Factors Influencing Implementation of Continuous Kangaroo Mother Care Innovation Technology: A Case of Embu Health Facilities, Embu County, Kenya

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Abstract

This study investigated the factors influencing the implementation of Kangaroo Mother Care (KMC) technology in Embu County health facilities, Kenya. The study focused specifically on financial support factors, health workers' role factors, facility readiness factors, and management-related strategies. The research utilised a descriptive survey design. Data were collected via questionnaires from 282 health workers (doctors and nurses) at level-four and level-five health facilities, which included Embu level five general referral and teaching institution and Consolata Hospital, Kyeni, which is also a level five faith-based Catholic institution, using stratified random sampling. Analysis was done with SPSS version 26.0, which employed both descriptive and inferential statistics. Key findings revealed that all examined factors, financial-related, health workers-related, facility-related and management-related, significantly positively impacted continuous kangaroo mother care implementation. Financial-related factors had a coefficient of 0.246 ($p = 0.000$), while healthcare workers' factors had 0.281 ($p = 0.000$), facility-related factors had 0.294 ($p = 0.000$), and management-related factors had 0.170 ($p = 0.000$). These results underscore the necessity of sustainable funding, adequate resources, well-trained staff, and effective leadership for successful continuous KMC adoption. Advocacy efforts should be intensified to increase government budget allocations and attract adequate donor funding dedicated to KMC programs. Healthcare facilities should explore fee-for-service models to generate revenue that can be reinvested into KMC programs. Regular training programs and workshops on the latest KMC practices and protocols are essential for healthcare workers. Developing efficient resource allocation strategies will ensure that facilities have the necessary supplies and equipment to support KMC practices. Hospital policy makers and hospital administrators should take responsibility to explore fee-for- service models to generate revenue. As for the regular training, the County KMC program managers will be responsible for ensuring that this is done, and new health workers will also be included for continuity purposes.

Keywords: *Continuous Kangaroo mother care implementation.*

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1.0 Introduction

Kangaroo Mother Care (KMC), a 1978 origin skin-to-skin and breastfeeding method for preterm infants, is cost-effective and boosts survival, vital in resource-limited areas like sub-Saharan Africa. Despite proven benefits, misconceptions and resource issues hinder its global use. In Kenya, with high neonatal mortality, KMC uptake remains low despite policy support. Understanding influencing factors is crucial. A June 2024 report details Kenya's Ministry of Health and Clinton Health Access Initiative training healthcare professionals in Kisumu County and beyond on Immediate KMC to improve premature infant survival.

(KMC) It is vital for premature/LBW babies, but poorly implemented in Kenya. Embu's Level 5 hospital, overwhelmed by referrals from unprepared Level 4 facilities, offers only intermittent KMC due to practical obstacles like repurposed rooms, hindering care and breaking the pathway for these vulnerable infants**.**

This study investigated factors influencing the implementation of Continuous Kangaroo Mother Care (KMC) at Level four and five health facilities in Embu County to determine and overcome these barriers to ensure the long-term effectiveness and sustainability of KMC programs

2.0 Materials and Methods

Research design

This study employed a descriptive survey design to examine variable characteristics within a specific context. By systematically collecting data, these surveys helped reveal and understand various phenomena, behaviours, attitudes, and opinions in a target population, especially when existing knowledge is limited (Asenahabi, 2019). Furthermore, descriptive surveys are essential for establishing baseline data about populations or groups, which is crucial for future research (Dannels, 2018).

Instrumentation

This study used structured questionnaires for data collection, chosen for covering large samples and minimising bias while allowing reflection (Dalati & Marx Gómez, 2018). Likert scales measured opinions and feelings (Taherdoost, 2019). The sample comprised 282 health workers (230 nurses, 52 doctors) from six facilities, calculated using Yamane's formula (1967). Multi-stage and stratified random sampling selected participants from diverse level four and five government and faith-based institutions, ensuring broad representation (Kothari, 2019)

"The study found that Successful Kangaroo Mother Care (KMC) requires robust infrastructure, equipment, IT support, and strong management practices."

Data collection

The study employed a "drop and pick" method, an enhanced mail survey technique, for data collection, administered in person or via email for respondent convenience, ensuring control and reliability (Saunders et al., 2012). To address potential challenges like busy schedules and sensitive information, prior appointments were scheduled via phone. Questionnaires were dropped off or sent electronically, allowing respondents to choose their completion time.

