

# Quality of Health Care Provided to Mothers During Immediate Postpartum Period at Health Facilities in Kakamega County, Kenya

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## ABSTRACT

Health care workers have an important role in reducing the high maternal and infant mortality rates in Kenya. Of concern is that majority of the deaths occur during the immediate postpartum period and thus need to study quality of care provided during this delicate period. Kakamega County in Kenya was selected because it ranked the third countrywide according to the Kenya Demographic Health Survey report with infant mortality rates of 65 per a thousand live births and 319 maternal mortality rates per a hundred thousand (UNFPA / UNICEF / WHO / World Bank, 2015). Socio-demographic factors, knowledge and health services provided during the immediate postpartum period were evaluated from a the recipient of health care service perspective, in this case the mothers. A cross-sectional descriptive study design to collect quantitative data was adopted. Self-administered questionnaires were utilized to collect data. The study participants were 257 postnatal mothers who were systematically sampled from facilities within Kakamega County. Quantitative data was analyzed using SPSS version 21.0. Descriptive statistics were used to present quantitative data in frequency tables, charts and graphs. Inferential statics were done using Chi-Square tests at a 95% confidence interval ( $p < 0.05$ ). The results revealed that socio-demographic factors such as age ( $p = 0.014$ ), education ( $p = 0.001$ ), and parity ( $p = 0.029$ ) were associated with the perceived quality of postpartum care. Availability of family planning ( $p = 0.050$ ), immunization ( $p = 0.001$ ), and nutritional counseling services ( $p = 0.012$ ), was associated with a positive perception of the quality of postpartum care health care. Several gaps in service provision were identified such as a significant population of mothers could not recognize maternal danger signs, infant danger signs, and safe cord care practices at 41.5%, 38.2% and 48.1% respectively. Blood pressure monitoring, lochia monitoring, breast examination, health education on safe cord care practices and nutritional counseling in the immediate postpartum period were not provided in a substantial population of the mothers. A significant portion of the mothers could not correctly recognize maternal postpartum danger signs (41.5%) and newborn danger signs (38.2%) within 24 hours. In addition knowledge on cord care management (48.1%) and demonstration of how to breastfeed the newborn (24.5%) was found to be low in significant population of the mothers.

In conclusion, immediate postpartum care services such as blood pressure monitoring, lochia monitoring, nutritional counseling, health education on cord care, maternal and infants' danger signs recognition need to be strengthened in the immediate postpartum period to avert the high maternal and infant mortality rates associated with postpartum hemorrhage, neonatal sepsis, birth asphyxia and malnutrition.

**Key words:** Perception, Quality and Immediate Postpartum Care

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## INTRODUCTION

The immediate postpartum period is a very delicate period to the mother and infants health with majority of maternal and infant deaths occurring during this period [1]. Maternal and infant mortalities in sub-Saharan Africa, Kenya included are very high compared to developed countries [2-5]. Birth asphyxia, preterm birth and neonatal sepsis are the main causes of neonatal mortality, while postpartum hemorrhage remains the leading cause of maternal mortality in the immediate postpartum period. Proper interventions if implemented during this first twenty four hours, then maternal and neonatal mortalities will drastically cut down [4].

Kakamega county in Kenya was ranked as the fifth highest county in maternal mortalities and third highest in infant mortality rates [6]. Therefore, the main of the study was to assess the perceived quality of health care provided to mothers by health care during the immediate postpartum period in Kakamega County, Kenya. The specific objectives under study were to determine the socio-demographic factors associated with perceived quality of healthcare provided to mothers during the immediate, to establish the healthcare services provided by healthcare workers to mothers during the immediate postpartum period, and to determine the knowledge level on postpartum care components among immediate postpartum mothers in Kakamega County.

## MATERIALS AND METHODS

A descriptive cross-sectional study design was used. The independent variables under study were socio-demographic factors, maternal knowledge and health care services offered to mothers during the immediate post-partum period. Socio-demographic factors associated with perceived quality of postpartum care included educational level, religion, parity, income, marital status, and age measured using a checklist. The healthcare services provided to mothers in the immediate postpartum period such as family planning, nutritional counseling, breast examination and immunization were evaluated. The dependent variable was the perceived quality of postpartum care. The study was administered to women who delivered in selected public health facilities in Kakamega County within the first twenty fours following delivery. The study population included 600 mothers in the immediate postpartum period, and selected during the study period from the hospital records. The study included all mothers following delivery in the first twenty-four hours at the selected health care facilities in Kakamega County and who had consented to participate in the study. Mothers who were very sick and in critical health condition and were not mentally sound to participate in the study were excluded from the study.

