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MIDWIVES' KNOWLEDGE AND PRACTICE OF MIDWIFERY-LED CARE MODEL IN EMBU COUNTY

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ABSTRACT
Globally, there is great threat to midwifery practice that compromises maternal and neonatal health outcomes. This is due to limited autonomy of midwives in various health institutions. This threat is not different in Embu county and Kenya at large despite the rich evidence that midwife-led care is the most crucial factor in attaining improved maternal and neonatal health outcomes. There is no reliable literature on knowledge and practice of midwifery led care model in Embu county. This poses the need to evaluate knowledge and practice of midwifery-led care model among midwives in Embu county. Therefore, the study objective was to determine the midwives' knowledge and practice of midwifery-led care model in Embu county. The study sites were Siakago and Runyenjes level four hospitals. A survey study design was adopted. Target population comprised midwives offering maternal and child health care services in the two hospitals. A sample size of 60 midwives was used in the study with response rate of 92.0 %. Questionnaires, interviews, observation checklists and secondary sources were used to collect data. Pretesting was done at Ishiara level four hospital. Quantitative data were analysed using Statistical Package for Social Science (SPSS) software for windows version 28.0. Descriptive statistics to include frequencies and percentages were used in data analysis. Chi-square test and regression analysis, were used to draw inferences. Qualitative data were analysed by content analysis through grouping data into themes according to the study objectives. Results were presented in form of narratives and tables. Permission to undertake the study was obtained from Chuka University Ethics and Research Committee. A research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI). Relevant authorities in Embu county health department, Siakago, Runyenjes and Ishiara level four hospitals were informed for study authorisation. All the relevant ethical considerations were adhered to during the study. The study revealed that a high

percentage 76.4% of midwives had poor knowledge on midwifery led care model. There was a very high percentage 90.6% of midwives who had not heard about midwifery led care model before. Majority of the midwives 93.8% were not aware of benefits of reflexology, dimming of lights and music refreshments during labour. Among the midwives, 81.9 % demonstrated poor practice of midwifery-led care model. Care given to low risk mothers 87.3% was a shared responsibility by midwives, doctors and other health professionals. There were no midwifery led care units where midwives are solely in charge of maternal and neonatal care 85.4%. Variety of mechanical pain relief options such as labour in water, visualization and other hypnobirthing 100% were not practiced. The null hypothesis was rejected; therefore, there was statistically significant relationship at 0.05 level of significance with 1 degree of freedom between midwives' knowledge and practice of midwifery-led care model. Using pearson and spearman's rho correlations, the relationship between knowledge and practice was statistically significant at the 0.01 level (2-tailed). After running a linear regression model, midwives' knowledge level was found to affect their midwifery practice (95% CI 0.846 – 1.011), P=000. The study concluded that there were gaps in knowledge and practice of midwife- led care model in Embu county. The study recommended an intervention for educating midwives about midwifery led care model and subsequent introduction of the model in this county aiming to strengthen midwifery for improved maternal and neonatal health outcomes in Embu County.
Keywords: Midwives, Knowledge, Practice, Midwifery-led, care, model

INTRODUCTION

The global situation currently is that there is threat to midwifery practice related to limited autonomy with poor maternal and neonatal health outcomes (Nove et al, 2021). In the Italian context midwifery models respond to quality and the needs of women not only during the pregnancy but also during the post-partum phase (Ricchi et al, 2019). Lack of knowledge on what midwifery led care model entails, hinders midwifery led care practices (Dharni et al., 2021). Midwives need to understand factors that hinder and promote initiation of this model. Autonomy in care decision making is one of the key aspects of midwifery led model. Midwives have always struggled in systems that do not allow midwives' independent operations hence denying them a voice in care decisions. In some studies, midwives report frustrations by policies that deny them autonomy and narrowing their scope of practice (Hastings et al., 2021). Cultural awareness of individual responsibility and family role influence, social and system hindering factors, conflicting midwifery care expectations and language are some of the hindering factors in midwifery led maternity care practices (Shefaly et al 2021). Providing unclear feedback on components of their services inhibits progressive improvement of compliance with best practices. Providers operating in challenging environment with limited resources and support (Haghdoost et al., 2021). Time constraints, shortage of staffing and poor administrative support has been reported as a barrier to performance in midwifery practices within a standardised approach team.

