

Sociocultural Determinants Of Kangaroo Mother Care Utilization Among Post Hospitalization Mothers In Kirinyaga County.

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ABSTRACT

Kangaroo Mother Care (KMC) is an essential newborn package for reduction of neonatal mortality rates among preterm and low birth weight (LBW) babies. However, KMC uptake remains low in Kenya. This paper was part of a major study assessing the determinants of KMC utilization among post hospitalization mothers that carried out in Kerugoya County Referral Hospital situated in Kirinyaga County. The study used analytical cross sectional design utilizing both quantitative and qualitative methods. Data was gathered using structured questionnaires, key informant interviews and focus group discussions. A total of 152 participants were chosen using systematic sampling method and recruited for the study. Descriptive statistics and inferential statistics were used to analyze data. Low KMC utilization (11.8%, 18/152) was observed in Kirinyaga County post hospitalization. Sociocultural factors were observed to influence KMC utilization. Furthermore, mothers' experiences, community perception and healthcare support were identified as key determinants of KMC utilization among post hospitalization mothers. The study therefore recommends efforts to promote community awareness on the advantages of KMC especially family oriented care, setup of support groups for mothers practicing KMC, establishment of follow up programs and KMC monitoring tools.

Index terms: Kangaroo Mother Care; determinants; post hospitalization; sociocultural; prevalence; uptake.

I: INTRODUCTION

Preterm births refer to babies born before 37 weeks' gestation, while low birth weight (LBW) refers to babies born weighing less than 2500 grams. In Sub Saharan Africa and Southern Asia, the burden of prematurity accounts for 65% globally (1). In 2020, 4.8 million preterm babies were born in Asia and 3.9 million were born preterm in Africa (2). In 2018, Kenya documented a preterm delivery rate of 18.3% for newborns born preterm (3). Since then, prematurity and LBW has risen to 45% and 49.5% respectively (3,4). There is limited data documented on the prevalence rate of prematurity in Kirinyaga County. Prematurity and LBW are the leading causes of neonatal mortality globally (5). Globally, the neonatal mortality rate is 17.3 per 1000 live births, which translates to 2.3 million deaths (6). Sub Saharan Africa has the highest neonatal mortality rate, with 27 deaths per 1000 live births, accounting for 45% of all newborn deaths(6). KDHS estimates the current neonatal mortality rate in Kenya is 21 per 1000 live births, with Kirinyaga County having a higher neonatal mortality rate of 37 per 1,000 live births and an infant mortality rate of 55 per 1000 live

births (7,8). To achieve Sustainable Development Goal 3.2, it is paramount to reduce neonatal mortality to 12 or fewer per 1000 live births (9). Preterm births not only increase the risk of neonatal mortality and morbidity but also have long-term effects on physical health, such as developmental delays, neurodevelopmental disorders, and long-term financial implications because of ongoing medical needs (10). The World Health Organization (WHO) advocates for Kangaroo Mother Care (KMC) as a high- impact, low-cost effective strategy for promoting survival and growth in resource- limited settings (11). Originally known as skin to skin contact, the practice was founded in Bogota, Columbia as a means to lower mortality rates and morbidity rates as well as address incubator scarcity (12). Since then the practice has been widely embraced and improved to encompass 5 key parameters namely: Kangaroo position, Kangaroo nutrition, early discharge from the hospital, continuation at home and mother's adequate support and follow- up. However, the uptake of KMC globally remains low. In 2019, only 32% of 90 countries had updated KMC policies. A multisite implementation research study adopting a mixed method approach was carried out in Ethiopia and India which placed KMC uptake post hospitalization at 55.2% and 52.5% in India and Ethiopia respectively. The mean duration of skin-to- skin care was more than 10 hours, except for Karnataka (mean 8.0 hours). In 2014, WHO authorized ENAP to increase KMC to 75 % by 2025 (2). But even with policies, implementation bottlenecks often hinder progress. Kenya incorporated the practice into the newborn care package for preterm babies and LBW infants in 2016. The guidelines were that Kangaroo position should be maintained for at least 20 hours daily (13). In 2018, a study was conducted in Bungoma which placed the uptake at 59% (14). In response to WHO recommendations,