### Sample Size Determination

The researcher used the Fisher et al 1998 [7] formula to determine the sample size for more than 10,000 and corrected for a population less than 10,000 as

Where:

$n$  = desired sample when the population is more than 10,000

$N$ =Estimated population, which was 600.

$z$  = is the normal standard deviation at 95% confidence interval, which is 1.96

$p$  = is the prevalence of the sample with desired characteristics in the study. The assumption is 50% have the desired characteristics (Mugenda & Mugenda 2003).

$q$  =  $1-p$  which is 0.5

$d$  = is the desired margin of error at a 95% confidence interval which is 0.05

$n_f$  desired sample when the estimated population is less than 10000.

Therefore;

=384

Therefore, since the sample is less than 10,000, the selection was adjusted as follows;

=234. The sample was adjusted by 10% to cater to the non-responses. Therefore, the sample size was 257 postpartum mothers.

### Sampling Techniques

Stratified sampling method was utilized to identify the tier of public health facilities in Kakamega County as per the Ministry of Health. These included level 2 facilities which are dispensaries, Level 3 facilities which are health centers, Level 4 facilities which include Sub-county Health Hospitals and Level 5 facilities which comprised of County Referral Hospital. Kakamega County General Referral Hospital is the only general hospital in Kakamega County that was purposively selected. The remaining Level 2, Level 3, and Level 4 health facilities were selected using a simple random sampling method from the master list at Kakamega County Ministry of Health Department. 5- Level two, 3 - Level three, 2 - Level four and one Level 5 facilities were randomly selected. A systematic sampling method was used to choose mothers who met the inclusion criteria from the selected health facilities. Every mother was chosen at the  $n^{\text{th}}$  number from the determined interval calculated by dividing the total population by desired sample size. 2<sup>nd</sup> postpartum mother from each facility were included until the sample size of 257 participants was reached. The respondents selected from each facility were proportional to the number of postpartum mothers in the facility, as shown in Table 1 below.

Questionnaires were used as the primary data collection tool. The questionnaire was formulated from various policy documents and guidelines from Ministry of Health and World Health Organization. These included [8-11]. Validity of research tools was maintained through expert review of study tools by my supervisors. The study adopted sampling methods that resulted in a randomized

Table 1: Sampling Frame.

MOH Classification levels	Master list of public facilities in Kakamega County	Facilities selected	Estimate population	Sample size
Level 5	1	1	306	131
Level 4	16	2	174	75
Level 3	24	3	77	33
Level 2	40	5	43	18
<b>Totals</b>	<b>97</b>	<b>13</b>	<b>600</b>	<b>257</b>

and representative sample. Random sampling techniques and uniformity of sampled population ensured internal validity. A large number of participants were randomly selected to ensure external validity [7].

The appropriate selection of research assistants ensured the reliability of research instruments. They were adequately trained and familiarized with the study area and topic of research before data collection. The research questionnaires were pre-tested at Lurambi Sub county Hospital before the actual study and necessary amendments done.

### Data Collection Techniques

A total of 257 questionnaires were administered to the selected participants who had consented. Regarding the perceived quality of care offered to mothers during the immediate postpartum period, the participants were given a set of ten [10] statements on a Likert score scale between 1-5, where "1" means strongly disagree, and "5" means strongly agree. These sets of statements were assessed using a 5-point Likert scale based on quality perception scores. The views were drawn from the quality indicators of tangibility, reliability, responsiveness, assurance and empathy. The perceived quality service index was derived by summation and averaging all quality perception responses (scores) of each construct from the five quality elements of care.

Data collection on knowledge of postpartum care and its association with the perceived quality of postpartum care was graded using six questions that postpartum care components. The six questions on knowledge were graded from zero to six. Every right response was rated one, while an inaccurate response was rated zero. The knowledge results were then categorized into low knowledge levels (0-3 scores) and high knowledge level (3-6 scores).

### Data Analysis and Presentation

Analysis was done by use of Statistical Package for Social Sciences version 21.0. Descriptive statistics were computed, summarized and presented in pie charts, graphs and frequency tables. Inferential statistics were computed with use of chi square tests at 95% confidence interval with p-value of less than 0.05 being considered as statistically significant. An association between independent and dependent variables was then done.