Midwifery led care model has not been fully adopted in the sub sahara Africa that comprises low and middle income countries. Lack of clear guidelines on this model in most countries is a contributing factor (Eri et al, 2020). Adequate knowledge on midwifery model of care with autonomy in care decision making and administrative support and empowerment of midwives facilitates midwifery led care services (Dharni et al., 2021). Midwives feel competent working in systems that allow them independent operations and giving them a voice in making care decisions. In some studies, midwives report satisfaction by policies that allow them to work with autonomy and expanding their scope of practice (Hastings et al., 2021). Cultural, social and system enabling factors, harmonised midwifery care expectations and language are some of the enabling factors in midwifery led maternity care practices (Shefaly et al., 2021). Provider's access to clear feedback on contents of their health care services promotes progressive improvement of adherence with good midwifery practices. Poor interpersonal and communication skills between midwives themselves and between midwives and the mothers (Haghdoost et al 2021). Adequate numbers of staffing and good administrative support were also reported as enablers to implementing midwifery practices within standard approach teams. Adequate care to mothers should be considered important to minimise maternal and neonatal

deaths. Global deaths of mothers are approximately 289,000 happening in pregnancy and birth. Offering good maternal and birthing care services would control 1.3 m newborn deaths, 531,000 fresh and macerated still births as well as 113,000 deaths of mothers (Nove et al., 2021). The SDGs target to minimise maternal deaths worldwide up to approximately under 70 per 100,000 live births during 2016- 2030 (UNDESA 2019).

Midwives' practices include holistic monitoring of physical, psychological, and social wellbeing of the mother throughout the labour pregnancy and labour process. Midwifery led care model will result to spontaneous onset of labour, it is client centered and uses mechanical pain relief techniques. Providing clients with individualized health education, psychological continuous hands on support during the labour process and identifying women who require obstetrical attention for referral. These practices have been proven to reduce perineal birth injuries, operative births hence positive birth experiences (Bartuseviciene et al., 2018). Contrary, in biomedical model onset of labour is in most cases induced, the model is system centered and uses technological interventions such as pharmachological pain relief (Nilsson et al., 2019). In midwifery model of care midwives must have autonomy in decision making. Various factors influence midwives' practices either by facilitating or by hindering practice efforts. Consequently, this results to either negative or positive maternal and neonatal health outcomes.

There is inadequate literature and no guidelines in Kenya on midwifery led care model. Midwifery practice guidelines are very crucial in directing and defining parameters for midwifery care (Tharpe et al., 2021). Documentation is one of the key requirements to validating quality of midwifery care, therefore documentation skills are mandatory to quality midwifery practice. Complete and correct documentation is a legal record of services that have been offered. Guidelines to standardise the documentation format will help the midwife to concentrate on the content of what is to be documented. Clinical practices may vary depending on client's needs and values. Guidelines will acknowledge safety in such individual variations in practice and therefore help define common principles to follow in providing safe and effective midwifery care. Clear guidelines on the whole process of midwifery model of care and specifying when to consult other health care providers is needed to effectively implement the model (Tharpe et al., 2021). Promoting maternal and neonatal well-being remains a priority healthcare for attainment of the Sustainable Development Goal number 3. (Every woman Every child, 2016). Literature indicates that the global strategies towards women's and their newborns health are access to critical interventions and effective health workers (Nove et al., 2021). The threat to midwifery practice is not different in Embu county and Kenya at large despite the rich evidence that midwife-led care is the most crucial factor in attaining improved maternal and neonatal health outcomes. There is no reliable literature on knowledge and practice of midwifery led care model in Embu county. This poses the need to evaluate knowledge and practice of midwifery-led care model among midwives in Embu county. Therefore, the study objective was to determine the midwives' knowledge and practice of midwifery-led care model in Embu county

Purpose of the Study

The purpose of this study was to assess midwives' knowledge and practice of midwifery led care model in Embu county, Kenya.