Electronic formats stored partial responses, enabling follow-up calls. Personal visits and targeted follow-ups further increased the response rate, ensuring comprehensive data collection. Cronbach's alpha testing confirmed the instrument's reliability and validity for the main study.

Pre-testing phase at Chuka Level Five Hospital involved 6 doctors and 24 nurses. Challenges during data collection helped refine the questionnaire. Cronbach's alpha testing confirmed the instrument's reliability and validity for the main study. Descriptive statistics (mean, median, mode, range, and distribution/percentage) summarised the data. Cross-tabulations explored relationships between variables and compared results across demographic groups. Statistical significance, calculated using a p-value threshold of 0.05, determined if findings were due to chance ($p < 0.05$ indicating significance). Analyses were conducted using Excel, R, and SPSS to assess the reliability of the findings. This approach provided a comprehensive evaluation of the data, identifying key patterns and ensuring results were statistically meaningful.

3.0 Results

The results are presented below.

Table1: Model Summary of the Multiple Regression Analysis for the Contributions of Independent Variables financial, health workers, facility and management factors) to Dependent Variable (KMC implementation**)**

Table 1

Fitness model

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.848a	0.719	0.714	0.2354

The regression model (R^2=0.719) shows financial, health worker, facility, and management factors significantly influence KMC adoption and use.

Table 2

Multiple Regression Analysis ANOVA Table for Independent Variables (financial, health workers, facility, plus management-related factors) and Dependent Variable KMC implementation

	Sum of Squares	df	Mean Square	F	Sig.
Regression	35.707	4	8.927	161.111	.000b
Residual	13.963	252	0.055		
Total	49.669	256			

The Multiple Regression Analysis ANOVA Table 2 results show a highly significant regression model ($p < 0.001$) with a large F-statistic (161.111). The regression sum of squares (35.707) is much larger than the residual sum of squares (13.963), indicating the model explains significant variance and fits the data well.

Table 3

Regression Analysis Coefficients for independent variables, Financial, and health care workers, facility and management-related factors.

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
1	(Constant)	-0.115	0.159		-0.723	0.471
	Financial-related factors	0.246	0.042	0.233	5.809	0.000
	Healthcare-related factors	0.281	0.039	0.326	7.275	0.000
	Facility-related factors	0.294	0.034	0.356	8.693	0.000
	Management-related factors	0.170	0.038	0.19	4.458	0.000

A Dependent Variable: Implementation of continuous kangaroo mother care technology

Table 3: All predictor variables significantly influenced continuous KMC technology implementation ($p < 0.05$). Financial, staff, facility, and management factors all had positive impacts. Facility factors showed the strongest influence (0.294), followed by staff (0.281). Successful KMC implementation requires a holistic approach addressing all these areas, with emphasis on facilities and staff.

The model is thus empirical as shown below:

$$Y = -0.115 + 0.246X_1 + 0.281X_2 + 0.294X_3 + 0.170X_4$$

Where:

Y= Implementation of Continuous Kangaroo mother care

X_1 = Financial-related factors

X_2 = Healthcare-related factors

X_3= Facility-related factors

X_4= Management related factors

Positive managerial relations with healthcare providers and timely dissemination of health information were associated with higher KMC adoption rates.

Background Information

The demographic information was studied and displayed in tables and graphs under the subsections mentioned.

Figure 1

Participants Distribution

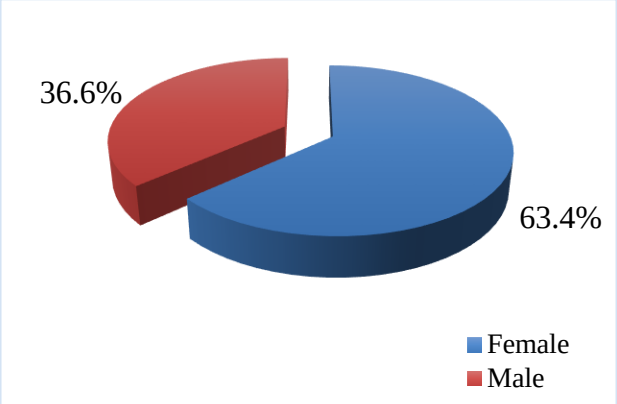

Figure 4.1 shows 63.4% of participants are female, reflecting their prominence in healthcare, especially maternal/child health, suggesting they are key for KMC research. Understanding their unique challenges, including tailored training, is vital. However, male participation also necessitates inclusive strategies for better KMC implementation and health outcomes.