### Ethical Consideration

The research sought authorization from Kenyatta University Graduate School. Kenyatta University Ethics Review Committee granted ethical approval. The researcher also sought a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI). Research permission was sought from the Kakamega county government through the Ministry of Health. Approval was sought through the hospital administrators in the specifically selected hospitals within the county. Informed consent from respondents was sought before obtaining information from them. Confidentiality of respondents was protected through non-disclosure of their identity throughout the study.

## RESULTS

A total of 257 questionnaires were administered to selected mothers in postnatal wards during the immediate postpartum period in selected health facilities in Kakamega County, Kenya. Appropriately filled questionnaires were considered for analysis. 241 questionnaires denoting 93.77% response rate were found suitable for analysis.

### 1. Influence of Sociodemographic factors on Perceived Quality of Postpartum Care

The results showed that most 39(79.6%) of the respondents aged between 40-49 years perceived the quality of postpartum care as high. There was a significant statistical association between maternal age ( $p=0.014$ ) and perceived immediate postpartum quality of care provided to mothers. Most of the single mothers 38(71.7%), perceived the quality of care during the postpartum period be low.

The findings revealed that most 39(81.3%) of the participants who had tertiary as their highest level of education attained perceived the quality of care provided in the immediate postpartum period as low. A significant statistical association between the highest level of education achieved ( $p=0.001$ ) and the perceived quality of care provided to mothers during their immediate postpartum period was found.

Concerning the parity of the participants, the results further revealed that most 49(72.1%) of the participants who had more than three children perceived the quality of care during the immediate postpartum period to be high. Parity and perceived quality of care provided during the immediate postpartum period was found to be statistically significant among participants ( $p=0.029$ ) Table 2.

### 2. Provision of immediate postpartum care services to mothers

Significant gaps in health service provision in the immediate postpartum period such as lack of breast examination in 45.6% (no=110), lack of blood pressure monitoring in 58.1% (no=140), lack of lochia monitoring in 34.4 % (no=83) and lack of nutritional counseling in 49.8% (no=120) were identified Table 3.

**3. Availability of various health care services was associated with a higher perception of the quality of postpartum care services amongst mothers. This is shown in the table 4 below:**

### 4. Perceived Quality of Postpartum Care

Regarding the perceived quality of immediate postpartum care, the respondents were given a set of ten statements with Likert scale rating between one to five, where "one" means strongly disagree, and "five" means strongly agree. These sets of statements were assessed using a 5-point Likert scale based on quality perception scores. The statements were drawn from the quality indicators of tangibility, reliability, responsiveness, assurance, and empathy. The perceived service quality index was derived by summation and averaging all quality perception responses (scores) of each construct from the five elements of the quality of care. The results revealed that the overall perceived quality of immediate postpartum care was 3.18(63.6%) Table 5.

### 5. Respondents' Knowledge of Postpartum Care

A significant portion of the mothers could not correctly recognize maternal postpartum danger signs (41.5%) and newborn danger signs (38.2%) within 24 hours. In addition knowledge on cord cares management (48.1%) and demonstration of how to breastfeed the newborn (24.5%) was found to be low in significant population of the mothers. This is as shown in the table 6 below:

### 6. Influence of Knowledge on the Perceived Quality of Postpartum Care

Majority 70(69.3%) of mothers with low knowledge level perceived the quality of care provided during the immediate postpartum period to be of high quality. This is as shown table 7 below.

**Table 2:** Influence of Socio-Demographic factors on Perceived Quality of Postpartum Care.

Independent variable	Respondent response	Perceived quality of postpartum care		Percentage (%)
		Low (N=105)	High (N=136)	
Age in years	≤ 19	16(47.1%)	18(52.9%)	$\chi^2=10.567$ df=3 p=0.014
	20-29	50(58.1%)	36(41.9%)	
	30-39	29(40.3%)	43(59.7%)	
	40-49	10(20.4%)	39(79.6%)	
Marital status	Single	38(71.7%)	15(28.3%)	$\chi^2=6.491$ df=2 p=0.079
	Married	54(32.9%)	110(67.1%)	
	Divorced/Widowed	13(54.2%)	11(45.8%)	
Religion	Christians	100(44.1%)	127(55.9%)	$\chi^2=11.475$ df=1 p=0.051
	Muslims	7(50.0%)	7(50.0%)	
Highest level of education attained	Primary	15(22.3%)	52(77.6%)	$\chi^2=13.610$ df=2 p=0.001
	Secondary	51(37.5%)	85(62.5%)	
	Tertiary	39(81.3%)	9(18.7%)	
Parity	1	45(55.6%)	36(44.4%)	$\chi^2=11.478$ df=2 p=0.029
	2-3	39(42.4%)	53(57.6%)	
	> 3	19(27.9%)	49(72.1%)	
Income	≤ 10,000	32(44.4%)	41(55.6%)	$\chi^2=4.047$ df=3 p=0.256
	10,001-20,000	39(50.6%)	38(49.4%)	
	20,001-30,000	24(41.4%)	34(58.6%)	
	≥ 30,001	10(30.3%)	23(69.7%)	