Kenya revised its guidelines in 2023 to promote the adoption and coverage of KMC and standardize the practice nationwide (15,16). The recommendations included harmonizing the duration to 8–24 hours daily and ensuring continuity of Kangaroo Mother Care at home for both preterm and LBW till they reach 2500 grams. Previous studies, however, have identified a number of factors that affect the uptake and practice of KMC. To begin with, staff shortages and a lack of training hindered adoption of KMC (17). Other challenges that undermine KMC's acceptance and sustainability include retrogressive social-cultural practices, limited understanding of preterm baby care, poor attitudes toward maternal-neonatal health, and limited follow-up after discharge (18). Community engagement and education programs are urgently required to increase awareness and promote acceptance of KMC among families and communities (17). Despite progress made in understanding KMC within healthcare facilities, the continuity of KMC post discharge in resource limited settings such as Kenya remains unknown. This purpose of this study was to explore and understand the sociocultural determinants of KMC continuity at home post- hospital discharge within communities in Kirinyaga County, Kenya.

II: METHODS

The study adopted analytical cross-sectional survey design which utilized both qualitative and quantitative methods. The study population comprised of a total of 250 postnatal mothers of preterm and LBW infants attending neonatal clinic at Kerugoya County Referral Hospital. The study was carried out in Kirinyaga County which is located in the central region of Kenya approximately 107 kilometers northeast of Nairobi. KCRH was chosen for this study because it is the referral hospital for Kirinyaga County which has ultra-modern

infrastructures and relatively adequate staffing level. Fischer et. al., (1991) formulae was used to calculate the sample size for the study. A total of 152 participants were recruited in the study. Systematic sampling method was used to select the study’s participants. The hospital clinic attendance register served as a sampling frame. A sampling interval of two (2) was adopted to identify study participants. The sampling procedure was calculated by dividing 250 by 152. Study participants were selected by identifying first name in the hospital clinic attendance register. The inclusion criteria were KMC mothers of preterm/LBW babies with a minimum age of 18 years old. KMC mothers with sick babies and multigravida were not included the study. Data was collected using structured questionnaire, an interview guide for the key informant interview (KII) and a focus group discussion guide for the focused group discussions (FDG). To guarantee that data collection was undertaken appropriately, the study instrument validity was assessed using content validity and construct validity. Sources of bias or confounding variables were thoroughly explored and addressed to

improve the overall validity of the study. To determine stability over time, test retest reliability was used. Prior to data collection ethical approval and permit to gather data were obtained from Mount Kenya University Ethics Review Committee and National Commission for Science, Technology and Innovation respectively. The hospital administration was also briefed about the study and their support was sought to facilitate access to the participants. The study participants were requested to provide written informed consent. Before the consent was obtained, the study participants were informed about the purpose of the study, inclusion and exclusion criteria of the study. Confidentiality was maintained by anonymity of the participants. Questionnaire was used to gather quantitative data while KII and FDGs were used to collect qualitative data.

III. RESULTS AND FINDINGS

Demographics of the study population Table 1:
Demographics of the study population

Demographic Factors	Frequency	% Percentage
n = 152		
Age of the Respondents		
18-25	45	29.6
26-30	36	23.7
31-35	48	31.6
36-40	7	4.6
>40	16	10.5
Total	152	100.0
Level of education		
Tertiary	61	40.1
Secondary school	54	35.5
primary school	33	21.7
Never been to school	4	2.6
Total	152	100.0
Marital status		
Married	91	59.9
Single	43	28.3

Divorced/Separated	10	6.6
Widowed	4	2.6
Total	148	97.4
999.00	4	2.6
Total	152	100.0