Age bracket

Table 4

Age Bracket

Age bracket	Frequency	Percent
Below 30 years	18	7%
30 – 40 years	43	16.7%
41 – 50 years	121	47.1%
Over 50 years	75	29.2%
Total	257	100

Table 4.4 shows a study respondent age distribution heavily skewed towards experienced professionals (41-50 and over 50, 76.3%). Younger staff (under 40) provide adaptability. This mix is valuable for KMC implementation, blending experience with fresh perspectives. Understanding this helps design targeted training to leverage all expertise for successful technology rollout.

Level of education

Figure 2

Level of Education

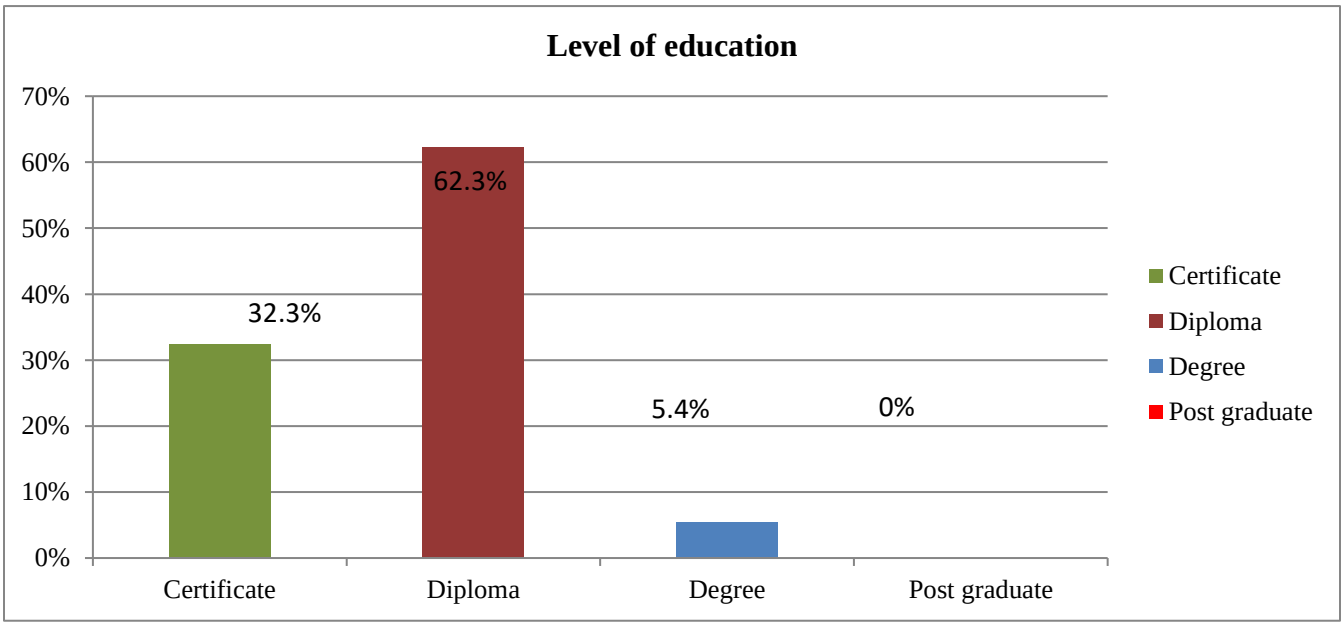

Figure 4.2 shows that most staff (62.3%) have diplomas, suitable for KMC roles. Many (32.3%) hold certificates, indicating a need for KMC training. Only 5.4% have graduate degrees, capable of advanced work. No post-graduates suggest growth potential. Targeted KMC training, especially for certificate holders, is recommended to enhance capabilities.

Table 5

Tenure of Work

Tenure of work	Frequency	Valid Percent
0 - 2 years	75	29.2%
3 – 4 years	77	30.0%
5 – 8 years	53	20.6%
Over 8 years	52	20.2%
Total	**257**	**100.0%**

Table 4.5 shows 30% of healthcare professionals are mid-career (3-4 yrs), the largest group. Tailored programs are recommended: foundational training for early-career (29%), targeted for mid-career, mentorship for experienced (21%), and leadership/guidance for veterans (20%), aiming to retain talent.

Section 4.11 analyses KMC financial factors using a Likert scale survey. Descriptive stats in Table 4.6 show perceived inadequacy, stressing that sufficient funding is critical for KMC adoption, sustainability, and overall feasibility.