**Table 3:** Provision of Immediate Postpartum care Services among Participants (N=241).

Variable	Respondent response	Frequency (N)	Percentage (%)
Family planning counselling and initiation within 24 hours	Yes	141	58.5
	No	100	41.5
Provision of immunization to the new born within 24 hours	Yes	188	78.0
	No	53	22.0
Breast examination by caregivers within 24 hours	Yes	131	54.4
	No	110	45.6
Blood pressure monitoring within 24 hours	Yes	101	41.9
	No	140	58.1
Lochia monitoring within 24 hours	Yes	158	65.6
	No	83	34.4
Counselled on nutritional components needed during the immediate postpartum period	Yes	121	50.2
	No	120	49.8

**Table 4:** Association between Healthcare Services Provided and Perceived Quality of Postpartum Care among Participants (N=241).

Variable	Respondent response	Perceived quality of postpartum care		Statistical significance
		Low(N=105)	High (N=136)	
Family planning counseling and initiation within 24 hours	Yes	54(38.3%)	87(61.7%)	$\chi^2=3.839$ df=1 p=0.050
	No	51(51.0%)	49(49.0%)	
Provision of immunization to the newborn within 24 hours	Yes	71(37.8%)	117(62.2%)	$\chi^2=19.534$ df=1 p=0.001
	No	34(64.2%)	19(35.8%)	
Breast examination by caregivers within 24 hours	Yes	41(31.3%)	90(68.7%)	$\chi^2=11.708$ df=1 p=0.001
	No	64(58.2%)	46(41.8%)	
Blood pressure monitoring within 24 hours	Yes	57(56.4%)	44(43.6%)	$\chi^2=2.504$ df=1 p=0.113
	No	48(34.3%)	92(65.7%)	
Lochia monitoring within 24 hours	Yes	74(46.8%)	84(53.2%)	$\chi^2=1.750$ df=1 p=0.186
	No	31(37.3%)	52(62.7%)	
Counselled on nutritional components needed during immediate postpartum period	Yes	42(34.7%)	79(65.3%)	$\chi^2=6.375$ df=1 p=0.012
	No	63(52.5%)	57(47.5%)	

**Table 5:** Perceived Quality of Postpartum Care among Respondents.

Quality dimension	Quality construct	Perception score	Mean perception score	Perceived quality score (%)
Tangibility	The facility has readily available essential drugs for postpartum care	3.38	3.25	65.0%
	The facility has adequate staff to attend to postpartum mothers	3.11		
Reliability	The healthcare providers always keep you informed	2.55	2.72	54.4%
	There is the timely provision of services in this facility	2.89		
Responsiveness	The care providers always allow you to ask questions	2.59	3.02	60.4%
	The care providers always listen to my complaints	3.45		
Assurance	Care is always provided in a safe manner	3.58	3.58	71.6%
	The care providers maintain privacy during care provision	3.57		
Empathy	Healthcare workers are sensitive and understanding	3.04	3.33	66.6%
	Healthcare workers always give you advice	3.61		
Perceived Service Quality Index			3.18	63.6%

**Table 6:** Responses on Knowledge of Postpartum Care Among participants (N=241).

Variable	Participants response	Frequency (N)	Percentage (%)
Recognition of maternal postpartum danger signs within 24 hours	Correct	141	58.5
	Wrong	100	41.5
Recognition of danger signs in new-born within 24 hours	Correct	149	61.8
	Wrong	92	38.2
Type of immunization provided to new-born children within 24 hours	Correct	168	69.7
	Wrong	73	30.3
Knowledge of family planning types and their importance	Correct	152	63.1
	Wrong	89	36.9
Demonstration of how to breastfeed new-born babies	Correct	182	75.5
	Wrong	59	24.5
Knowledge of cord care management	Correct	125	51.9
	Wrong	116	48.1

**Table 7:** The Level of Knowledge and its association with the Perceived Quality of Postpartum Care among Participants (N=241).