Objectives of the Study

i. To assess midwives' knowledge on midwifery led care model in Embu county
ii. To assess midwives' practice of midwifery led care model in Embu county

Hypotheses

There is no statistically significant relationship between knowledge and practice of midwifery led model care model in Embu county.

Significance of the Study

Findings of this study shows low levels of knowledge on midwifery led care mode and poor midwifery practices in Embu county. This evidence will guide in policy formulation in all maternity units to introduce midwife led care in the entire county health facilities with the aim of promoting maternal and neonatal health outcomes.

METHODOLOGY

Study Site

The study was done in two level four hospitals of Embu county, that is Siakago level four hospital and Runyenjes level four hospital. Siakago level four hospital is situated in Mbeere North sub-county. Runyenjes level four hospital is situated in Runyenjes sub-county. Embu county has one level 5 hospital, 4 level four hospitals, 11 level 3 hospitals, and 77 second level hospitals. This provides 93 health centers with Mbeere South sub-county having the largest number of health facilities followed by Runyenjes sub-county with 25, Manyatta sub-county with 23 and Mbeere North Sub County with 17 community health centers. Embu county Global Positioning System (GPS) coordinates are 0.6560° S, 37.7238° E

Study Design

A survey study design was adopted.

Target Population

The study population was made up of midwives offering preconception, antenatal, natal and postnatal services in the two hospitals.

Sample Size Determination

A census was used to recruit midwives into the study.

Sampling Procedure

Two level four hospitals were selected purposively for inclusion into the study. The two hospitals were considered suitable because they have high number of midwives compared to other level four hospitals in Embu county.

Inclusion Criteria

Midwives who were willing to take part in the study.

Exclusion Criteria

Midwives on rotational clinical placement were excluded

Data Collection Procedure

Data were collected for a period of three months, from July to September 2022. Self-administered questionnaires were given to midwives to gather quantitative data. Interviews were also conducted to collect qualitative data. Secondary data sources and observation were also used to collect data that was not available through the interviews and questionnaires. The questionnaires had three sections; first section for demographics, second section assessed knowledge and practice of midwifery led care model in Embu county represented by the two hospitals.

Data Collection Instruments

Structured questionnaires, interview guides, secondary sources and observation checklist were used to collect data.

Pretesting

Data collection tools were pretested in Ishiara level four hospital. This is because health care services offered and midwives' characteristics are more comparable with those in Siakago and Runyenjes level four hospitals. Ambiguous questions detected were rephrased appropriately to improve clarity. The pretest sample was 10% of the study sample (Mugenda & Mugenda, 2019). Therefore 6 participants were selected for pretesting (6 midwives). This forms 10% of

60 that was the final sample size.

Data Analysis

Data were analysed using Statistical Package for Social Science (SPSS) software version 28.0. Descriptive statistics were carried out for quantitative data and thematic analysis for qualitative data. For inferential statistics, chi-square test and regression analysis were used to draw inferences on the relationship between midwives' knowledge and practices of midwifery led care model.

Ethical Consideration

Authorization to undertake the study was obtained from Chuka University Ethics and Research Committee. A research permit was sought from the National Commission for Science, Technology and Innovation (NACOSTI). Relevant authorities in Embu county health department, Siakago, Runyenjes and Ishiara level four hospitals were informed about the study and gave authority of data collection in their institutions. Participants were explained on the purpose of the study and that participation in the study is voluntary. Participants were given freedom of withdrawal at whatever stage of research when they no longer intended to participate. Informed consent was sought from participants in form of verbal

and written consent before they started answering the research questions. Information obtained from study participants was treated with ultimate confidentiality. Literature sources were acknowledged appropriately. Truthful data was generated and presented for feedback and publication

RESULTS

Table 1. Midwives' knowledge of midwifery led care model (n-55)

