiality was guaranteed, and respondents were assured that their identities would remain anonymous.

Method of Data Analysis: The collected data were first screened to eliminate any missing data and outliers. The data were then coded and entered into IBM SPSS version 25 for analysis. Descriptive statistics, including frequency, percentages, means, and standard deviations, were used to answer the research questions. The hypotheses were tested using the Friedman test at a 0.05 level of significance. A post hoc analysis with Bonferroni correction was conducted to determine the specific phases that exhibited statistically significant differences. The Friedman test, a non-parametric test, was chosen due to the non-normal distribution of the data as determined by the Shapiro-Wilk test and the small sample size.

Ethical Considerations: All related ethical issues were addressed during the conduct of the study. Ethical clearance was obtained from BUHREC, and a letter of introduction from the School of Nursing was taken to the Osun State Hospital Management Board, where approval was granted. The purpose and process of the study were explained clearly to the midwives, and written informed consent was obtained from each participant. The principles of autonomy, beneficence, non-maleficence, and justice were upheld throughout the study. Participants were fully informed about the study's purpose, procedures, and their involvement, ensuring they understood the potential benefits and the voluntary nature of their participation. Confidentiality and anonymity were maintained, with no names or identifying information required on the questionnaires. The participants were assured that their identities would remain confidential, and no harm would come to them as a result of participating in the study.

RESULTS

A total of 88 respondents were recruited, of whom 86 completed the questionnaires and had adequate data for analysis, yielding a response rate of 97.7%. Table 1 shows the sociodemographic characteristics of the respondents. Regarding age distribution, slightly over half (52.3%, n=45) were between 41-50 years. All respondents (100%, n=86) were female and of Yoruba ethnicity. The majority (81.4%, n=70) were Christians. Concerning educational qualifications, slightly over half (58.2%, n=50) held post-basic nursing degrees. Approximately two-thirds (62.8%, n=54) had 10-19 years of service. Based on professional cadre, slightly over one-third (34.9%, n=30) were ADNS. All respondents (100%, n=86) worked in secondary health facilities.

Table 1: Sociodemographic Characteristics of Respondents

Variables	Categories	Frequency (n=86)	Percent (%)
Age	21-30	20	23.3
	31-40	10	11.6
	41-50	45	52.3
	51-60	11	12.8
	Mean±SD=40.80±10.948		
Gender	Male	0	0
	Female	86	100.0
Religion	Christianity	70	81.4
	Islam	16	18.6
Tribe	Igbo	0	0
	Hausa	0	0
	Yoruba	86	100.0
Educational	Registered nurse/midwife	21	24.4
Qualification	Post basic nursing degree	50	58.2
	MSc.	15	17.4
Duration of service	<10	19	22.1
	10-19	54	62.8
	20-29	3	3.5
	30-39	10	11.6
Cadre of service	NO I	9	10.5
	NO II	2	2.3
	SNO	11	12.8
	ACNO	9	10.5
	CNO	15	17.4
	ADNS	30	34.9
	DDNS	10	11.6

Source: (Field Survey, 2023)

Table 2 presents data on training profiles related to the management of retained placenta with intra-umbilical oxytocin injection. At baseline, among 86 participants, only 6(7%) had received any training on this method which. However, immediately after the intervention, this figure rose to 86(100%), the proportion of trained individuals remained at 86(100%) at six weeks post-intervention. All facilities had a history of retained placenta, which did not change over time. The predominant method for managing retained placenta was manual removal, with a slight decrease to 82(96.6%) six weeks post-intervention, while the use of intra-umbilical oxytocin increased from 0(0%) to 4(3.4%) at 6 weeks post intervention. Additionally, claims of prior knowledge about this method increased significantly post-intervention with 60(69.8%) at immediate post intervention and 63(73.3%) six weeks post intervention respectively. This study observe that the training profile of respondents increase post operatively. Pre-intervention (42.6%), Immediate Post-intervention (74%), Six Weeks Post –intervention (75%).