Independent variable	Participants response	Perceived quality of postpartum care		Statistical significance
		Low (N=105)	High (N=136)	
Knowledge level on postpartum care	Low	31(30.7%)	70(69.3%)	$\chi^2=5.620$ df=1 p=0.018
	High	74(52.9%)	66(47.1%)	

## DISCUSSION

### Socio-Demographic Factors

This study revealed that most respondents were aged between ages 20 to 29 years 86 (35.7%). These findings agree with [12] Kenya Demographic Health Survey 2014 findings that the age-specific fertility rate has increased, with most women giving birth between ages 20 to 29 years. The study findings also concur with [13] findings that showed most women with standard normal delivery belonged in the age bracket 20 to 35 years 1074 (84.9%).

### Influence of Socio-Demographic Factors on the Perceived Quality of Postpartum Care

Of the respondents who had attained tertiary education, 39 (81.3%) perceived the quality of care offered in the immediate postpartum period as low. This factor may be associated with their ability to read and infer from guidelines and standards found on print and electronic media compared to their counterparts who lacked formal schooling. This thinking agrees with findings of [14] that showed daily listening to radio by women resulted in

them reporting low quality scores of obstetric care offered. These findings concur with [15] that attainment of formal education positively correlates with utilization of postnatal care and that women who have higher educational attainment results in ability to make appropriate judgment of the quality of care provided.

### Provision of Postpartum Services

A slight majority of the respondents, 140 (58.1%), reported that blood pressure had not been taken on them within the first 24 hours after delivery. This report indicates that blood pressure monitoring during the immediate postpartum period should be strengthened, considering that most deaths and morbidities occur during this period [9], [10], [11], [16] and [17].

Blood pressure monitoring enables prompt identification of postpartum hemorrhage, hypotension, hypertension, renal failure, ischemic stroke, pulmonary edema, but to mention a few [1], [10], [11] and [17]. Blood pressure monitoring is one of the best ways to identify and promptly manage the above complications [1], [9], [10], [11] and [18].



These study findings agree with [19] that there is need to improve vital signs monitoring for obstetric hospitalizations with his study revealing that less than one percent of post-partum mothers had received high quality monitoring in the initial four hours post-delivery. Another study by [20] showed that vitals monitoring was suboptimal for post natal mothers thus agreeing with this study findings that more needs to be done to improve this indicators.

Lochia monitoring during the immediate postpartum was done in 65.6% of the women, and it is a good practice that enables early detection and management of postpartum hemorrhage. Women who are experiencing heavy bleeding can easily be identified and prompt actions taken. Abnormal postpartum hemorrhage may indicate retained products of conception; hence women can benefit from uterine evacuation and curettage [16]. Experiences such as passing heavy clots frequently, bleeding increasing rather than decreasing, lochia that smells highly unpleasant, accompanied by fevers, frequent dizziness, increased heartbeat, frequent chills, and intense pain indicate that action must be taken by a health care provider. However, despite this, a significant population of 34.4 % is still not monitored. This percentage may justify why postpartum hemorrhage continues to be a big concern of maternal mortality in Kenya.

A significant portion of the women, 45.6% (n= 110), were not done breast examination despite being an essential indicator in identifying challenges that may occur when breastfeeding, such as engorged breast, cracked painful nipples that may pose enormous difficulties with breastfeeding. Nutritional counseling was not done in almost half of the patients 49.8% (n=120). This percentage may justify why stunting, wasting, and underweight continues to be prevalent in infants in Kenya, with protein-energy malnutrition being highest as per [21-23] research studies. The findings of lack of nutritional counseling in 49.8% of the respondents disagrees with [13] study findings that showed 93.65% of the women in the immediate post- partum period were done nutritional counseling and commenced breastfeeding within the first hour after delivery.

### **Influence of Postpartum Services on the Perceived Quality of Postpartum Care**

The study findings showed that the availability and provision of services such as family planning services, immunization to the newborn, physical breast examination, and nutritional counseling remarkably affects the perceived quality of health services offered. Provision of the above services improves the perceived quality of care and ultimately has a bearing on better clinical outcomes of both the mother and infant health.

