Competency of Midwives in Assisting Vaginal Breech Births and associated factors: A Cross-sectional study in Lower Level Health Facilities of Hoima District, Uganda.

Prossy Nandawula[a,*], Ayabare Elizabeth[a], Mathew Nyashanu[b], Michelle Telfer[c], Scovia Nalugo Mbalinda[a]

[a]*Department of Nursing, College of Health Sciences, Makerere University.*
[b] *Nottingham trent University.*
[c] *Yale University.*

Abstract

Objectives*:*

To assess midwives' competencies in the application of the manoeuvers for a vaginal frank breech delivery and identify factors associated with midwives' competency in delivering a vaginal frank breech.

Methods *:*

A cross-sectional study was conducted among 143 practicing midwives who were recruited consecutively. A 30-item checklist was used to assess the midwives' competence in the application of Pinard, Loveset's, and Mauriceau Smellie Viet manoeuvers. A self-administered questionnaire was used to obtain the associated factors. Descriptive statistics were used to analyze midwives' competence. Crude Odds Ratios and their 95% confidence intervals measured the association.

Results:

87.4% of midwives knew and mentioned a manoeuvre. Slightly half of 72(50.4%) study participants, with a mean score of 12.3 (SD: 2.7), were competent. Competence scores for Pinard, Loveset's, and Mauriceau Smelie Viet manoeuvres were 69.2%, 44.1%, and 30.8% respectively. Midwives who could mention any manoeuvre were 11 times more likely to be competent (Adjusted odds ratio [AOR]: 11.79, 95% CI: 2.23-58.35, P: 0.002). Midwives who felt confident were 5 times more likely to be competent (AOR: 5.95, 95% CI: 1. 23-28.80, P: 0.026).

Conclusion:

Overall midwives' competence was average. The majority were competent with the application of Pinard manoeuvre. Lovset and Mauricea Smelie Viet had below-average scores. The significantly associated factors were being able to mention any type of the manoeuvres, and reporting a feeling of confidence. These findings highlight the need for in-service vaginal breech births training, and a hands-on vaginal breech births practice to improve competence.

Recommendations:

The health care system should standardize the quality of midwifery practice as stated by the global standard of midwifery practice. Standard guidelines and standard operating procedures should be developed to guide the care practices in health units.

Keywords: Competence, Mal presentation, Breech Presentation, Frank breech, vaginal breech births,
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1. Background

Malpresentation contributes to 71% of all maternal health complications causing high mortality worldwide (Rosato *et al.,* 2006). The maternal mortality ratio is currently registered at 343 per 100,000 live births in Uganda (World Health Organization, 2019), contributing to 18% of deaths among women aged 15-49. Mal-presentations contribute 36.4% of Uganda's registered maternal and neonatal mortality (Uganda Bureau of Statistics, 2017) of which breech presentation is the most commonest (Vlemmix *et al.,* 2014), accounting for 82.1% of all abnormal presentations. Its prevalence decreases with increasing gestational age as it is seen in only 3-4% of births at term (Balsarkar & Gujarathi, 2020). However, life must be saved anytime it happens and this can only be achieved by a competent health care provider assisting the birth (Maskey & Dwa, 2018).

Worldwide, breech presentation is associated with poor maternal and fetal outcomes, which are majorly related to the mode of birth and skills of the assisting healthcare provider assisting (Igwegbe, Monago, & Ugboaja, 2010). A study in the USA reported a 4-fold increase in perinatal mortality for vaginal breech births (VBBs) compared to cesarean breech births (CBBs) (Hunter, 2014). The 2000 breech trial study that compared VBB and CBB found better outcomes for CBB and recommended this for all term fetuses in breech presentation (Hunter, 2014; Yamamura, Ramin, & Ramin, 2017). This recommendation was taken up by several developed countries increasing the rate of CBBs to 80% (Håheim *et al.,* 2004; Hehir, 2015). Later on, this was contested by several health care providers from Australia, Belgium, Canada, France, Israel, Netherlands, and Norway where VBBs are 90% practiced (Hehir & Malone, 2014; Hunter, 2014).

Population-based studies have suggested varying levels of benefit in improved outcomes of VBBs compared to the term breech trial (Shawn

Walker, Parker, & Scamell, 2018). These real-world clinical findings suggest that, in a system where VBB is widespread, the difference in vaginal and cesarean birth outcomes can be small (Petrovska, Watts, Catling, Bisits, & Homer, 2017; Shawn Walker, Parker, *et al.,* 2018). They urged that the safety of VBB depends on the expertise of birth attendants. The overall success of 58% VBBs with no significant rates of neonatal and maternal morbidities was reported in Australia (Borbolla Foster, Bagust, Bisits, Holland, & Welsh, 2014). Good fetal and maternal outcomes of 80% have also been reported in developed countries that support VBBs like Norway but with 18.4% challenge of lack of experienced birthing, attendants to support the mode of birth (Hunter, 2014). Yet it was reported that 47% of avoidable maternal/ neonatal mortalities are caused by a lack of knowledge and skills of medical staff (Bin, Roberts, Ford, & Nicholl, 2016; Brockmann, Clarke, & Winch, 2009).

Policy change to CBBs for term breech presenting fetuses in low-resource settings of Africa where service is not adequately available (Hunter, 2014) is impractical. This makes VBBs the option mode of delivery (Hehir & Malone, 2014). In Uganda, approximately 3000 breech births occur every year (Uganda Bureau of Statistics, 2017). Yet a hospital-based study in Uganda showed a VBB rate of 41.8% of which 12.0% were fresh stillbirths (Mayanja, Masembe, Nanzira, & Njagi). A statistical report highlighted that 57% of pregnant mothers in rural districts seek maternal health services from lower-level health facilities (Statistics, 2013), where midwives are the main care providers. These health units are challenged with dysfunctional operating theatres and delayed referral systems which affect the quality of assisted care intervention for women with a breech-presenting fetus(UNICEF, 2016). Every midwife operating at a lower level health facility, therefore, requires to have skills to deliver a woman arriving with a fetus in breech presentation in advanced stages of labor if birth complications are to be averted (Stone, Crane, Johnston, & Craig, 2018). There is limited literature showing how competent the midwives in the districts are to perform

*Corresponding author.

Email address: prossynandy@gmail.com (Prossy Nandawula)

VBBs. This study, therefore, assessed midwives' competencies in the facilitation of VBBs in lower health facilities in the Hoima district to establish their areas of strengths and weaknesses that need improvements.

2. METHODS

Study design:

This was a descriptive cross-sectional study that employed quantitative methods of data collection. A descriptive design allowed for an in-depth analysis of the variables in the study, and the cross-sectional design allowed the collection of large amounts of data in a highly economical way (Polit & Beck, 2004) by allowing measurement of competency in VBBs and the associated factors at the same point in time.

Study setting:

The study was conducted in both Government and private H/Cs III and IVs of Hoima District, Bunyoro Region. The District is located in the Western part of Uganda, bordered by Masindi and Bulisa Districts in the North, Kyanwanzi District in the East, Kibale District in the South, and stretches to the national boundary of the Democratic Republic of Congo in the Western. The District headquarter is located in Hoima Municipal Council, which is about 220 Km from Kampala. Hoima District has three Health Sub- Districts; Buhaguzi, Bugahya, and Hoima Municipality. Sub-counties are Bugembe, Buhanika, Buseruka, Kigorobya, Kitaba, Kyabigambire, Bujumbura division, Mparo division, and Kahoora division. There are 19 H/C IIIs and 2 H/C IVs, both private and public, with a total of 246 midwives operating at these levels of health facilities, conducting about 405 deliveries per month (UDHS, 2011). Data was collected between July and September of 2021.

Study population:

The study population comprised 246 qualified midwives of all cadres. Midwives are the primary health care providers of intrapartum care including VBBs.

Sample size calculation

The sample size was determined using the Kish Leslie formula for cross-sectional studies (Kish, 1965).

$$N = \frac{p(1-p)Z^2}{d^2}$$

Whereby;

Z = Standard normal value corresponding to 95% Confidence Interval (1.96)

P = proportion of midwives assumed to be competent in VBB was estimated to be 50% since no such study has been done in Uganda and the region.