Item	**YES (%)**	**NO (%)**
Do you know what midwifery led care model is all about?	8 (9.4)	47 (90.6)
Knowledgeable on labour and birth related topic(s) that the woman/partner/significant other may wish to discuss	9(18.8)	46(81.3)
Have information on birthing preference(s) including water birth	10(12.5)	45(87.5)
Know the importance of mobilising and changing positions during childbirth	35(68.8)	20(31.2)
Aware of benefits of rest, massage, including reflexology, consider environment e.g. dimming of lights, music refreshments - Light diet/isotonic fluids	5(6.2)	50(93.8)
Aware of pain relief options e.g. labour in water, Transcutaneous electrical nerve stimulation (TENS), hypnobirthing, visualization	10(15.6)	45(84.4)
Choices for third stage management of labour are well known	5(9.4)	50(90.6)
Importance of skin-to-skin contact is understood	26(50.0)	29(50.0)
Conversant with timing of cord clamping	11(21.9)	44(78.1)
Summary	**Good knowledge**	**Poor knowledge**
	13 (23.6%)	42 (76.4%)

Table 1 indicates a general summary of poor knowledge (76%) of the midwives on midwifery led care model. Majority of the midwives (90.6%) said they do not know what midwifery led care model entails while a few of them (9.4%) said that they knew what the model is all about

Table 2. Likert scale on level of information the midwives have regarding midwifery led care model (n=55)

Item	Strongly agree N (%)	Agree N (%)	Disagree N (%)	Strongly disagree N (%)	Not sure N (%)

I have adequate knowledge on variety of upright and preferred birthing positions for mothers	7(12.7%)	19(34.5%)	28 (50.9%)	1 (1.8%)	0
Midwifery led care model views pregnancy, birth and puerperium as normal physiological process	2(3.6%)	18(32.7%)	7(12.7%)	5(9.2%)	23(41.8%)
In midwifery led care model, the midwife is the lead professional in planning, organising for care to low risk pregnancy from prenatal to post natal.	4(7.3%)	5(9.1%)	16(29.1%)	2(3.6%)	28(50.9%)
In this model unnecessary care interventions like episiotomy, instrumental birth, caesarean section and pharmachological analgesia are reduced	2(3.6%)	13(23.6%)	4(7.3%)	2(3.6%)	34(61.8%)
Appropriate referrals of mothers requiring different specialist care are done by midwives	3(5.5%)	2(3.6%)	7(12.7%)	40(72.7%)	3(5.5%)
Low risk pregnancy, birthing process and postnatal care can be offered by midwives safely	41(74.5%)	6(10.9%)	5(9.2%)	2 (3.6%)	1(1.8%)
Summary	**Well informed**		**Poorly informed**		
	20 (36%)		35 (64%)		

Midwives who strongly agreed and those who agreed were group together as having good information on the model 36
% and those who strongly disagreed, disagreed and those not sure were considered to be poorly informed 64 %. The Likert scale in Table 2 indicates that majority of the midwives are poorly informed about the information regarding midwifery led care model.

Table 3. Midwives' practice of midwifery led care model (n=55)

FACILITY		
	YES N (%)	**NO N (%)**
Labour and birth related topic(s) that the woman/partner/significant other may wish to discuss are taught	16 (31.2)	38(68.2)
Various birthing option(s) including water birth are offered	0	55(100)
Mobilising and changing positions during labour and childbirth are done	25(43.8)	30(56.2)
Massage, including reflexology considering environment e.g. dimming of lights, music refreshments - light diet/isotonic fluids are practiced	7(9.4)	48(90.6)
Pain relief options offered e.g. labour in water, Transcutaneous electrical nerve stimulation (TENS), hypnobirthing, visualization	0	55(100)
Choices for third stage of labour management discussed with the mother and partner	0	55(100)
Skin-to-skin contact is practiced	47(87.5)	8(12.5)
Timing of cord clamping is appropriate	13(21.9)	42(78.1)
Summary	**Good practice**	**Poor practice**
	14 (25%)	41 (75%)

Table 3. Shows that majority of midwives demonstrated poor practice of midwifery led care

75% while a few 25% demonstrated good practice of midwifery led care model

Table 4. Midwives' practice of midwife-led care model by midwives (n = 55)