### **Perceived Quality of Postpartum Care Services Provided**

The respondents perceived the availability of essential drugs for postpartum at 65% (3.38 out of 5). This report implies that 35 % of the respondents perceived essential medicines as being in shortage. This percentage is very high considering that this is significantly likely to negatively impact the maternal health services quality resulting in maternal and infant mortalities and morbidity. Shortage of essential drugs and medical supplies is a challenge and was equally identified by [24]. The acute shortages of emergency obstetric care drugs was also noted by that it negatively affected staff morale and often created a challenging working environment for healthcare workers. Study findings by [25] concur with these study findings since majority of the district hospitals in South Africa lacked essential medical supplies and assistive devices.

The perceived quality of services provided to mothers and neonate during the immediate post-partum period was at 63.6 %. The findings are similar to [26] study findings that found perceived quality of basic emergency and newborn care services in Ethiopia to be at 66.7%, which is poor as per recommended standards. Inadequacy of drugs and equipment being a major concern was also found to be a major concern in both studies.

Lack of essential drugs for postpartum care at 35% may likely contribute to delays in providing timely health care services as a significant population at 42.2% of the respondents felt the provision of convenient health services was delayed. More factors need to be looked into that may be contributing to delays in the provision of timely health services.

A significant population of 45.6% felt that the health care providers did not adequately educate them on postpartum care components. These findings agree with [27] study findings that showed there is need to strengthen maternal health education in the immediate postpartum period, with his findings showing as high as 65.5% of the sampled 510 mothers had inadequate knowledge on essential newborn care. Both studies identified knowledge gaps in cord care, thermal care and breastfeeding.

A significant number of mothers sampled at 45.6 % felt that they were not adequately empowered with knowledge regarding postpartum care components. These findings agree [28] and [29] study findings that postnatal mothers had insufficient and inappropriate information knowledge on postnatal care components. Study further reveals that mothers had insufficient knowledge of danger signs indicative of breathing, jaundice, dehydration, fistula, and jaundice in children and challenges with self-care pre-discharge.

The majority of the women, at 66.6%, felt that the health care workers were sensitive and understanding, safely provided care 71.6%, and always kept them informed 54.4%. These findings are recommendable because open lines of communication before, during, and post-discharge improves and optimizes patient experiences and improves patient self-care. Many problems reported after delivery, such as difficulty with breastfeeding, urinary tract infection, painful perineum, headache, fecal incontinence, abnormal bleeding and illness, can be detected and managed early reduced risk of re-hospitalizations [1], [4] and [30].

### **Respondents' Knowledge of Postpartum Care**

Concerning recognizing danger signs in newborn babies within 24 hours, a significant population of 92(38.2%) could not identify infant danger signs justifying why infant mortalities in Kenya are still high at 32.9 per 1000 live births. A significant population of 100 (41.5%) were not able to recognize maternal postpartum danger signs. This report indicates that healthcare workers require more effort to strengthen education on maternal danger signs. Also [31] study concurs with these study findings that most mothers are unable to identify neonatal danger signs such as difficulty in breathing, convulsions, lethargy and inability to breastfeed. The findings of [32] agreed with the two studies above, with more than half of the women in his study having low knowledge levels on neonatal care.

Concerning respondents' knowledge of cord care and management, a significant population, and 116 (48.1%), could not explain how to manage cord care, which is a likely indicator of why neonatal sepsis remains the foremost cause of neonatal mortality and morbidity

in Kenya. Detection of wet cord with pus or blood, infection, and other danger signs was equally identified to be very low by [21] in Nairobi County with a low proportion (20%) of the mothers being able to identify these danger signs.

[33] Findings revealed poor cord care practices was high, with an array of substances such as the application of charcoal powder, shells, banana steam, and fishbone and saliva being high. This findings agree with this study findings because a high population of 116 (48.1%) of the sampled population did not know about cord care and hence need to strengthen cord care management among mothers' pre-discharge.

The respondents were also requested to demonstrate how to breastfeed their newborn babies. The results showed that most 182(75.5%) of the respondents scored correctly while the rest, 59(24.5%), were wrong. These findings disagree with the conclusions from [34] that identified a tiny proportion of mothers at 29%, had the correct breastfeeding technique in which the baby's chin touches the breast during breastfeeding while the lower lip turned outward. In addition, [34] findings revealed that the correct positioning and breastfeeding attachment technique was found only in 7.5% of the mothers, unlike this study in which 185 (75.5%) had the proper technique.