D = Absolute error between the estimated and true value = 0.05 (5%)

N=0.5(1-0.5)1.962/(0.05) 2

N =385

This sample size was more than the available population of the midwives in the district's H/Cs III and IVs, using Cochran's formula (1977), the most appropriate formula for finding the sample if the calculated sample size exceeds the study population (Ahmad & Halim, 2017).

nsmall = S / (1 + ((S − 1) / N1)), s= sample size calculated=385, N= population size=246, **nsmall= final** sample size required for the study. **nsmall = 385 / (1 + ((385 − 1) / 246))**, =143 midwives. A sample size of 143 midwives was considered sufficient.

Selection of participants:

Participants were consecutively recruited, whereby every midwife who was found on duty and consented to participate in the study was asked to demonstrate the manoeuvres used in VBB specifically for a frank breech. Those who were not on duty that day were prior informed to be present at their facility on the day of data collection.

All midwives who were working in the maternity unit during the study period and consented to participate were included. Midwives on any form of leave and those who didn't consent to participate in the study were excluded.

The dependent variable was the midwife's competence, which was measured based on a 30-item checklist. Each item was given a score of 1(Yes) if the midwife performed the manouvre step and 0 (No) if not performed. The total scores for the three manouvres (Pinards, Lovesets, and Mauriceau Smellie Veit) was a total of 30 scores. The mean of all total scores was computed and used to classify participants who scored above the mean or those with scores less than the mean. These categories were further coded as 1 for competent and 0 for not competent.

The independent variables were the respondent's age, midwifery cadre, years in service, prior training attended in conducting VBB, and the number of in-service training attended. Information on these variables was obtained using a questionnaire developed from the concepts of skill acquisition theoretical framework by Dekeyser, 2007.

Data collection:

Data was collected with the help of research assistants. These were trained and qualified midwifery trainers experienced in teaching and examining the steps of assisted VBBs. Study participants were approached during their working hours on scheduled appointments. An informed consent process was carried out. A pelvic model with a doll in breech presentation in complete extension attitude was presented to each midwife and was asked to demonstrate the Pinards, Loveset's, and Mauriceau Smellie Veit manoeuvres steps. The researcher observed the midwives as they performed the procedure without interruption, and used the checklist for scoring their performance of each manoeuvre step. Thereafter, a self-administered questionnaire assessing factors associated with midwives' competency for VBB was given to each participant and later collected by the researcher. Each participant was assigned a unique identification number (ID number). This number and the study participant's initials were recorded on the observational checklist by the researcher. At the same time, the participants were asked to record it on their questionnaire for consistency and identification.

Data on midwives' competencies were collected using a checklist adapted and developed from ALARM International standard guidelines for maternal health care, and AMREF health procedure manual publications. The checklist was discussed and approved by supervisors who are both experts in maternal and child health care and VBBs. A self-administered questionnaire was then given to each participant at the end of the observation, to obtain the demographic characteristics and factors associated with competence for VBB.

The checklist and questionnaire were in the English language to ensure uniformity, validity, and accuracy of the dialogues. Pretesting of the checklist was done with 12 qualified midwives from Hoima regional referral hospital. This was done to ensure that the tools were collecting the intended skills and factors. A two-day training was done for research assistants which included both theoretical and practical sessions. The training included; information on how to seek informed consent from the study participants, inclusion and exclusion criteria, observation skills, use of the data collection tools, preparing the model for VBB, expected steps of each manoeuvre, and how to conduct a non-participant observation.

The principal investigator and data participants were congregating at the end of each day of data collection to cross-check the collected data for completeness, and feedback was given daily. Data collected was kept under lock, only accessible by the principal investigator. The research team was closely supervised to ensure that the research protocol was being followed.

The data collected was entered in Epidata 3.1 and then exported to Stata version 15.0 (Stata Corp, College Station, TX, USA) for analysis. Continuous variables were summarized using means, and standard deviations since the data were normally distributed. At the same time, categorical variables were presented in proportions.

To determine the midwives' competence for conducting breech delivery, items for competency had three manoeuvre (each had 10 steps, each step score was 1 if performed and 0 if not performed, the score total for each manoeuver (Pinards maneuver, Loveset manoeuver, and

Mauriceau Smellie viet manoeuver, was 30 for all which was dichotomized for further analysis.

Simple logistic regression was performed at bivariate analysis to assess for factors associated with the midwives' competency, Crude odds Ratios (CoR), and their 95% confidence intervals were computed to determine the level of association between categorical variables. Variables with p values ≤ 0.2 at bivariate were taken to multivariate logistic regression to assess the independent associations between the variables with the outcome while controlling for other factors. Then backward elimination method was used to build the model by eliminating the least significant variables and leaving statistically significant variables. All variables with a p-value <0.05 were considered statistically significant at a 95% confidence interval.

Ethical considerations:

The researcher sought ethical approval from Makerere University School of Health Sciences REC. Approvals from Makerere University School of Health Sciences Research and Ethics committee (MakSHSREC). Approvals from MakSHSREC-2021-110 were used to seek permission from Hoima District local government authorities; the Chief Administrative Officer (CAO) and the District Health Officer (DHO) which was granted. Written informed consent was sought from the midwives before enrolment into the study, and participation in the study was voluntary.

3. RESULTS

A total of 143 midwives were enrolled in the study; the mean age of the midwives was 32±5.4 years, the youngest was 20 years, and the eldest was 46 years old.

The majority, 76(53.2%) of the midwives were working in HC IVs and public facilities 79(55.2%). The majority, 113(79.1%) had a certificate in midwifery and the mean years of experience were 9±5.5 years. All the midwives reported having been taught the manoeuvres for VBB during pre-service training. About 18(12.6%) could not mention any of the manoeuvers, and only 3(2.1%) were able to mention all three manoeuvres.

Those that had only classroom teaching were 128 (90.1) %, classroom teaching with simulation demonstrations 143 (100%), skills demonstration with hands-on return demonstration in class 142 (99.3%), 95 (66.4%) had no hands-on practice in clinical placements areas and 48 (33.6%) had not, and only 5 (3.5%) had in-service training, this was a workshop attended before joining Hoima district health services.

The mean and standard deviation of work experience as midwives was (9.5±5.5) with the least having one-year experience. Also, more than half 74(51.8%) of the midwives reported that they had ever conducted VBB in their practice as qualified midwives. 15(20.3%) of the midwives had ever delivered both complete and Frank breech, and only 2(2.7%) were reported to have conducted a VBB alone. The rest of the parameters are as shown in the table 3.

The results indicated that almost half 72(50.3%) of the midwives disagreed that they feel they could conduct VBBs consistently with complete fluency, spontaneity, or with no errors causing mortality in the shortest time possible without supervision. And all the midwives 100% reported that they didn't have practice guidelines or policies put in place in the H/Cs restricting midwives from conducting VBBs.

Midwives' competencies in the application of the manoeuvre used to deliver a vaginal frank breech.

During the process of delivering breech, the majority 86.1% and 84.6% of the midwives were able to perform a vaginal examination to confirm full dilation of the cervix and able to confirm breech presentation. Of most of the midwives, 73.4% were able to instruct a mother to push until the popliteal fossa was seen, and 68.5% were able to flex the anterior and deliver it.

About 111(77.6%) of the midwives were able to flex the arm and delivered the fetus, 68 (47.5%) of the midwives were able to rotate the baby with the back uppermost into an angle of 1800, bringing the arm which was posterior to be the anterior (lying under the symphysis pubis). Only 9 (6.3%) were able to leave the baby to hang on its weight to aid the descent of the head, 19 (13.3%) of

Table 1: Socio-demographic of the midwives and facility characteristics among lower level health facilities in Hoima district.