FACILITY		
	Frequency (N)	**Percentage (%)**
Is midwifery led care model practiced in this hospital?		
No	45	81.8%
Yes	3	5.4%
Not sure	7	12.8%
If not practiced, what are the hindering factors?		
Lack of knowledge on the model	40	72.7%
Lack of autonomy in midwifery generally	11	20%
Lack of support	4	7.3%
What possible strategies would you suggest for introduction of the model in the hospital?		
Train midwives about the model	39	70.9%
Empowering midwives by giving them autonomy to make care decisions	11	20%
Expand midwives' scope of practice	5	9.1%
What is your experience in your daily midwifery care services?		
I feel highly motivated due to autonomy and professional fulfillment	5	9.1%
I feel highly demotivated due to lack of autonomy and professional fulfillment	38	68.2
Subordinate practice	3	5.4%
Over worked and burnout	9	17.3%
What is the availability of evidence informed maternal and neonatal health care policies and guidelines?		
Readily available	3	5.4%
Available	7	12.8%
Sometimes available	7	12.8%
Rarely available	27	49%
Not available	11	20%
Maternal positions of birthing mostly practices		
Upright	7	12.8%
lithotomy	32	59.9
dorsal	13	21.9%
others-lateral	3	5.4%

Majority of the midwives 81.8% confirmed that midwifery led care model is not practiced in their health facilities while 12.8% were not sure whether the model is in practice or not. The Main hindering factor being **l**ack of knowledge on the model 72.7%, followed by lack of autonomy in midwifery generally 20% and lack of support 7.3%. Majority 70% recommended training of midwives as one strategy of introducing the model into their facilities. Others 20% proposed empowerment of midwives by giving them autonomy to make care decisions while 9.1% suggested expansion of midwives' scope of practice. Majority of midwives 68.2% expressed lack of motivation due to limited autonomy and professional fulfillment 17.3% felt over worked and suffered burnout. Most of the midwives 49% said evidence informed maternal and neonatal health care guidelines are rarely available while 20% said the evidence based care guidelines are not available at all. Very few midwives 12.8% practice upright maternal birthing positions while majority are practicing the lithotomy 59.9% and 21.9% dorsal positions (Table 4)

Table 5. Likert Scale on the level of midwifery led care practices (n=55)

	Totally agree N (%)	Agree N (%)	Disagree N (%)	Totally disagree N (%)	Don't know N (%)
Midwives autonomously give care during prenatal, birth and postnatal periods to low risk pregnancy	3(5.5)	3(5.5)	5(9.1)	38(69.0)	6(10.9)
There is a midwifery led care unit where midwives are solely in charge of maternal and neonatal care	0	3(5.5)	3(5.5)	47(85.4)	2(3.6)
Care given to low risk mothers is a shared responsibility by midwives, doctors and other health professionals	48(87.3)	5(9.1)	2(3.6)	0	0
Summary	**highly practiced**		**low practice**		
	21(38%)		**34 (62%)**		

Table 5: Summarises that there is low level of midwifery led care practice. There is lack of autonomy in midwifery practice. Majority of Midwives 69% totally disagreed that they autonomously give care during prenatal, birth and postnatal periods to low risk pregnancy. There are no midwifery led care units where midwives are solely in charge of maternal and neonatal care as indicated by 85.4% of midwives. Midwives totally agreed 87.3% that care given to low risk mothers is a shared responsibility by midwives, doctors and other health professionals

Hypotheses Testing

Null: There is no statistically significant relationship between knowledge and practice of midwifery led care model in Embu county. By using the Chi square test, the findings indicated a statistical relationship between midwives' knowledge and practice of midwifery led care model, where calculated X^2 of 7.05 was greater than the critical X^2 of 3.841 significant at 0.05 with degree of freedom at 1. Therefore, the null hypothesis was rejected. This showed that there was a significant relationship between midwives' knowledge and practice of midwife led care model in Embu county

Table 6: Cross tabs correlation for midwives' knowledge and practice of midwifery led care model

Correlations			
		Practice	Knowledge
Practice	Pearson Correlation	1	.952**
	Sig. (2-tailed)		.000
	N	55	55
Knowledge	Pearson Correlation	.952**	1
	Sig. (2-tailed)	.000	
	N	55	55
**. Correlation is significant at the 0.01 level (2-tailed).			