Number of children

.00 (Missing)	4	2.6
1.00	50	32.9
2.00	42	27.6
3.00	32	21.1
4.00	21	13.8
5.00	3	2.0
Total	152	100.0

Employment Status

No employment	57	37.5
Self-employed	57	37.5
Employed	38	25.0
Total	152	100.0

Level of income

Less than 10000	40	26.3
10000-20000	30	19.7
20001-50000	40	26.3
Above 50000	17	11.2
Total	127	83.6
999.00	25	16.4

There was variation in the employment status of the participants and their monthly income but most of the participants had attended tertiary education (n = 61, 40.1%). The results are similar to a study carried out in Central Tanzania where mothers with secondary education or higher were more inclined to practice KMC (19). Most of the KMC mothers were married (n = 91, 59.9%), with an age band between 31 – 35 years (31.6%). Similarly, a study carried out in Southern Ethiopia where

majority of the study participants (76.5 %) were between the age of 20 – 34 years (20). Similarly, a cohort study done in Ethiopia found that majority of the study participants (92 %) were married (21). Based on table 1, majority of the

respondents (n = 50, 32.9%) reported having one child. A few respondents in the study population (n = 3, 2%) reported to have five children. The mean number of children among the respondents was 2.15, indicating around 2 -3 children, with a standard deviation of 1.165. This suggests that the sample had a moderate level of variability in the family size. The

results are in line with a study carried out by Lawal et. al. in low resource settings, that found the mean average number of children is 2 (22).

Utilization of KMC

Table 2: Utilization of KMC

Utilization of KMC n = 152	Frequency	Percent %	Mean	SD
Continuity of KMC at home				
Yes	140	92.1 %		
No	12	7.9 %		
Total	152	100.0 %	1.0789	.27055
Duration of KMC practice at home				
<3 hours	67	44.1 %		
3-7 hours	55	36.2 %		
>=8 hours	18	11.8 %		
Total	140	92.1 %	1.6500	.69866

Utilization of KMC, in this study, was defined as the practice of KMC by mothers for at least 8 hours in a day. As shown in table 2, KMC utilization is at 11.8%. The distribution of KMC practices in the survey sample indicates that despite most respondents engaging in intermittent care, the duration varies with many spending less than 3 hours (n= 67, 44.1%). Additionally, it is worth noting that some of the respondents (n = 18, 11.8%) continued practicing Kangaroo Mother Care at home for the recommended

duration of time. This is in contrast to findings from a multisite implementation research study adopting a mixed method study approach (involving formative research study and implementation phase) where KMC coverage post hospitalization was placed at 55.2% and 52.5% in India and Ethiopia respectively (23). Similarly, the study categorized KMC practice into two groups: mothers practicing for more than 8 hours in a day and mothers practicing KMC for less than 8 hours in a day. Another study

carried out in Karnataka, India, found that hospitalization in public health facilities and higher knowledge of healthcare workers increased KMC duration of 8 hours or more by 31 % and 2 % respectively. The discrepancy in the results could be explained by the study design and study population

(24). While this study adopted analytical cross sectional design, the study in India adopted an observational study design with the study population consisting of participants from public and private facilities

Sociocultural Determinants of KMC Utilization

The objective of the study was to assess sociocultural factors that influence the utilization of Kangaroo Mother Care among post hospitalization mothers in Kirinyaga County.