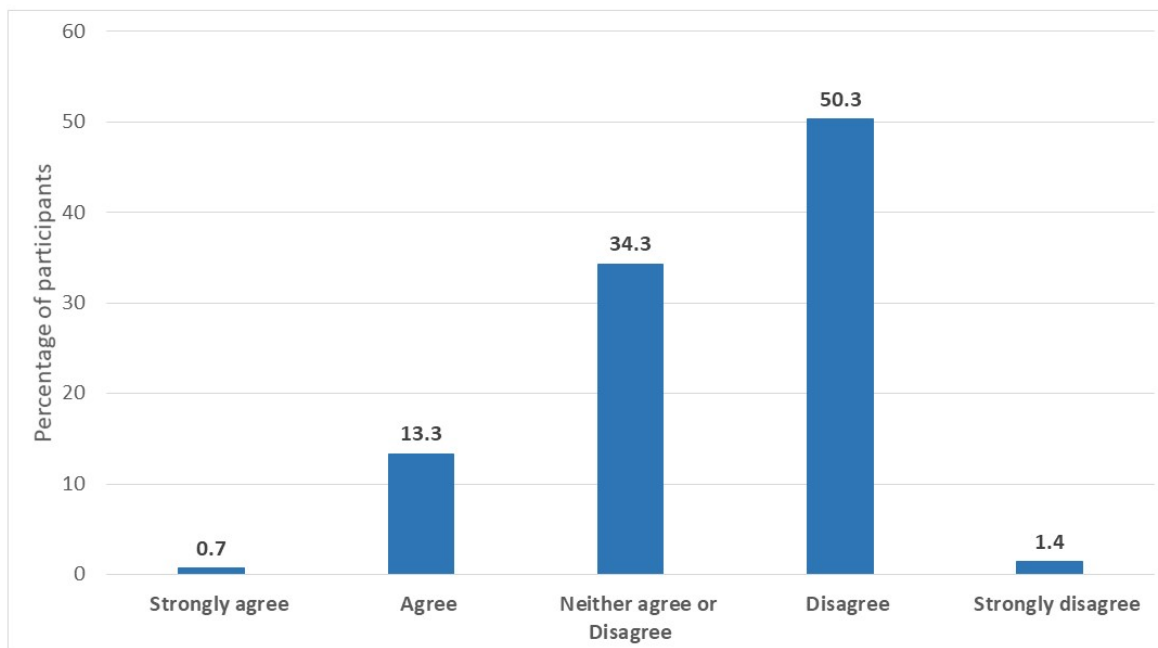| Variable	Mean (SD)	Frequency (N=143)	Percentage (%)
Years of service	9.5±5.5		
Recent training in midwifery	9.5±5.5		
Level of health facility			
HC III		67	46.8
HC IV		76	53.2
Type of health facility			
Private		64	44.8
Public		79	55.2
Level of qualification			
Certificate		113	79.1
Diploma		30	20.9
Age			
20-30 years		72	50.3
31-40 years		61	42.7
>40 years		10	7.0

Figure 1: Mortality in the shortest time possible without supervision.

Table 2: Midwives' training about VBB in lower level health facilities in Hoima district.

Variable	Frequency (N=143)	Percentage (%)
I was taught the manoeuvres of VBB		
No	0	0
Yes	143	100
Number of maneuvers remembers		
Knows one	57	39.9
Knows two	65	45.5
Knows three	3	2.1
Forgotten	18	12.6
Teaching method: classroom only		
No	14	9.9
Yes	128	90.1
Teaching methods: classroom and demonstration/simulation		
No	0	0
Yes	143	100
Classroom, demonstration and return demonstration		
No	1	0.7
Yes	142	99.3
Ever performed VBB		
No	95	66.4
Yes	48	33.6
Not taught at all		
No	143	100
Yes	0	0
Type of training institution		
Private not for profit institution	76	53.1
Government institution	61	42.7
Private for-profit institution	5	3.5
Faith-based institution	1	0.7
Attended an in-service training/Course on conducting any breech deliveries		
No	138	96.5
Yes	5	3.5

the midwives were able to apply gentle downward traction until the axilla is seen, and 20(13.9%) of the midwives were able to place the thumb in the elbow fossa and the index and middle finger on the elbow.

The majority, 123(86.1%) of the midwives were able to use the index and middle finger to flex the jaws of the fetus. Only 6(4.2%) of the midwives were able to suck out the mucus from the baby's mouth and nostrils.

Competence of midwives in the application of all the manoeuvres

Each type of manoeuvre was added and results were normally distributed. The mean and standard deviation were used to categorize the midwives' competence in the application of each

Table 3: Practice characteristics contributing to midwives' competence in delivering breech within lower level health facilities in Hoima district.

Variable	Frequency (N=143)	Percent
Number of years worked as a midwife	Mean±SD (9.5±5.5)	Mini, max (1,26)
Ever delivered a breech presenting fetus in practice as a qualified midwife		
No	69	48.2
Yes	74	51.8
Type of breech delivery ever conducted		
Frank breech	2	2.7
Complete breech	57	77.1
Both complete and Frank breech	15	20.3
Number of VBBs conducted		
One delivery	34	45.9
Two deliveries	24	32.4
Three deliveries	16	21.6
Time since performing VBB		
Within the last 6 months	2	11.5
6-12 months ago	9	47.3
≥13 months ago	8	41.2

Table 4: Application of Pinards Maneuver for extended lower limbs of a frank breech

	Steps applied	Application n (%)	
		No	Yes
1	Explains the procedure to the mother	52(36.4)	91(63.6)
2	Positions the mother	112(78.3)	31(21.7)
3	Performs a vaginal examination to confirm full dilation of the cervix	20(13.9)	123(86.1)
4	Able to confirm breech presentation. Saying the buttocks are presenting and the anus.	22(15.4)	121(84.6)
5	Instructs a mother to push until the popliteal fossa is seen or Applies groin traction until the popliteal fossa is seen	38(26.6)	105(73.4)
6	Places the thumb in the popliteal fossa and the index and middle fingers on the knee,	87(60.8)	56(39.2)
7	Flexes the anterior limb to deliver it	45(31.5)	98(68.5)
8	Places the thumb in the popliteal fossa, and the index and middle fingers on the knee,	105(73.4)	38(26.6)
9	Flexes the second limb and is delivered	111(77.6)	32(22.4)
10	Covers the delivered parts with a warm towel	132(77.6)	11(7.7)
	Overall score	4.9±1.3	

Table 5: Application of Loveset maneuver (Rotation with downward traction) to deliver extended upper hands by midwives in lower level facilities in Hoima district.

	Steps applied	Application	
		No n(%)	Yes n(%)
1	Hold the baby's pelvis with the thumb at the sacrum and other fingers in the groin	93(65.1)	50(34.9)
2	Rotate baby with back uppermost into an angle of 180^0 bringing the arm which was posterior to be the anterior (lying under the symphysis pubis),	44(30.7)	99(69.2)
3	Applies a gentle downward traction until the axilla is seen.	118(82.5)	25(17.5)
4	With two fingers of the right hand, splints the humerus to avoid breaking it	48(33.6)	95(66.4)
5	Places the thumb in the elbow fossa and the index and middle finger on the elbow	53(37.1)	90(62.9)
6	Flexes the anterior arm and delivers it	32(22.4)	111(77.6)
7	Rotate baby with back uppermost into an angle of 180^0 bringing the other arm to be the anterior (lying under the symphysis pubis),	75(52.5)	68(47.5)
8	Applies a gentle downward traction until the axilla is seen.	124(86.7)	19(13.3)
9	Places the thumb in the elbow fossa an the index and middle finger on the elbow	123(86.1)	20(13.9)
10	She lives the baby hang on its weight to aid descend of the head	134(93.7)	9(6.3)
	Overall score (Mean±SD)	4.1±1.2	

Table 6: Application of Mauriceau-Smelie Veit maneuver (Jaw flexion with shoulder traction) to deliver the extended head of a frank breech by midwives in lower level facilities in Hoima district.