Table 2: Training Profile (n=86)

Items	Categories	Pre-intervention n(%)	Immediate Post n(%)	Six weeks post n(%)
Received any training on management of retrained placenta with intra umbilical oxytocin injection	True	6(7)	86(100)	86(100)
	False	80(93)	0(0)	0(0)
Time of previous training (n=6)	6 weeks	0(0)	80(93)	80(93)
	1 year	6(7)	6(7)	6(7)
History of retained placenta in the facility	True	86(100)	86(100)	86(100)
	False	0(0)	0(0)	0(0)
Method adopted in managin g retained placenta	Manual removal	86(100)	86(100)	82(96.6)
	IUV oxytocin	0(0)	0(0)	4(3.4)
Practiced the use of IUV oxytocin in management of retained placenta in your facility	True	0(0)	0(0)	4(3.4)
	False	86(100)	86(100)	82(96.6)
Had a prior knowledge of management of retrained placenta with intra umbilical oxytocin injection	True	5(5.8)	60(69.8)	63(73.3)
	False	81(94.2)	26(30.2)	23(26.7)
Overall Average of the Estimates		42.6%	74%	75%

Table 3 outlines the pre-, immediate post-, and six weeks post-intervention skills of administering intra-umbilical oxytocin injection. Pre-intervention, for most skills, a large percentage of participants did not perform the steps at all (scored 0). All participants (100%, n=86) failed to dilute oxytocin, prepare syringes, use scalpels, wear sterile gloves, or insert tubes properly. Some skills were completely performed by 40-60% of participants, including reassuring patients (55.8%, n=48), setting up trolleys (38.4%, n=33), and emptying bladders (39.5%, n=34). Immediate post-intervention showed significant improvements, with the majority of participants completely performing most skills. These included reassuring patients (82.6%, n=71), maintaining asepsis (76.7%, n=66), ensuring lithotomy position (87.2%, n=75), diluting oxytocin (81.4%, n=70), and preparing syringes (83.7%, n=72). At six weeks post-intervention, these improvements were largely sustained. Skills completely performed by the majority included reassuring patients (88.4%, n=76), emptying bladders (81.4%, n=70), maintaining asepsis (83.7%, n=72), ensuring lithotomy position (90.7%, n=78), diluting oxytocin (86%, n=74), and preparing syringes (88.4%, n=76). The effectiveness of the intervention in improving intra-umbilical oxytocin injection skills for managing retained placenta was demonstrated by the enhancement in participants' practical skills: pre-intervention (11.5%), immediate post-intervention (61.8%), and six weeks post-intervention (75.3%).

Table 3: Pre, Post and Six weeks Post intervention Skills of Administration of Intra Umbilical Oxytocin Injection (n=86)