Correlations				
			practice	Knowledge
Spearman's rho	Practice	Correlation Coefficient	1.000	.952**

		Sig. (2-tailed)	.	.000
		N	55	55
	Knowledge	Correlation Coefficient	.952**	1.000
		Sig. (2-tailed)	.000	.
		N	55	55
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 7: Linear Regression Analysis for midwives' knowledge and practice of midwifery led care model

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.143	.074		1.938	.058	-.005	.291
	Knowledge	.929	.041	.952	22.663	.000	.846	1.011
a. Dependent Variable: practice								

DISCUSSION

Midwives' knowledge on midwifery led care model

Results in Table 1 indicate a general summary of poor knowledge (76%) of the midwives on midwifery led care model. Moreover, majority of the midwives (90.6%) said they do not know what midwifery led care model entails while a few of them (9.4%) said that they knew what the model is all about. This is similar to other studies that found out that lack of knowledge on what midwifery model of care entails, hinders midwifery led care practices (Dharni et al., 2021). Additionally, there is evidence of lack of knowledge on the model using a likert scale. Midwives who strongly agreed and those who agreed were grouped together as having good information on the model 36 % and those who strongly disagreed, disagreed and those not sure were considered to be poorly informed at 64 %. The Likert scale in Table 2 indicated that majority of the midwives were poorly informed about the information regarding midwifery led care model. This is in congruent with the study in Ethiopia that identified a relationship between knowledge and practice of care providers (Abayneh et al, 2022)

Midwives' practice of midwifery led care model

Findings of this study in Table 3 indicate that majority of midwives demonstrated poor practice of midwifery led care 75% while a few 25% demonstrated good practice of midwifery led care model. To add to this, majority of the midwives 81.8% confirmed that midwifery led care model is not practiced in their health facilities while 12.8% were not sure whether the model is in practice or not. The Main hindering factor being **l**ack of knowledge on the model 72.7%, followed by lack of autonomy in midwifery generally 20% and lack of support 7.3%. The results are supported

by some studies where midwives reported frustrations by policies that denied them autonomy and narrowing their scope of practice (Hastings et al., 2021). Majority 70% recommended training of midwives as one strategy of introducing the model into their facilities. Others 20% proposed empowerment of midwives by giving them autonomy to make care decisions while 9.1% suggested expansion of midwives' scope of practice. Majority of midwives 68.2% expressed lack of motivation due to limited autonomy and professional fulfillment 17.3% felt over worked and suffered burnout. Most of the midwives 49% said evidence informed maternal and neonatal health care guidelines are rarely available while 20% said the evidence based care guidelines are not available at all.

Very few midwives 12.8% practice upright maternal birthing positions while majority are practicing the lithotomy 59.9% and 21.9% dorsal positions (Table 4). The findings in this study agree with the study in Ethiopia that identified a relationship between knowledge and practice of care providers (Abayneh et al, 2022) . Table 5: Summarises that there is low level of midwifery led care practice. There is lack of autonomy in midwifery practice. Majority of Midwives 69% totally disagreed that they autonomously give care during prenatal, birth and postnatal periods to low risk pregnancy. There are no midwifery led care units where midwives are solely in charge of maternal and neonatal care as indicated by 85.4% of midwives. Midwives totally agreed 87.3% that care given to low risk mothers is a shared responsibility by midwives, doctors and other health professionals

CONCLUSION

The study concluded that there were gaps in knowledge and practice of midwife-led care model in Embu county. Also the study concluded that lack of knowledge on what midwifery model of care entails, hinders midwifery led care practices. The study recommended an intervention for educating midwives about midwifery led care model and subsequent introduction of the model in this county aiming to strengthen midwifery for improved maternal and neonatal health outcomes in Embu County.

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CONFLICTS OF INTEREST

No conflicts of interest

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