[35] Found that the position of mother and infant during breastfeeding was more flawed among 38.1% of women visiting a health facility in Areka in Southern Ethiopia. The findings are consistent with these study findings that show a significant population of 59 (24.5%) have poor knowledge on positioning and attachment during breastfeeding.

## CONCLUSION

- i. Socio-demographic factors such as advanced maternal age, low education attainment, and high parity positively impact the maternal perception of the quality of immediate postpartum care.
- ii. Several gaps in service provision such as lack of blood pressure monitoring, lochia monitoring, breast examination and nutritional counseling services were not provided in a substantial population of mothers in the immediate postpartum period.
- iii. Post-partum services such as immunization to the newborn, physical examination, blood pressure monitoring, family planning, lochia monitoring and nutritional counseling positively influence the perceived quality of immediate postpartum care provided during the immediate postpartum period.
- iv. The research study revealed that respondents with low knowledge levels perceived quality of immediate post-partum care to be of high quality. The study also found out that a significant population of mothers could not recognize maternal danger signs, infant danger signs, and safe cord care practices at 41.5%, 38.2% and 48.1% respectively

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## ETHICAL APPROVALS

The research sought authorization from Kenyatta University Graduate School. Kenyatta University Ethics Review Committee

granted ethical approval. The researcher also sought a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI). Research permission was sought from the Kakamega county government through the Ministry of Health. Approval was sought through the hospital administrators in the specifically selected hospitals within the county. Informed consent from respondents was sought before obtaining information from them. Confidentiality of respondents was protected through non-disclosure of their identity throughout the study.

## CONFLICT OF INTEREST

No conflict of interest to declare of.

## REFERENCES

1. World Health Organization. WHO recommendations on maternal and newborn care for a positive postnatal experience. World Health Organization; 2022.
2. Singapore Report on Registration of Births and Deaths 2020. Immigration and Checkpoints Authority (ICA) (Singapore).
3. Kenya Demographic and Health Survey 2022. Key Indicators Report. Nairobi, Kenya and Rockville, Maryland, USA.
4. World Health Organization. Reproductive Health. Managing newborn problems: a guide for doctors, nurses, and midwives. World Health Organization; 2003.
5. Richard Scholnik. Maternal and Infant Mortality Data Factsheet; Ranking of Countries. 2022.
6. UNFPA & Kenyan Ministry of Health 2018. The UNFPA Advocacy Campaign Report to End Preventable Maternal and New Born Mortality in Kenya.
7. Ihudiebube-Splendor CN, Chikeme PC. A descriptive cross-sectional study: Practical and feasible design in investigating health care-seeking behaviors of undergraduates. SAGE Publications Ltd; 2020.
8. World Health Organization. Programming strategies for postpartum family planning.
9. Ministry of Health Kenya: National Orientation Package for Targetted Post Natal Care 2011.
10. Ministry of Health Kenya- National Guidelines for Quality Obstetric and Perinatal Care.
11. Ministry of Health Kenya. Emergency Obstetric and Neonatal Care- A Harmonized Competency Based Training Curriculum for Kenya.
12. National Bureau of Statistics-Kenya and ICF International. 2015. 2014 KDHS Key Findings. Rockville, Maryland, USA: KNBS and ICF International.
13. Wickramasinghe SA, Gunathunga MW, Hemachandra DK. Client perceived quality of the postnatal care provided by public sector specialized care institutions following a normal vaginal delivery in Sri Lanka: a cross sectional study. BMC Pregnancy Childbirth. 2019;19(1):1-0.
14. Larson E, Hermosilla S, Kimweri A, Mbaruku GM, Kruk ME. Determinants of perceived quality of obstetric care in rural Tanzania: a cross-sectional study. BMC Health Serv Res. 2014;14:1-9.
15. Sagawa J, Kabagenyi A, Turyasingura G, Mwale SE. Determinants of postnatal care service utilization among mothers of Mangochi district, Malawi: a community-based cross-sectional study. BMC Pregnancy Childbirth. 2021;21:1-1.
16. Gabbe SG, Niebyl JR, Simpson JL, Landon MB, Galan HL, Jauniaux ER, Driscoll DA, et al. Obstetrics: normal and problem pregnancies e-book. Elsevier Health Sciences; 2016.