	Steps applied	Application	
		No n(%)	Yes n(%)
1	Failure to see the airline, performs a vaginal examination to confirm extended head.	93(65.1)	50(34.9)
2	Puts the baby straight on the left arm,	115(80.4)	28(19.6)
3	Uses the index and middle finger to flex the jaws of the fetus	20(13.9)	123(86.1)
4	Places the right hand on top of the fetus,	108(75.5)	35(24.5)
5	Uses the middle finger to flex the occiput,	92(64.3)	51(35.7)
6	then uses the ring finger and the index to apply traction on the shoulders.	74(51.7)	69(48.3)
7	Requests the assistant to apply a gentle supra pubic pressure	108(75.5)	35(24.5)
8	Deliver out the head completely by flexion and traction	96(67.1)	47(32.9)
9	Sucks out the mucus from the baby's mouth, and nostrils	137(95.8)	6(4.2)
10	Keeps the baby warm and APGAR scores	128(89.5)	15(10.5)
	Total score (Mean±SD)	3.2±1.1	

manoeuvre. The results showed that the mean and standard deviation scores while conducting the Pinards Manoeuver and Love sets manoeuver were 4.9±1.3 and 4.1±1.2 respectively; midwives had low scoring in the Smellie viete manoeuver of 3.2±1.1. The overall total mean score was 12.3±2.7, and these means were used to dichotomize the outcome. The results indicate that more than half 99(69.2%) of the midwives were competent in the application of Pinards manoeuver, were 63(44.1%) competent in the application of Love sets manoeuver, 44(30.8%) were competent in the application of Mauriceau-Smelie-Veit manoeuver and slightly a half of the midwives 72(50.4%) were competent in the application of all the manoeuvre used in VBBs (Frank breech).

Factors associated with midwives' competency in VBB.

To assess for factors associated with the competence of the midwives in the application of the manoeuvre used to deliver a vaginal frank breech, a simple logistic regression was performed at bivariate analysis level, Crude Odds Ratios, and their 95% confidence intervals were reported as a measure of association between outcome and each independent variable. Variables with P value <0.2 were considered for further analysis at the multivariate level. These variables included midwives who had ever conducted VBBs, being able to mention at least one type of maneuver used in frank breech vaginal delivery, and feeling confident to apply the manoeuvre used to deliver a vaginal frank breech.

At the multivariate level, Variables with p values ≤ 0.2 at the bivariate were used to assess the independent associations between the variables with the outcome while controlling for other factors. All variables with a p-value < 0.05 is considered statistically significant at a 95% level of confidence.

Midwives who were able to mention any type of maneuver were 11 times more likely to be competitive compared with those who could not mention any manoeuvre and the relationship was statistically significant (AOR=11.79; 95% CI: 2.23-58.35; p-value=0.002). Also, midwives who agreed that they feel confident to conduct vagi-

nal breech births consistently with complete fluency, spontaneity, or with no errors causing mortality in the shortest time possible without supervision were 5 times more likely to be competent in conducting VBBs compared to those who neither agree nor agree and midwives who agreed, the association was statistically significant (AOR=5.95, 95% CI: 1.23-28.80, p value=0.026).

4. DISCUSSION:

Overall, 87.5% of the midwives knew at least any one type of manoeuvre applied in VBBs, and only slightly half of the midwives 72(50.4%) were competent in the application of all three manoeuvres used to deliver a vaginal frank breech. This competence is slightly lower than the overall success of 58% VBBs with no significant neonatal and maternal morbidities (Borbolla Foster *et al.*, 2014). Consequently, the competence is much lower compared to a study done in Ghana by (Lohela *et al.*, 2016) which reported the highest competence score of both doctors and midwives being 70% and the lowest score being 45%. The 45% competence is however lower compared to the competence in our study. The overall competence reported in our study is higher compared to a study done by (Louwen, Daviss, Johnson, & Reitter, 2017), which discovered that very few of the respondents, 34% were competent in applying all the manoeuvre of Pinard, Lovset's, Suzor's, Bracht's, and modified Mauriceau manoeuvre. The higher competence in our study could be because all the midwives reported that they were taught at school and 51.8% reported that they have ever delivered a breech-presenting fetus in practice as qualified midwives, and lower because only 33.6% reported having had repeated hands-on practice on delivering VVBs in clinical practice, yet still, only 14% agreed (strongly agreed and agreed) that they felt confident to facilitate VBBs consistently with complete fluency, spontaneity with no errors causing mortality in the shortest time possible without supervision. In a study that compared the four national evidence-based guidelines for the management of breech presentation (Tsakiridis, Mamopoulos,

Table 7: Competence in application of manoeuvre while conducting vaginal frank breech deliveries among midwives within lower-level facilities in Hoima district.

Item	Means ±SD	Frequency (n=143)	Percent
Application of Pinards manoeuvre	4.9±1.3		
Not competent		44	30.8
Competent		99	69.2
Application of Love sets manoeuvre	4.1±1.2		
Not competent		80	55.9
Competent		63	44.1
Application of Mauriceau-Smelie-Veit manoeuvre	3.2±1.1		
Not competent		99	69.2
Overall competency scores for VBB	12.3±2.7		
Not competent		71	49.6
Competent		72	50.4

Athanasiadis, & Dagklis, 2019), whereby 95% of midwives reported having heard of VBBs and applied the manoeuvre, respondents in the study affirmed that VBB was not a new phenomenon but required hands-on practice for someone to gain competence. Yet (Bäck, Hildingsson, Sjöqvist, & Karlström, 2017) supported (Tsakiridis *et al.,* 2019), when they stated that the ability to practice hands-on skills is an external factor that contributes to the development of knowledge and competence, whereas internal factors include confidence, self-efficacy and one's curiosity for learning**.** Whereas, a study (Evans, 2012) stressed the importance of assessment of the midwives' knowledge of all the manoeuvre used to deliver a frank breech. Midwives are likely to translate the knowledge into practice. However (Noblot *et al.,* 2015) urged that although midwives are trained to foster their knowledge base on how to conduct vaginal breech births, sometimes they may fail to translate the knowledge into practice, and this sometimes is attributed to the negative attitude toward conducting vaginal breech birth and fear of the likely related complications.

The findings of this study showed that more than half 99(69.2%) of the midwives were competent in the application of Pinards manoeuvre,

63(44.1%) were competent in the application of Loveset manoeuver, 44(30.8%) were competent in the application of Mauriceau-Smelie-Veit manoeuvre. The midwives' competence at the application of Pinard manoeuvre in this study is higher compared with the findings of a study by (Louwen *et al.,* 2017) that reported 46% of the respondents were able to apply only the Pinard manoeuvre, yet another study that looked at the principles of physiological breech birth in practice (Shawn Walker, Scamell, & Parker, 2016) observed that 29% of the midwives competent at the application of the Pinard manoeuvre, and 27% competent with the application of Love sets maneuver, however, these reported competencies are lower compared to findings of our study. The higher competence in the application of Pinard and love set manoeuvre in our study could be related to midwives being able to flex the anterior leg at 68.5%, and arm at 77.6% in both manoeuvre respectively. Flexing the anterior limbs and delivering when performing these manoeuvre creates more room to deliver the posterior limbs as well (Abu—Ghazza & Chandraharan, 2012; Marshall, 2009).

A study from France (Marshall, 2009) discovered that 79% out of 150 midwives were com-

Table 8: Bivariate logistic regression analysis of factors associated with midwives' competency in VBB within lower level facilities in Hoima district.

Variable	Midwife Competent		COR (95% CI)	P value
	No (n=71)	Yes (n=72)		
Level of health center				
HC III	36(50.7)	31(43.1)	1.00	
HC IV	35(49.3)	41(56.9)	1.36(0.70,2.63)	0.360
Type of health center				
Private	29(40.9)	35(48.6)	1.00	
Public	42(59.2)	37(51.4)	0.73(0.38-1.41)	0.351
Level of qualification				
Certificate	59(83.1)	54(75.0)	1.00	
Diploma	12(16.9)	18(25.0)	1.64(0.72-3.72)	0.287
Age				
18-30 years	40(56.3)	32(44.4)	1.00	
31-40 years	26(36.6)	35(48.6)	1.68(0.84-3.35)	0.138
>40 years	5(7.1)	5(6.9)	1.25(0.33-4.69)	0.741
Work experience				
1-5 years	20(28.2)	17(23.6)	1.00	
6-10 years	31(34.7)	31(43.1)	1.18(0.52-2.66)	0.696
>10 years	20(28.2)	24(33.3)	1.41(0.59-3.39)	0.441
Had hands on practice on delivering mothers in the clinical placement area				
No	46(64.8)	49(68.1)	1.00	
Yes	25(35.2)	23(31.9)	0.86(0.43-1.73)	0.679
Ever conducted VBB*				
No	63(88.7)	50(69.4)	1.00	
Yes	8(11.3)	22(30.6)	**3.47(1.42-8.44)**	**0.004**
Able to mention any manoeuvre				
No	15(21.1)	3(4.2)	1.00	
Yes	56(78.9)	69(95.8)	**6.16(1.69-22.35)**	**0.006**
Feeling confident				
Disagree	43(60.6)	32(43.1)	1.00	
Neither	24(33.8)	25(34.7)	1.44(0.69-2.99)	0.320
Agree	4(5.6)	26(22.2)	**5.55(1.69-18.22)**	**0.005**

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COR: Crude Odds Ratio, **CI:** confidence interval, VBB*: Vaginal Breech Birth, HC: health Centers.