Simulation Items	Pre-intervention			Immediate post-intervention			Six weeks post-intervention		
	0 n(%)	1 n(%)	2 n(%)	0 n(%)	1 n(%)	2 n(%)	0n(%)	1 n(%)	2 n(%)
Reassures patient	25(29.1)	13(15.1)	48(55.8)	1(1.2)	14(16.3)	71(82.6)	1(1.2)	9(10.5)	76(88.4)
Set a trolley for the procedure	51(59.3)	2(2.3)	33(38.4)	8(9.3)	19(22.1)	59(68.6)	5(5.8)	15(17.4)	66(76.7)
Emptying of bladder	49(57.0)	3(3.5)	34(39.5)	4(4.7)	17(19.8)	65(75.6)	4(4.7)	12(14.0)	70(81.4)
Maintaining aseptic procedure	42(48.8)	8(9.3)	36(41.9)	2(2.3)	18(20.9)	66(76.7)	2(2.3)	12(14.0)	72(83.7)
Ensuring the patient is still in lithotomy position	43(50.0)	8(9.3)	35(40.7)	1(1.2)	10(11.6)	75(87.2)	1(1.2)	7(8.1)	7890.7)
Dilute utero tonic drug using 50 IU of oxytocin in 20mls of saline	86(100.0)	0(0)	0(0)	3(3.5)	13(15.1)	70(81.4)	3(3.5)	9(10.5)	74(86.0)
In another syringe, have 10ml of or dilute the oxytocin in 30 ml of saline if 50ml syringe is available saline	86(100.0)	0(0)	0(0)	1(1.2)	13(15.1)	72(83.7)	1(1.2)	9(10.5)	76(88.4)
Prepare a scalpel blade	86(100.0)	0(0)	0(0)	16(18.6)	18(20.9)	52(60.5)	9(10.5)	12(14.0)	65(75.6)
A nasogastric feeding tube (size 8 or 10)	85(98.8)	0(0)	1(1.2)	8(9.3)	23(26.7)	55(64.0)	8(9.3)	23(26.7)	55(64.0)
Clamp the umbilical cord with forceps at about 20-30cm from the vulva	85(98.8)	0(0)	1(1.2)	5(5.8)	22(25.6)	59(68.8)	5(5.8)	15(17.4)	68(79.1)
Makes sure the umbilical vein is visible	85(98.8)	1(1.2)	0(0)	4(4.7)	24(27.9)	58(67.4)	3(3.5)	6(16.8)	67(77.9)
With sterile gloves, steady the cord with light traction on the forceps	86(100.0)	0(0)	0(0)	3(3.5)	31(36.0)	52(60.5)	3(3.5)	21(24.4)	62(72.1)
Cleanse the cord surface with antiseptic solution	80(93.0)	0(0)	6(7.0)	5(5.8)	32(37.2)	49(57.0)	5(5.8)	24(27.9)	62(72.1)
With the scalpel blade, make an incision at about 1cm from the forceps	83(96.5)	0(0)	3(3.5)	14(16.3)	22(25.6)	50(58.1)	9(10.5)	15(17.4)	62(72.1)
Insert the tube into the vein and advance the tube until resistance is felt. Then pull back slightly	86(100.0)	0(0)	0(0)	2(2.3)	26(30.2)	58(67.4)	2(2.3)	17(19.8)	67(77.9)
With left hand applying pressure to the point where the tube is inserted, inject into	86(100.0)	0(0)	0(0)	2(2.3)	25(29.1)	59(68.6)	2(2.3)	17(19.8)	67(77.9)
With left hand applying pressure to the point where the tube is inserted, inject into the tube the oxytocin solution into the 20mls syringe followed by the 10ml saline	86(100.0)	0(0)	0(0)	2(2.3)	25(29.1)	59(68.6)	2(2.3)	17(19.8)	67(77.9)
Move the forceps forward to clamp the tube in the cord	86(100.0)	0(0)	0(0)	3(3.5)	21(24.4)	62(72.1)	3(3.5)	14(16.3)	69(80.2)
Wait for signs of placenta separation, gush of blood and rising of the u terus in the abdomen	83(96.5)	0(0)	3(3.5)	4(4.7)	15(17.4)	67(77.9)	4(4.7)	12(14.0)	70(81.4)
Then, proceeds to remove the placenta using controlled cord traction manner	83(96.5)	0(0)	3(3.5)	3(3.5)	18(20.9)	65(75.6)	3(3.5)	14(16.3)	69(80.2)
Overall Average Estimates		2.04%	11.5%		22.2%	61.8%		15.8%	75.3%

0- Not done, 1- done the step or task incompletely, 2 - done the step or task completely

Hypothesis One

H_o – There is no significant difference between pre, immediate post and six weeks post intervention score on skills of midwives on the umbilical vein injection of oxytocin for the treatment of retained placenta.

From Table 4, the null hypothesis was rejected, midwife-led simulation-based training had significant effect on the level of skills of intra umbilical oxytocin injection as there is significant differences between the pre and post intervention skills of the midwives with (x^2= 151.458, p=.000), at p< .050. Total obtainable skills score was 38. Mean skills scores and mean rank consistently increased at immediate post intervention (mean score=31.50±6.91, mean rank=2.17) and six weeks post intervention (mean score=33.34±5.35, mean rank=2.79) compared to pre-interventional skills score (mean score=5.18±4.38, mean rank=2.79). This study reveals that there is a significant difference between pre, immediate post and six weeks post intervention score on skills of midwives on the umbilical vein injection of oxytocin for the treatment of retained placenta (p = .000).

Table 4 : Effect of simulation -based traini ng on the midwives' skills of Intra Umbilical Oxytocin Injection

Variables	Mean±SD	Mean Rank	x^2	df	*P*
Pre-interventional skills	5.18±4.38	1.03	151.458	2	.000*
Immediate post-interventional skills	31.50±6.91	2.17			
Six weeks post-intervention skills	33.34±5.35	2.79			

*x^2: Chi-square test statistic, p: Probability value, *: significant at p< .050*

Table 5 presents the post-hoc analysis of the Friedman's test, Bonferroni correction and further post-Hoc analysis revealed statistically significant difference between the pre intervention skills score and immediate post intervention skills score (p<.0001) and six weeks post intervention skills score (p<.0001). The immediate post intervention skills score also significantly increased at six weeks post intervention (p<.0001).