Table 3: Descriptive Statistics of Sociocultural Determinants of KMC Utilization

Sociocultural Determinants n = 152	Frequency	Percent	χ^2	P value
Social judgement related to having a preterm/LBW baby				
Yes	59	38.8 %		
No	73	48 %		
I don't know	16	10.5 %		
Total	148	97.4 %		
Missing	4	2.6 %		
Total	152	100 %	8.869 ^a	.048
Perceived social judgement of baby as 'less healthy' because they are Preterm/LBW				
Never	40	26.3 %		
Sometimes	71	46.7 %		
Often	30	19.7 %		
Always	11	7.2 %		
Total	152	100 %	37.692 ^a	.000
Experiences of stigmatization in social settings as a mother of a preterm/LBW infant				
During a social gather such as family meetings, friend paying a visit				
	91	59.9 %		
Never experienced stigmatization at all	61	40.1 %		
Total	152	100 %	5.669 ^a	.059
Exposure to negative stereotypes about preterm/LBW babies in the community				
Never	56	36.8 %		
Sometimes	71	46.7 %		
Often	16	10.5 %		
Always	9	5.9 %		
Total	152	100 %	47.770 ^a	.000
Influence of traditional beliefs on the care of preterm infants or low birth weight infants				
Yes	10	6.6 %		
No	135	88.8 %		
I don't know	7	4.6 %		
Total	152	100 %	7.699 ^a	.138

Frequency of KMC discussions with other mothers in the community

Never	44	28.9 %		
Rarely	56	36.8 %		
Sometimes	41	27 %		
Always	7	4.6 %		
Total	148	97.4 %		
Missing	4	2.6 %		
Total	152	100 %	22.345 ^a	.001

Awareness of false or misleading claims about KMC

Yes	34	22.4 %		
No	118	77.6 %		
Total	152	100 %	7.513 ^a	.021

Based on table 3, 38.8% of the mothers reported they felt judged for giving birth to a preterm/LBW baby, with 59.9% reporting having felt stigmatized in social gatherings. Specifically, in this study, a significant number of respondents reported that they sometimes (46.7 %), often (19.7 %) or always (7.2 %) feel that their baby is viewed as less healthy in the community. This accounted for 73.7% of the study population. Even worse, some respondents (28.9 %) felt they could not discuss their experience with other mothers in the community, hence showing gaps in community support systems. This is consistent with a qualitative study done in Southern Malawi that highlighted stigma, attitudes and community’s perception to barriers in the adoption of KMC (25).

Furthermore, based on table 2, 63.16% reported that they have heard negative stereotypes about LBW/Preterm infants in their community with 22.37% reporting that they believed the claims to be false and misleading. A further 6.58% of the respondents reported that they are influenced by traditional stereotypes. This is consistent

with a formative study done in Southern Ethiopia which found that the major challenge hindering the uptake of KMC is cultural hurdles and traditional stereotypes and beliefs (26). Cultural norms hold significant influence in our perception and behavior. Stereotypes and traditional beliefs tend to deeply ingrained in our communities today. As shown in table 3, community exposure and traditional beliefs are statistically significant in influencing the practice of KMC with a 5 % level of significance. Specifically, social judgement related to having a preterm/LBW baby, perceived social judgement of baby as less healthy, exposure to negative stereotypes about preterm/LBW babies in the community, frequency of KMC discussions with other mothers in the community and awareness of false or misleading claims about KMC as their p value is less than 5 (0.048, 0.000, 0.000, 0.001 and 0.021 respectively). There was not enough evidence to show that there exists a relationship between stigmatization in social settings and influence of traditional beliefs on the care of preterm/LBW infants

and the practice of KMC as the p values are less than 0.05 (0.059 and 0.138 respectively). Qualitative data was gathered through key informant interviews and focus group discussions. Data was transcribed, coded and analyzed. Three major themes were identified which included: mothers' experiences, community perception, healthcare support system. Regarding mothers' experiences, narratives were described of positive experiences and negative experiences by the mothers to preterm and low birth weight babies. Mothers described of doubt, helplessness, stigma and fear for their baby's survival. They also experience challenges juggling household activities and caring for the baby. This is similar to a scoping review study done by Mathias et. al., where the mothers reported that they felt placing the baby in KMC position interferes with their ability to carry out their household chores

(27). A significant number of the mothers reported to have been stigmatized during social gatherings.