Table 6

Descriptive statistics regarding financial-related factors

Statements	1	2	3	4	5	M	S D
Hospital revenue is sufficient to sustain the management of the health care services, including the kangaroo mother care technology	6.6%	30.4%	29.6%	19.1%	14.4%	3.04	1.16
The facility has clear and adequate funding from the NHIF	4.7%	3.9%	31.5%	34.2%	25.7%	3.72	1.04
All the patients are fully covered by the NHIF cover	12.5%	3.5%	21.8%	34.6%	27.6%	3.61	1.27
The financial audits are done regularly and transparently	2.7%	12.1%	16.7%	38.1%	30.4%	3.81	1.08
There are financial control mechanisms in place to ensure accountability of the finances	4.7%	4.7%	25.7%	33.9%	31.1%	3.82	1.07
Acts of misappropriation are rampant in the department/facility	9.3%	21.4%	12.1%	29.6%	27.6%	3.45	1.34
Are the funds from the county government adequate to run the facility, and factoring in KMC technology?	8.9%	10.1%	10.5%	45.1%	25.3%	3.68	1.21
Does the hospital administration source for donor funding on cash, equipment and KMC technology factored in?	3.9%	12.1%	13.6%	45.9%	24.5%	3.75	1.08
Budget overruns are efficiently managed in the facility	11.7%	3.5%	22.2%	34.6%	28.0%	3.64	1.25
The hospital has a reliable financial stream to supplement its annual budget, which also factors in KMC technology	2.3%	8.2%	14.0%	49.0%	26.5%	3.89	0.97
Average mean						**3.64**	**1.15**

Kangaroo Mother Care (KMC) faces significant financial challenges, marked by uncertainty over hospital revenue, NHIF funding, and reliance on donors (70.4% positive view), alongside issues like misappropriation risks. Healthcare worker attitudes and capabilities are also critical, as detailed in related data. Both stable funding and capable staff are essential for reducing neonatal mortality through effective, sustainable KMC services.

Table 7

Descriptive statistics regarding health workers' related factors

Statements	1	2	3	4	5	M	S D
The bed capacity is sufficient for admission, mostly in KMC technology units	8.9%	8.6%	8.9%	41.2%	32.3%	3.79	1.23
The responsiveness is prompt and on time	12.8%	8.2%	14.0%	41.6%	23.3%	3.54	1.29
There is enough operational healthcare equipment, particularly in maternity newborn units and KMC technology units	2.3%	2.7%	7.4%	52.1%	35.4%	4.16	0.85
There are enough spaces/rooms to implement continuous KMC technology	4.7%	0.4%	18.3%	37.7%	38.9%	4.06	1.00
There is adequate hospital infrastructure, factoring in KMC's continuous technology	1.2%	3.1%	16.0%	45.5%	34.2%	4.09	0.85
The facility has adequate IT-related infrastructure in place	6.6%	9.7%	12.8%	37.0%	33.9%	3.82	1.19
Adequate hospital supplies are factored in for continuous KMC technology	15.6%	4.7%	8.9%	37.7%	33.1%	3.68	1.38
There are adequate transport facilities (such as ambulances) in case of immediate need.	1.9%	4.7%	13.6%	47.5%	32.3%	4.04	0.91
Average mean						3.90	1.09

Kangaroo Mother Care (KMC) implementation shows mixed results. While most find bed capacity and equipment adequate, significant concerns exist regarding IT infrastructure, general supplies, and service responsiveness. Strengths include implementation space and transport. Findings highlight potential but also critical weaknesses, emphasizing the need for management, training, and collaboration to improve KMC outcomes.

Descriptive statistics regarding facility-related factors

Descriptive statistics examined healthcare workers' perceptions of facility factors supporting KMC for preterm infants using a Likert scale (1=strongly agree to 5=strongly disagree). Data tables highlighted prevailing views on infrastructure and resources, identifying strengths and weaknesses in the physical environment to improve KMC implementation and care quality.