Table 9: Multivariate logistic regression analysis of factors associated with midwives' competency in delivering a vaginal frank breech within lower-level facilities in Hoima district.

Variable	COR (95% CI)	p value	AOR (95% CI)	p value
Age				
18-30 years	1.00		1.00	
31-40 years	1.68(0.84-3.35)	0.138	1.20(0.54-2.65)	0.649
>40 years	1.25(0.33-4.69)	0.741	0.47(0.08-2.44)	0.368
Ever conducted VBBs*				
No	1.00		1.00	
Yes	**3.47(1.42-8.44)**	0.004	2.60(0.88-7.65)	0.083
Able to mention any manoeuvre				
No	1.00		1.00	
Yes	**6.16(1.69-22.35)**	0.006	**11.79(2.23-58.35)**	**0.002**
Feeling confident				
Disagree	1.00		1.00	
Neither	1.44(0.69-2.99)	0.320	1.25(0.54-2.92)	0.605
Agree/Strongly agree	**5.55(1.69-18.22)**	0.005	**5.95(1.23-28.80)**	**0.026**

CI: confidence interval, AOR: Adjusted Odds Ratio, VBB*: Vaginal Breech Births.

petent with the Love sets manoeuvre being applied to deliver extended arms and described its application. This competence was higher when compared to 44(30.8%) Love sets maneuver competence of our study. The higher competence reported by Marshall (2009) was attributed to midwives knowing the manoeuvre and explaining its application in the delivery of extended arms. Yet a study done by (Toivonen, 2018) on the outcome of breech presentation discovered that 45% of the respondents pointed out that in case of another maneuver failure while delivering a frank breech presentation, modified mauriceau maneuver should be applied. It was found that 65% of the respondents were not competent with the modified mauriceau maneuver, which was attributed to inadequate exposure to the maneuver. However, this competence is higher compared to the findings of our study on this manuever. The low competence in our study could be related to

midwives failure to put the baby straight on the left arm 80.4% and the failure to place the right hand on top of the fetus 75.5% to aid flexion on the occiput and traction of the shoulders.

Several factors have been linked to midwives' competence in delivering a vaginal frank breech. In this study, being able to mention any type of manoeuvre and feeling of confidence to deliver a breech-presenting fetus were found to be significantly associated with midwives' competence to assist VBBs.

Midwives who were able to mention any maneuver 87.5%, were found to be significantly associated with increased odds of competence to assist VBBs. This could be attributed to a slightly more than half overall competence score of 50.4% reported in our study. The factors significantly associated with midwives' competence in our study differ from the significantly associated factors with midwives' competence in Ethiopia as

reported in a cross-section study by (Goshu *et al.,* 2018). At multivariable linear regression, Goshu found out that, male midwifery professionals (p = 0.022), availability of up-to-date job aids in the workplace (p = 0.04), and being recognized for improved performance (p = 0.005) were significantly associated with the competence of midwives in provision of care during labor, childbirth and the immediate postpartum period. A similar previous study that compared the four national evidence-based guidelines for the management of breech presentation (Tsakiridis *et al.,* 2019), found that 95% of midwives who supported VBBs, reported having heard of the procedure and the manoeuvre applied. Respondents in the study affirmed that VBB was not a new phenomenon, 35% of midwives were able to mention the manoeuvre and 30% explained the procedure for each maneuver application and only 5% didn't give their views. However, the competence in Tsakiridis *et al.,* (2019) the study was related to continuous in-service training on VBBs conducted in the practice area yet the competence in our study was achieved through classroom teaching and skills laboratory demonstrations.

In our study, the reason why midwives were able to know and mention the manoeuvre for VBBs could be attributed to the teaching each of the participants had in their previous training programs. This is what (DeKeyser, 2007) skill acquisition theory termed as declarative knowledge, being taught and getting exposed to knowledge by use of different instruction methods can contribute to one's skill performance. In support of this, a study done on the attitudes towards breach management among a team of maternity clinicians in Australia who undertook breach training revealed that before training, only 38% of the respondents knew the manoeuvre, and 36% of the midwives either didn't know or couldn't mention the manoeuvre. Midwifery organizations like ICM (International Confederation of Midwives, 2010) and WHO (World Health Organization, 2018) and have always revised and strengthened the implementation of a competence-based midwifery training curriculum that would serve to improve the standard of practice of midwives.

However, several researchers who researched the topic of VBBs (Namazzi *et al.,* 2015; Noblot *et al.,* 2015; Rattray, Rigg, Partridge, & Taylor, 2020; Vlemmix et al., 2014) demonstrated that competence is a trainable construct. Rattray *et al.,* (2020) who investigated the attitudes of birth clinicians before and after training towards term breech presentation and management practices stated that, following training, clinicians' knowledge and intention to discuss management options for breech increased yet before training, the birthing clinicians believed that VBBs were associated with high neonatal morbidity and mortality. Additionally, a study (Namazzi *et al.,* 2015) " strengthening health facilities for maternal newborn and newborn care, experiences from rural eastern Uganda**",** with the objective of building capacity for maternal and newborn care, reported a mean post-training knowledge score of 68% compared to 32% in the pre-training test. Hunter (2014) emphasized that midwifery education programs utilize simulation training to teach high-risk and low- frequently skills. Simulation in midwifery training reduces the time taken to achieve competency. Yet scholars like (Cooper *et al.,* 2016; Maskálová, Urbanová, Bašková, & Kvaltínyová, 2018; Ricketts, 2017) insisted that skills training with simulation demonstrations prepares midwives for the practice of basic and advanced practical skills such as breech births.

Also in our study, midwives who expressed a feeling of confidence to deliver a breech-presenting fetus, agreed, and strongly agreed were found to be significantly associated with increased odds of competence to assist VBBs. These midwives strongly agreed and agreed that they feel they could conduct vaginal breech births consistently with complete fluency, spontaneity, or with no errors causing mortality in the shortest time possible without supervision. These terms are expressed DeKeyser (2007) atomicity concept which develops along with one's confidence to perform skills of a particular procedure. A previous similar study by (Rattray *et al.,* 2020), concluded that confidence towards discussing VVBs and management is associated with increased odds of competence, whereas a previous study by (Bäck *et al.,*

2017), looked at the development of competence and confidence in midwifery, used focus groups discussion with Swedish midwives, reported that ability to practice hands-on skills is an external factor that contributes to the development of knowledge and competence whereas internal factors include confidence, self-efficacy and one's curiosity for learning. Midwives' reported a feeling of confidence to assist VBBs could be attributed to policies in Uganda that support the training and practice of midwives in VBBs. All the midwives in our study agreed that there were no practice guidelines/policies in the various H/Cs levels that restrict midwives from delivering VBBs. In support of this, a previous study by (Marshall, 2009) stated that breech is NOT an abnormality but rather just UNUSUAL, and so normal labor and spontaneous VBBs are normal practice and, therefore, should not be restricted. Yet (Hunter, 2014) stated that VBB is still an option mode of delivery in low-resource countries where mothers come late in labor with the fetal buttocks outside the mother's vagina in breech presentation. Many researchers (Håheim *et al.,* 2004; Kotaska *et al.,* 2009; Shawn Walker, Breslin, Scamell, & Parker, 2017) found out that practice with the support of VBBs enhances reflection, repetition, and experience. In support of this, a study by (Vlemmix *et al.,* 2014) was done to evaluate the Dutch gynecological residents' level of training and their intentions on guiding VBBs during their careers, where the level of entrustment of independent practice in guiding VBBs, courses attended on guiding VBBs, and confidence in guiding VBBs after finishing their residency were the main outcome measures. Of sixth-year residents, 65% had not yet obtained entrustment for personally guiding VBBs. The residents were trained in VBBs at least once during a national mandatory course, and further training was strongly dependent on local hospital policy. Additionally, a study by (Adegoke, Utz, Msuya, & Van Den Broek, 2012) found out that, in some settings, cadres reported to be skilled were not effectively utilized to offer life-saving skills because of the existing policies that restricted VBBs. However much the midwives are trained in and considered to perform,