Participant 15 stated that:

'□.....they laughed and made fun of the size of the baby'□. This is similar to a qualitative study carried out in Malawi, where the mothers reported to have been insulted that their baby was abnormal (28).

Participant 17 stated that:

□I carried my baby in Kangaroo Position and went to the market and the vendors laughed.

□

The findings are similar to a formative study conducted in Southern Ethiopia where the mothers described their experiences as distressful, anxious and stressful (26). Additionally, a scoping review study by Mathias et. al., found that in some communities in Bangladesh, Ethiopia, India and Ghana carrying a baby in KMC position was considered a taboo (27) The narratives and accounts of most mothers pointed to

social stigma being the reason why they were afraid to continue practicing KMC at home. During one of the KII, it was reported that some of the mothers are resistant to continue with KMC due to their prior prolonged hospital stay after birth. Moreover, speculations were made on the cause of the prematurity and low birth weight.

□.....My family accused me of being too careless during the pregnancy causing my baby to be born too early.....I was told the cause was the baby being conceived too early...□ (FDG with mothers of preterm).

The age of the mother was also questioned and speculated to be the cause of the prematurity/LBW. Some mothers were told the reason they gave birth to a preterm/LBW infant was because they were too young. While others were accused of being too old to have children. Generally, majority of the mothers reported to have frequent hospital visits which they believed to be caused by the weak immune system of the baby. However, some experienced challenges when breastfeeding the baby.

Regarding community perception, preterm and LBW babies are viewed as fragile. Majority of the mothers reported a common belief is that the baby will grow up to be weak and sickly often throughout the child's life. The community believes that they do not survive to adulthood. Sometimes if they do survive and grow up, the community believes they will have mental retardation and be academically challenged.

Participant 2 stated that:

□...I was told my child will be academically challenged.....□

The findings are consistent with a study done in Tigray region, Northern Ethiopia, where participants stated that LBW babies are not healthy and even went ahead to speculate the cause can be as a result of infection (29).

The families' and the community's beliefs of small baby survival were unhelpful, exacerbating mothers' concerns. This does little to alienate the mothers fear. But rather worsens their apprehension, anxiety and distress. Additionally, some of the mothers' reported that in their community, KC positioning is believed to be a practice of the poor. This increased their reservations about practicing KMC at home. This is contrary to a qualitative study done in the Kurdistan Region of Ira, where the mothers had nothing

but positive experiences when practicing KMC (30). There is much anecdotal evidence that suggests community based initiatives have been adopted to improve social determinants of health. However, much effort is needed to improve community based health.

A linear regression was run to determine the extent at which sociocultural factors influence utilization of KMC.

Table 4: Linear Regression Model of Sociocultural Determinants.

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.512 ^a	.262		.224	.24425

Table 5: ANOVA Analysis for Sociocultural Determinants

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.887	7	.412	6.912	.000 ^b
	Residual	8.113	136	.060		
	Total	11.000	143			

The coefficient of correlation (R = 0.512) revealed a moderate positive correlation between the outcome variable (utilization of KMC) and the sociocultural factors. Here, R²

= .262 indicates that 26.2 % variation of the outcome variable (practice of KMC) can be explained by the sociocultural factors. Therefore, other factors not included in the model are responsible for 73.8 % variation in the outcome variable. In table 4, p – value is

< 0.05 indicating that the regression model is significant. Community exposure, stigma and traditional beliefs have significant effect in the practice of KMC as the p – value is less than 0.05.

IV. CONCLUSIONS AND RECOMMENDATIONS

The practice of KMC is influenced by sociocultural determinants. Specifically, stigmatization, traditional beliefs and cultural norms hinder the practice of KMC. Therefore, this study recommends improvement in community sensitization is needed to raise awareness on the care of preterm and LBW babies.

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CONFLICT OF INTEREST

I declare no conflict of interest.