Table 8

Descriptive statistics regarding facility-related factors

Statements	1	2	3	4	5	M	S D
The selection of the suppliers is based on the competence of the supplier and the quality of supplies	10.9%	8.9%	9.7%	43.6%	26.8%	3.67	1.26
Quality assurance is paramount in the pharmacy and supplies department	1.9%	3.1%	6.6%	54.1%	34.2%	4.16	0.83
The ambulances are well equipped with the right equipment, with those for the premature baby factored in.	4.3%	1.2%	4.3%	50.2%	40.1%	4.21	0.91
The tendering process is professionally evaluated and analyzed to ensure the quality of supplies, including those for KMC technology, as well as the longevity of the tender	4.7%	1.9%	1.9%	40.9%	50.6%	4.31	0.97
Supplier quality capabilities are evaluated by using the supplier certification programs, and KMC technology supply is factored in, e.g., baby wraps, caps and mothers' gowns.	7.0%	1.2%	1.9%	34.6%	55.3%	4.30	1.08
Enough Computers automate activities and collect KMC data	3.1%	1.9%	32.7%	40.5%	21.8%	3.76	0.92
There is a reliable and up-to-date health information system	20.6%	5.8%	5.1%	35.4%	33.1%	3.54	1.51
There is frequent dissemination of health information, including KMC technology	7.8%	6.2%	14.0%	42.0%	30.0%	3.80	1.16
Data collected is used in decision-making as well as future projections, and KMC technology is factored in.	8.9%	7.0%	6.2%	43.6%	34.2%	3.87	1.22
Average mean						**3.96**	**1.10**

Table 4.8 shows strengths in Kangaroo Mother Care (KMC) facility factors like supplier selection, pharmacy quality, and ambulance readiness, but highlights major concerns. While KMC information dissemination is effective, computer availability and health information system reliability are poor (only 20.6% satisfied). Technology and systemic improvements are needed to better support KMC delivery and maternal-newborn health outcomes.

Descriptive statistics regarding management-related factors

This section analyses healthcare workers' perceptions of management practices for KMC adoption using descriptive statistics and a 1-5 Likert scale. Findings in Table 4.9 reveal management's role in promoting KMC implementation.

Table 9

Descriptive statistics regarding management-related factors

Statements	1	2	3	4	5	M	S D
Staff are well distributed in all departments	9.7%	0.0%	9.3%	44.4%	36.6%	3.98	1.16
The staff are regularly trained on and off the job, including KMC technology	6.6%	0.0%	14.8%	42.0%	36.6%	4.02	1.05
There are job descriptions which are clearly laid down for all staff as a motivational factor, with KMC technology factored in	17.5%	0.0%	21.4%	31.1%	30.0%	3.56	1.38
Sufficient staff in key units. Like maternity, KMC, and MCH	4.3%	0.0%	10.5%	28.8%	56.4%	4.33	0.97
The staff are adequately and equitably remunerated/appraised	7.4%	0.0%	8.9%	44.4%	39.3%	4.08	1.07
Salaries and pay are available on time (no delays in pay)	2.3%	0.0%	18.7%	43.2%	35.8%	4.10	0.86
There is a clear organisational structure for the hospital	2.3%	0.0%	14.8%	56.4%	26.5%	4.05	0.79
There is a clearly displayed strategic plan, vision and mission statement	5.1%	0.0%	5.1%	44.0%	45.9%	4.26	0.95
Managerial meetings are held regularly and amicably	5.4%	7.4%	8.6%	42.4%	36.2%	3.96	1.11
Meetings are held equitably, and the information is disseminated in due time	10.9%	7.8%	7.0%	42.4%	31.9%	3.77	1.28
There is a good relationship with your surrounding healthcare providers	9.3%	0.0%	2.7%	37.0%	51.0%	4.20	1.16
Average mean						**4.03**	**1.06**

Descriptive statistics from Table 4.9 show mixed management factors impacting KMC. Staff distribution, training, and job clarity need improvement, while human resources and organizational structure were positive. However, remuneration and salary timeliness concerns persist. Addressing these gaps is vital to enhancing KMC implementation and supporting healthcare providers effectively

Descriptive statistics regarding the implementation of continuous KMC technology

The study analysed attitudes and practices towards continuous KMC technology using a 5-point Likert scale. Descriptive statistics, including frequencies and percentages, were calculated. The results, presented in Table 4.10, reveal the range of participant opinions regarding the adoption and perceived efficacy of this technology, illustrating prevailing perspectives.