there was no matching legislation to allow health care providers to perform EmOC signal functions they were able to perform. On contrary, a survey held among obstetric trainees in Australia by (Shawn Walker, Parker, *et al.,* 2018) reported that 53% of the respondents felt confident in performing a VBB. Yet only 11% report an intention to offer planned VBBs at term as specialists despite the availability of guidelines supporting VBBs. This is in agreement with (Leeman, 2020) who are given that option, and planned VBB is rare. A common limiting factor is the lack of a provider skilled and confidently willing to offer vaginal breech delivery. This implies that much as guidelines and policies may be in place, midwives' strong feeling of confidence to assist a VBB plays an important role in the success of the decision to support a vaginal breech birth and the birth outcomes. Although several studies have highlighted the importance of midwives feeling the confidence to deliver a breech-presenting fetus to be significantly associated with midwives' competence to assist VBBs. There are other factors scholars (Håheim *et al.,* 2004; Kotaska *et al.,* 2009; Shawn Walker *et al.,* 2017) base on to grade a midwife as competent, which should not be underestimated. Factors like hands-on practice, working experience, and continuous in-service training on VBBs. In our study, the hands-on practice was associated with midwives' competence in assisting VBBs however, the association was found not to be statistically significant. Scholars believed that the hands-on practice of VBBs enhances reflection, repetition, and experience in support of VBBs by midwives with many years in service, with accumulated working experience. It was further hypothesized that the skills and experience of the midwives significantly affect the outcomes of VBBs (Shawn Walker, Scamell, & Parker, 2018). Furthermore, competence was attributed to continuous medical education sessions conducted in different health facilities, documented materials concerning vaginal breech births, and how it was managed, among other influencing variables. Post *et al.,* (2018) and Hehir & Malone, (2014) observed that birthing professionals had started to lose the skills needed to attend vaginal breech de-

liveries safely and responsibly (Post, Vlemmix, de Hundt, & van Rheenen, 2018). They then suggested the best way to improve the quality of care given during VBBs could only be achieved through improved quality of continuing education. A factor that was found to be lacking in our study, was reported at 96.5% with only 3.5% attending in-service training during practice.

LIMITATION OF THE STUDY

Inter observational bias was anticipated, however, we trained the researcher assistants on the step of the procedure to be scored on the tool. And during the process of training and testing the tool, we performed the procedure of scoring the same participant individually. Then at the end of it, the team discussed if there were variations in the scores. The process was repeated until inter-related reliability was attained and the data collection process started.

The checklist used to collect data on the dependent variable of this study, which is the competence of midwives' in facilitating VBBs was developed and modified from the original authors (ALARM international and AMREF Health) who did not provide a standard grading scale. However, our study considered the mean score as a cut-off for competence, this may not have been the standard measure for grading competence and non-competence of midwives' performance of the procedure for VBBs.

Using a pelvic model and fetal doll to assess the application of the manoeuvres for VBBs may not depict the real-life scenario of VBBs. This was a limitation because the attitude and competence a midwife would demonstrate on a model may be altered in a real-life scenario of facilitation of breech vaginal birth.

CONCLUSION

Overall midwives' competence was average. This highlights a need for in-service vaginal breech births training, and a hands-on vaginal breech births practice to improve competence.

The training institution should emphasize the implementation of a competence-based training curriculum as developed by ICM and strengthened by WHO.

The health care system should standardize the quality of midwifery practice as stated by the global standard of midwifery practice. Standard guidelines and standard operating procedures should be developed to guide the care practices in health units.

CONFLICT OF INTEREST

The authors have no conflicts of interest.

AURTHOR CONTRIBUTIONS

NP conception, drafting and designing the work. AY revising the work critically for important intellectual content. MN and MT final approval of the version to be published. SMN agreed to be accountable for all aspects of the work certifying that questions related to the accuracy are appropriately investigated and resolved.

6. References:

1. Abu-Ghazza, O., & Chandraharan, E. (2012). Breech delivery. Obstetric and Intrapartum Emergencies: A Practical Guide to Management, 3, 59.https://doi.org/10.1017/CBO978 0511842153.010

2. Adegoke, A., Utz, B., Msuya, S. E., & Van Den Broek, N. (2012). Skilled Birth Attendants: who is who? A descriptive study of definitions and roles from nine Sub Saharan African countries. PloS one, 7(7), e40220.https://doi.org/1 0.1371/journal.pone.0040220PMid:22808121 PMCid:PMC3393745

3. Ahmad, H., & Halim, H. (2017). Determining sample size for research activities. Selangor Business Review, 20-34.

4. Akseer, N., Lawn, J. E., Keenan, W., Konstantopoulos, A., Cooper, P., Ismail, Z.,

. . . Bhutta, Z. A. (2015). Ending preventable newborn deaths in a generation. International Journal of Gynecology & Obstetrics, 131, S43-S48.https://doi.org/10.1016/j.ijgo.2015.03.017PMid:26433505

5. Alarab, M., Regan, C., O'Connell, M. P., Keane, D. P., O'Herlihy, C., & Foley, M. E. (2004). Singleton vaginal breech delivery at term: still a safe option. Obstetrics & Gynecology, 103(3), 407-412.https://doi.org/10.1097/01.AOG.0000113625.29073.4cPMid:14990399

6. Arsenault, C., English, M., Gathara, D., Malata, A., Mandala, W., & Kruk, M. E. (2020). Variation in competent and respectful delivery care in Kenya and Malawi: a retrospective analysis of national facility surveys. Tropical Medicine & International Health, 25(4), 442-453.https://doi.org/10.1111/tmi.13361PMid:31828923 PMCid:PMC7217001

7. Bäck, L., Hildingsson, I., Sjöqvist, C., & Karlström, A. (2017). Developing competence and confidence in midwifery-focus groups with Swedish midwives. Women and Birth, 30(1), e32-e38.https://doi.org/10.1016/j.wombi.2016.08.004PMid:27562606

8. Balsarkar, G., & Gujarathi, N. N. (2020). Breech in Labor. In Labour Room Emergencies (pp. 305-316): Springer.https://doi.org/10.1007/978-981-10-4953-8_32

9. Bin, Y. S., Roberts, C. L., Ford, J. B., & Nicholl, M. C. (2016). Outcomes of breech birth by mode of delivery: a population linkage study. Australian and New Zealand Journal of Obstetrics and Gynaecology, 56(5), 453-459.https://doi.org/10.1111/ajo.12488PMid:27339863

10. Borbolla Foster, A., Bagust, A., Bisits, A., Holland, M., & Welsh, A. (2014). Lessons to be learnt in managing the breech presentation at term: An 11-year single-centre retrospective study. Australian and New Zealand Journal of Obstetrics and Gynaecology, 54(4), 333-339.https://doi.org/10.1111/ajo.12208PMid:24738867

11. Brockmann, M., Clarke, L., & Winch, C. (2009). Competence and competency in the EQF and in European VET systems. Journal of European Industrial Training, 33(8/9), 787-799.https://doi.org/10.1108/03090590910993634

12. Cooper, S., Cant, R., Porter, J., Bogossian, F., McKenna, L., Brady, S., & Fox-Young, S. (2016). Simulation based learning in midwifery education: a systematic review. Women and Birth, 25(2), 64-78.https://doi.org/10.1016/j.wombi.2011.03.004PMid:21489894

13. Covell, C., & Sidani, S. (2013). Nursing intellectual capital theory: Implications for research and practice. Online J Issue Nurs, 18(2).https://doi.org/10.3912/OJIN.Vol18No02Man02