Table 5 : Post Hoc Analysis of the Effect of the Simulation Based Training on Skills of IUV oxytocin in the Management of Retained Placenta

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	p-value	Adjusted p value
Pre-simulation skills score -Post simulation skills score	-1.140	.152	-7.472	.000	.000
Pre-simulation skills score -Six weeks post-simulation skills score	-1.756	.152	-11.514	.000	.000
Post simulation skills score -Six weeks post-simulation score	-.616	.152	-4.041	.000	.000

DISCUSSION

This study assesses the effect of stimulation-based training on midwives' skills in managing retained placenta with umbilical vein oxytocin injection in health facilities, Osun-State. The study comprised entirely female participants, primarily aged between 41 and 50, predominantly Christians of Yoruba ethnicity. Most held post-basic nursing degrees and had 10-19 years of service, with larger proportion occupying Assistant Directors of Nursing Services positions, all affiliated with secondary health facilities. These findings align with Oladapo (2019) where the majority were females, although in public tertiary obstetrics centres in Southwestern Nigeria. This study observe that the training profile of respondents increased post intervention. This finding is somewhat in line with a study by Ko, and Kim, (2017) which revealed improvement in training profile of the participants post intervention with the inclusion of simulation-based training and team-based learning. Moreover, several systematic review and meta-analysis have showed notable improvement in training profile on account of simulation-based interventions (Mulyadi et al., 2021; Lei et al., 2022).

This study demonstrated the effectiveness of the implemented intervention in improving intra-umbilical oxytocin injection skills for managing retained placenta, thus enhancing participants' practical skills. These findings support Cardoso (2021) and Abu-Baker et al. (2021), who reported positive attitudes toward evidence-based practice due to skills implementation that warranted the use of best available evidence in clinical practices. The results align with Williams et al. (2019) and Maria et al. (2023), who revealed improvements in participant skills corresponding to increased knowledge and awareness of intra-umbilical oxytocin injection. The findings are also consistent with Kato and Kataoka (2017), Nelissen et al. (2017), and Elhakm and Elbana (2018), who demonstrated the effectiveness of training in improving midwives' skills, specifically regarding their performance in managing various conditions, including postpartum hemorrhage. Additionally, this study validates Lendahls and Oscarsson's (2017) findings that simulation-based training supports midwifery skills development and bridges the gap between theory and practice by facilitating students' learning ability.

The study hypothesis testing revealed a significant relationship between midwife-led simulation-based training and intra-umbilical oxytocin injection skills in the pre- and post-intervention assessments of the midwives ($\chi^2 = 151.458$, $p = .000$), at $p < .050$. Further post-hoc analysis of the observed association revealed statistically significant differences between the pre-intervention skills score and both immediate post-intervention skills score ($p < .0001$) and six weeks post-intervention skills score ($p < .0001$). Building on these findings, Jarelnape and Sagiron (2023) conducted a systematic review of primary studies, revealing that simulation-based training effectively enhances clinical skills, knowledge, and critical thinking while boosting clinical decision-making and improving patient outcomes. Similarly, Shin et al. (2015) found significant post-intervention improvements for participants receiving simulation education compared to control groups, demonstrating significant effects with the greatest benefits in performance and psychomotor skills. Furthermore, these findings are supported by Bloom's taxonomy of learning, specifically the psychomotor domain, which involves the manipulation of motor skills following cognitive mastery (Adams, 2015).

CONCLUSION

The study concludes that simulation-based training effectively improves midwives' skills in managing retained placenta. Therefore, this simulation-based approach should be incorporated into obstetric education and training programs. It is essential to promote this approach across different geographical locations to enhance midwifery practice and the nursing profession at large.

Healthcare institutions should implement continuous simulation-based training for midwives and integrate it into professional development curricula. Nursing leaders should mandate evidence-based practices in retained placenta management, while government agencies should allocate resources for comprehensive training programs. Further research, including large-scale clinical trials, is needed to validate the technique's effectiveness and safety. Additionally, nurse researchers should focus on validating optimal dosages and understanding factors influencing practice implementation to ensure successful adoption of this intervention across healthcare settings.

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