17. Maternal Mortality Fact Sheets. WHO. 2019.
18. World Health Organization. Postpartum care of the mother and newborn: a practical guide: report of a technical working group. World Health Organization; 1998.
19. Mugenyi GR, Ngonzi J, Wylie BJ, Haberer JE, Boatman AA. Quality of vital sign monitoring during obstetric hospitalizations at a regional referral and teaching hospital in Uganda: an opportunity for improvement. *Pan Afr Med J.* 2021;38(1).
20. Kairithia Fredrick, Karanja, G. Joseph, Eunice Cheserem, Kinuthia John, Chege Mwangi, et al. Adequacy of vital signs monitoring post-delivery mothers at the Naivasha District Hospital of Nakuru County, Kenya. *Int J Med Clin Sci.* 2015; 2(1): 030-035.
21. Ngare DK, Muttunga JN. Prevalence of malnutrition in Kenya. *East Afr Med J.* 1999;76(7):376-80.
22. De Vita MV, Scolfaro C, Santini B, Lezo A, Gobbi F, Buonfrate D, et al. Malnutrition, morbidity and infection in the informal settlements of Nairobi, Kenya: an epidemiological study. *Ital J Pediatr.* 2019;45(1):1-1.
23. Gudu E, Obonyo M, Omballa V, Oyugi E, Kiilu C, Githuku J, et al. Factors associated with malnutrition in children < 5 years in western Kenya: a hospital-based unmatched case control study. *BMC Nutr.* 2020;6(1):1-7.
24. Mkoka DA, Goicolea I, Kiwara A, Mwangi M, Hurtig AK. Availability of drugs and medical supplies for emergency obstetric care: experience of health facility managers in a rural District of Tanzania. *BMC Pregnancy Childbirth.* 2014;14(1):1-0.
25. Pattinson RC, Makin JD, Pillay Y, van den Broek N, Moodley J. Basic and comprehensive emergency obstetric and neonatal care in 12 South African health districts. *S Afr Med J.* 2015;105(4):256-60.
26. Berhane B, Gebrehiwot H, Weldemariam S, Fisseha B, Kaysay S, Gebremariam A. Quality of basic emergency obstetric and newborn care (BEmONC) services from patients' perspective in Adigrat town, Eastern zone of Tigray, Ethiopia. 2017: a cross sectional study. *BMC Pregnancy Childbirth.* 2019;19(1):1-9.
27. Ahmadinezhad M, Vizehfar F, Pakniat A. Mothers' Perceptions of the Quality of Postnatal Care Provided in Health Centers and the Associated Factors: A Cross-Sectional Study. *Int J Community Based Nurs Midwifery.* 2022;10(2):110.
28. Kamau IW, Mwanza JN. Factors influencing delivery of postnatal care education to mothers pre-discharge in health facilities in Nairobi county, Kenya.
29. Kamau IW, Njoroge PK, Olenja J, Wakoli AB. Adequacy of Postnatal care Education given to Mothers Pre-discharge in Health Facilities in Nairobi County. *Eur J Eng Sci Tech.* 2016;5(4):1-9.
30. Charlotte. Opportunities for African New Born; Postnatal Care. 2018.
31. Jemberia MM, Berhe ET, Mirkena HB, Gishen DM, Tegegne AE, Reta MA. Low level of knowledge about neonatal danger signs and its associated factors among postnatal mothers attending at Woldia general hospital, Ethiopia. *Matern Health Neonatol Perinatol.* 2018;4:1-8.
32. Leta M. Level of knowledge toward essential newborn care practices among postnatal mothers in governmental hospitals of Harar Town, Eastern Ethiopia. *SAGE Open Med.* 2022;10:20503121221076364.
33. Dhingra U, Gittelsohn J, Suleiman AM, Suleiman SM, Dutta A, Ali SM, et al. Delivery, immediate newborn and cord care practices in Pemba Tanzania: a qualitative study of community, hospital staff and community level care providers for knowledge, attitudes, belief systems and practices. *BMC Pregnancy Childbirth.* 2014;14:1-1.
34. Parashar M, Singh S, Kishore J, Patavegar BN. Breastfeeding attachment and positioning technique, practices, and knowledge of related issues among mothers in a resettlement colony of Delhi. *ICAN: Infant Child Adolesc Nutr.* 2015;7(6):317-22.
35. Degefa N, Tariku B, Banacha T, Amana G, Hajo A, Kusse Y, et al. Breast feeding practice: positioning and attachment during breast feeding among lactating mothers visiting health facility in Areka Town, Southern Ethiopia. *Int J Pediatr.* 2019.