14. DeKeyser, R. (2007). Skill acquisition theory. Theories in second language acquisition: An introduction, 97113.

15. Evans, J. (2012). Understanding physiological breech birth. Essentially Midirs, 3(2), 17-21.

16. Fenwick, J., Lubomski, A., Creedy, D. K., & Sidebotham, M. (2018). Personal, professional and workplace factors that contribute to burnout in Australian midwives. Journal of advanced nursing, 74(4), 852-863.https://doi.org/10.1111/jan.13491PMid:29105143

17. Fullerton, J. T., Thompson, J. B., & Severino, R. (2011). The International Confederation of Midwives essential competencies for basic midwifery practice. An update study: 2009-2010. Midwifery, 27(4), 399-408.https://doi.org/10.1016/j.midw.2011.03.005PMid:21601321

18. Furtado, V., & Kitson-Reynolds, E. (2021). Changing the tide: influencing factors for midwives on vaginal breech birth skill acquisition. British Journal of Midwifery, 29(8), 454-462.https://doi.org/10.12968/bjom.2021.29.8.454

19. Gessesse, D. N., Yirdaw, B. W., & Mekonen, D. G. (2021). Predictors of competency on delivery care service among final year undergraduate midwifery students in higher education institutions of Ethiopia, 2019: A cross sectional study. Clinical Epidemiology and Global Health, 11, 100730.https://doi.org/10.1016/j.cegh.2021.100730

20. Goshu, M., Godefay, H., Bihonegn, F., Ayalew, F., Haileselassie, D., Kebede, A., . . . Gidey, G. (2018). Assessing the competence of midwives to provide care during labor, childbirth and the immediate postpartum period-A cross sectional study in Tigray region, Ethiopia. PloS one, 13(10), e0206414.https://doi.org/10.1371/journal.pone.0206414PMid:30379970 PM-

Cid:PMC6209306

21. Gratius, E., Bourgain, A., & Carcopino, X. (2019). Vaginal breech delivery: the experience of French trainees in obstetrics and gynaecology. Journal de gynecologie, obstetrique et biologie de la reproduction, 39(2), 144-150.https://doi.org/10.1016/j.jgyn.2009.10.007PMid:20074865

22. Håheim, L. L., Albrechtsen, S., Berge, L. N., Børdahl, P. E., Egeland, T., Henriksen, T., & Øian, P. (2004). Breech birth at term: vaginal delivery or elective cesarean section? A systematic review of the literature by a Norwegian review team. Acta obstetricia et gynecologica Scandinavica, 83(2), 126-130.https://doi.org/10.1080/j.0001-6349.2004.00349.xhttps://doi.org/10.1111/j.0001-6349.2004.00349.xPMid:14756727

23. Hehir, M. P. (2015). Trends in vaginal breech delivery. J Epidemiol Community Health, 69(12), 1237-1239.https://doi.org/10.1136/jech-2015-205592PMid:26179448

24. Hehir, M. P., & Malone, F. D. (2014). The dilemma of vaginal breech delivery worldwide. The Lancet, 384(9949), 1184.https://doi.org/10.1016/S0140-6736(14)61720-7https://doi.org/10.1016/S0140-6736(14)61719-0

25. Hunter, L. A. (2014). Vaginal breech birth: can we move beyond the Term Breech Trial? Journal of midwifery & women's health, 59(3), 320-327.https://doi.org/10.1111/jmwh.12198PMid:24762034

26. Igwegbe, A., Monago, E., & Ugboaja, J. (2010). Caesarean versus vaginal delivery for term breech presentation: a comparative analysis. African Journal of Biomedical Research, 13(1), 15-18.https://doi.org/10.4314/njm.v18i3.51212PMid:20120658

27. International Confederation of Midwives. (2010). Essential competencies for basic midwifery practice.

28. Khalaila, R. (2014). Simulation in nursing education: an evaluation of students' outcomes at their first clinical practice combined with simulations. Nurse education today, 34(2), 252-258.https://doi.org/10.1016/j.nedt.2013.08.015PMid:24060462

29. Kish, L. (1965). Sampling organizations and groups of unequal sizes. American sociologi-cal review, 564-572.https://doi.org/10.2307/2091346PMid:14325826

30. Kotaska, A., Menticoglou, S., Gagnon, R., Farine, D., Basso, M., Bos, H., . . . Mundle, W. (2009). Vaginal delivery of breech presentation: No. 226, June 2009. In: Elsevier.https://doi.org/10.1016/j.ijgo.2009.07.002PMid:19824190

31. Leeman, L. (2020). State of the breech in 2020: Guidelines support maternal choice, but skills are lost. . . . Birth.https://doi.org/10.1111/birt.12487PMid:32128861

32. Lohela, T. J., Nesbitt, R. C., Manu, A., Vesel, L., Okyere, E., Kirkwood, B., & Gabrysch, S. (2016). Competence of health workers in emergency obstetric care: an assessment using clinical vignettes in Brong Ahafo region, Ghana. BMJ open, 6(6), e010963.https://doi.org/10.1136/bmjopen-2015-010963PMid:27297010 PMCid:PMC4916610

33. Louwen, F., Daviss, B. A., Johnson, K. C., & Reitter, A. (2017). Does breech delivery in an upright position instead of on the back improve outcomes and avoid cesareans? International Journal of Gynecology & Obstetrics, 136(2), 151-161.https://doi.org/10.1002/ijgo.12033PMid:28099742

34. Macharey, G. (2018). Breech presentation and delivery in singleton term pregnancies in Finland.

35. Marshall, J. E. (2009). Facilitating vaginal breech birth at term. Advancing Skills in Midwifery Practice E-Book, 89.

36. Maskálová, E., Urbanová, E., Bašková, M., & Kvaltínyová, E. (2018). Experience of lecturers with simulation training in midwifery education in Slovakia. Midwifery, 59, 1-3.https://doi.org/10.1016/j.midw.2018.01.001PMid:29331775

37. Maskey, S., & Dwa, Y. (2018). Predisposing Factors and Outcome of Malpresentations in an Institute. JNMA; journal of the Nepal Medical Association, 56(211), 674-677.https://doi.org/10.31729/jnma.3640PMid:30381763 PMCid:PMC8997271

38. Mayanja, Masembe , Nanzira , & Njagi Factors associated with poor delivery outcomes among women delivering by breech in South Western Uganda: Unmatched case control study.

39. Namazzi, G., Waiswa, P., Nakakeeto, M., Nakibuuka, V. K., Namutamba, S., Najjemba, M., . . . Ajeani, J. (2015). Strengthening health facilities for maternal and newborn care: experiences from rural eastern Uganda. Global health action, 8(1), 24271.https://doi.org/10.3402/gha.v8.24271PMid:25843496 PMCid:PMC4385205

40. Ngwenya, S. (2019). The incidence and perinatal outcomes of singleton vaginal breech deliveries in a low-resource setting, mpilo central hospital, Bulawayo, Zimbabwe. MOJ Womens Health, 8(1), 54-56.https://doi.org/10.15406/mojwh.2019.08.00210

41. Noblot, E., Raia-Barjat, T., Lajeunesse, C., Trombert, B., Weiss, S., Colombié, M., & Chauleur, C. (2015). Training program for the management of two obstetric emergencies within a French perinatal care network. European Journal of Obstetrics & Gynecology and Reproductive Biology, 189, 101-105.https://doi.org/10.1016/j.ejogrb.2015.03.019PMid:25909359

42. Nove, A., Friberg, I. K., de Bernis, L., McConville, F., Moran, A. C., Najjemba, M., . . . Homer, C. S. (2021). Potential impact of midwives in preventing and reducing maternal and neonatal mortality and stillbirths: a Lives Saved Tool modelling study. The Lancet Global Health, 9(1), e24-e32.https://doi.org/10.1016/S2214-109X(20)30397-1

43. Organization, W. H. (2014). Every newborn: an action plan to end preventable deaths.

44. Organization, W. H. (2017). Optimizing the contributions of the nursing and midwifery workforce to achieve universal health coverage and the Sustainable Development Goals through education, research and practice.

45. Pawlak, M., Waniek-Klimczak, E., & Majer, J. (2011). Speaking and instructed foreign language acquisition: Multilingual Matters.https://doi.org/10.21832/9781847694126

46. Petrovska, K., Watts, N. P., Catling, C., Bisits, A., & Homer, C. S. (2017). 'Stress, anger, fear and injustice': An international qualitative survey of women's experiences planning a vaginal breech birth. Midwifery, 44, 41-47.https://doi.org/10.1016/j.midw.2016.11.005PMid:27889682

47. Polit, D. F., & Beck, C. T. (2004). Nursing research: Principles and methods: Lippincott Williams & Wilkins.

48. Post, W. M., Vlemmix, F., de Hundt, M., & van Rheenen, L. E. (2018). Does vaginal breech delivery have a future despite low volumes for training? Results of a questionnaire. European Journal of Obstetrics & Gynecology and Reproductive Biology, 229, 123-126.https://doi.org/10.1016/j.ejogrb.2018.08.020PMid:30172169

49. Rattray, J., Rigg, E., Partridge, B., & Taylor, M. (2019). Attitudes towards breech management among a team of maternity clinicians in Australia undertaking breech training. Women and Birth.https://doi.org/10.1016/j.wombi.2019.08.002PMid:31455584

50. Rattray, J., Rigg, E., Partridge, B., & Taylor, M. (2020). Attitudes towards breech management among a team of maternity clinicians in Australia undertaking breech training. Women and Birth, 33(4), e348-e356.https://doi.org/10.1016/j.wombi.2019.08.002PMid:31455584

51. Ricketts, B. (2017). The role of simulation for learning within pre-registration nursing education-a literature review. Nurse education today, 31(7), 650-654.

52. Rosato, M., Mwansambo, C. W., Kazembe, P. N., Phiri, T., Soko, Q. S., Lewycka, S., . . . Newell, M.-L. (2006). Women's groups' perceptions of maternal health issues in rural Malawi. The Lancet, 368(9542), 1180-1188.https://doi.org/10.1016/S0140-6736(06)69475-0

53. Ruyak, S. L., Migliaccio, L., Levi, A., & Patel, S. (2018). Role development in midwifery education: A place for simulation. Midwifery, 59, 141-143.https://doi.org/10.1016/j.midw.2018.01.021PMid:29427726

54. Sanders, R., & Steele, D. (2014). Re-engaging with vaginal breech birth: A philosophical discussion. British Journal of Midwifery, 22(5), 326-331.https://doi.org/10.12968/bjom.2014.22.5.326

55. Sinha, S., Talaulikar, V. S., & Arulkumaran, S. (2018). Malpositions and malpresentations of the fetal head. Obstetrics, Gynaecology & Reproductive Medicine, 28(3), 83-91.https://doi.org/10.1016/j.ogrm.2018.01.001

56. Sloman, R., Wanat, M., Burns, E., &

Smith, L. (2016). Midwives' views, experiences and feelings of confidence surrounding vaginal breech birth: A qualitative study. Midwifery, 41, 61-67.https://doi.org/10.1016/j.midw.2016.07.015PMid:27543969

57. Statistics, U. B. O. (2013). Statistical abstract. Kampala: Uganda Bureau of Statistics.

58. Stone, H., Crane, J., Johnston, K., & Craig, C. (2018). Retention of vaginal breech delivery skills taught in simulation. Journal of Obstetrics and Gynaecology Canada, 40(2), 205-210.https://doi.org/10.1016/j.jogc.2017.06.029PMid:28821414

59. Taie, M. (2014). Skill acquisition theory and its important concepts in SLA. Theory and practice in language studies, 4(9), 1971-1976.https://doi.org/10.4304/tpls.4.9.1971-1976

60. Thompson, J. B., Fullerton, J. T., & Sawyer, A. J. (2011). The international confederation of midwives: global standards for midwifery education (2010) with companion guidelines. Midwifery, 27(4), 409-416.https://doi.org/10.1016/j.midw.2011.04.001PMid:21550149

61. Toivonen, E. (2018). Breech Presentation: Outcome according to the mode of delivery, cardiotocography and childbirth experience.

62. Tsakiridis, I., Mamopoulos, A., Athanasiadis, A., & Dagklis, T. (2019). Management of breech presentation: a comparison of four national evidence-based guidelines. American journal of perinatology.https://doi.org/10.1055/s-0039-1692391PMid:31167240

63. Turner, M., & Maguire, P. J. (2015). Vaginal Breech Delivery at Term: the Doctors' Dilemma. Irish medical journal, 103(3).

64. UDHS, I. (2011). Uganda demographic and health survey. Uganda Bureau of Statistics, Kampala Uganda.

65. Uganda Bureau of Statistics. (2017). Uganda demographic and health survey, 2016: key indicators report. UBOS, and Rockville Maryland

66. Ültanır, E. (2012). An epistemological glance at the constructivist approach: Constructivist learning in Dewey, Piaget, and Montessori. International Journal of Instruction, 5(2).

67. UNICEF. (2016). Maternal and Newborn Health Disparities Uganda Factsheet. In.

68. Vlemmix, F., Bergenhenegouwen, L., Schaaf, J. M., Ensing, S., Rosman, A. N., Ravelli, A. C., . . . Mol, B. W. (2014). Term breech deliveries in the Netherlands: did the increased cesarean rate affect neonatal outcome? A population-based cohort study. Acta obstetricia et gynecologica Scandinavica, 93(9), 888-896.https://doi.org/10.1111/aogs.12449PMid:25113411

69. Walker, S. (2012). Breech birth: An unusual normal. Practising Midwife, 15(3), 18-21.

70. Walker, S., Breslin, E., Scamell, M., & Parker, P. (2017). Effectiveness of vaginal breech birth training strategies: an integrative review of the literature. Birth, 44(2), 101-109.https://doi.org/10.1111/birt.12280PMid:28211102

71. Walker, S., Parker, P., & Scamell, M. (2018). Expertise in physiological breech birth: A mixed-methods study. Birth, 45(2), 202-209.https://doi.org/10.1111/birt.12326PMid:29205469

72. Walker, S., Scamell, M., & Parker, P. (2016). Principles of physiological breech birth practice: a Delphi study. Midwifery, 43, 1-6.https://doi.org/10.1016/j.midw.2016.09.003PMid:27788418

73. Walker, S., Scamell, M., & Parker, P. (2018). Deliberate acquisition of competence in physiological breech birth: A grounded theory study. Women and Birth, 31(3), e170-e177.https://doi.org/10.1016/j.wombi.2017.09.008PMid:28969997

74. World Health Organization. (2018). Defining competent maternal and newborn health professionals: background document to the 2018 joint statement by WHO, UNFPA, UNICEF, ICM, ICN, FIGO and IPA: definition of skilled health personnel providing care during childbirth. (9241514205).

75. World Health Organization. (2019). The Transformation Agenda Series 1: Enhancing the Country Focus Approach for Greater Health Impact.

76. Wray, J., Aspland, J., Gibson, H., Stimpson, A., & Watson, R. (2009). "A wealth of knowledge": A survey of the employment experiences of older nurses and midwives in the NHS. International journal of nursing studies,

46(7), 977-985.https://doi.org/10.1016/j.ijnurstu
.2008.07.008PMid:18789438

77. Yamamura, Y., Ramin, K. D., & Ramin, S. M. (2017). Trial of vaginal breech delivery: current role. Clinical obstetrics and gynecology, 50(2), 526-536.https://doi.org/10.1097/GRF.0b013e31804c9d24PMid:17513938

Nursing, and a Post Graduate Diploma in Medical education (PGMME) from Makerere University Health Tutor's college; Mulago.

7. Publisher details:

Author biography

Prossy Nandawula is a nurse midwife, maternal and child health specialist and midwifery educator for 8 years. A Nurse/Midwife seeking proficiency in midwifery training and service delivery that promote development and implementation of evidence based practice through continuous research, work experience, respect of patient's values and preferences. In my profession, I have managed to train over 1,000 Midwives and Nurses at diploma and a few numbers at a bachelor's level. i hold a Bachelor of Science in Nursing from Uganda Christian University, a Master of Science in Nursing Midwifery and women's Health (MSNM) from Makerere University: School of Health Sciences, Department of

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