Table 10

Descriptive Statistics regarding the Implementation of KMC Technology

Statements	1	2	3	4	5	M	S D
KMC bonds with the mom and the preterm baby	8.6%	9.3%	9.7%	44.4%	28.0%	3.74	1.21
Mother okay with Prematurity: Skin-to-skin all day	5.4%	11.7%	14.8%	42.4%	25.7%	3.71	1.13
Kangaroo care calms the baby	14.8%	3.5%	21.8%	31.5%	28.4%	3.55	1.33
Reluctant to educate mothers on CKMC	5.4%	12.1%	16.0%	41.6%	24.9%	3.68	1.13
I practice kangaroo mother care only when they are in the hospital	10.1%	8.2%	11.7%	35.8%	34.2%	3.76	1.28
I love helping mothers learn skin-to-skin closeness	14.8%	5.1%	7.4%	35.4%	37.4%	3.75	1.39
I think the mother experiences so much heat carrying her baby skin-to-skin	1.6%	6.2%	13.6%	44.0%	34.6%	4.04	0.93
I find KMCtechnology to be tiring and time-consuming	4.7%	7.4%	8.6%	42.4%	37.0%	4.00	1.08
Have confidence in strapping the baby for KMC.	6.6%	7.8%	7.0%	44.7%	33.9%	3.91	1.15
The institution has sufficient knowledge on practising KMC for at least 20 hours daily	18.7%	19.5%	13.2%	28.4%	20.2%	3.12	1.42
Average mean						**3.73**	**1.21**

Healthcare providers hold mixed views on Continuous KMC, with a moderately positive mean score (3.73), recognising benefits like bonding and breastfeeding. However, significant reluctance, fatigue, low perceived calming effects, and a critical lack of training resources exist. To improve KMC implementation, targeted actions are needed: comprehensive training, support systems, resource allocation, and fostering teamwork for better health outcomes.

Discussion

Healthcare workers are crucial for the successful implementation of Kangaroo Mother Care (KMC). Their effective support and thorough training directly impact positive outcomes for low-birth-weight infants. However, significant challenges persist, including heavy workloads and inadequate training, which hinder proper KMC adoption. Poor training and communication further disrupt the correct execution and documentation of KMC practices. Therefore, ongoing professional development and systemic improvements within healthcare systems are essential to overcome these barriers and ensure the long-term effectiveness and sustainability of KMC programs.

Without active management support, KMC objectives may not be met, as shown in

Uganda, where limited resources led to intermittent KMC instead of continuous KMC care. Various countries, including Indonesia and India, have achieved successful KMC implementation, with positive healthcare provider perceptions and education playing significant roles (Rahmatika et al., 2022; Cai et al., 2022). Despite the potential benefits, KMC implementation in many African countries, including Kenya, remains limited.

4.0 Conclusion

Successful Kangaroo Mother Care (KMC) requires robust infrastructure, equipment, IT support, and strong management practices. Hospital administrators must provide resources, training, and dedicated space to integrate KMC into routine care, motivating staff. Raising administrator awareness about KMC's benefits and forming support networks also aids adoption. Clear job roles, timely salaries, and a supportive organizational culture are crucial management factors. Without active management support, Leadership and organizational commitment are essential for effective KMC implementation

5.0 Recommendations

To enhance the implementation of continuous Kangaroo Mother Care (KMC) technology, sustainable funding and strategic partnerships are crucial. Efforts should focus on increasing government budget allocations, securing donor funding, and establishing public-private partnerships. Healthcare facilities should explore revenue generation models, include KMC in insurance schemes, and ensure transparent financial management. Regular training, mentorship from KMC program managers, and resource allocation from the specific health facilities are essential to maintain high standards of care. Facilities should be equipped with the necessary resources by the facility administrators. Leadership training should be provided to healthcare managers by the KMC program managers. Strategic planning, interdepartmental coordination, and stakeholder engagement from KMC program managers are vital for effective KMC integration. Investing in innovative solutions by KMC program managers, conducting research, and organizing awareness campaigns will further support KMC adoption and improve maternal and child health outcomes.

References

Asenahabi, B.M. (2019) Basics of Research Design: A Guide to Selecting Appropriate Research Design. *International Journal of Contemporary Applied Researches, 6*, 76-89. https://www.scirp.org/reference/referencespapers?referenceid=3108895

Bergh, A. M., Kerber, K., Abwao, S., de Graft-Johnson, J., Khadka, N., Kinney, M. V., & Lawn, J. E. (2014). Implementing facility-based kangaroo mother care services: Lessons from a multi-country study in Africa. *BMC Health Services Research, 14*(1), 293. https://doi.org/10.1186/1472-6963-14-293

Bergh, A. M., Pattinson, R. C., & Mayers, P. M. (2007). Implementing kangaroo mother care: A pilot study. *Curationis, 30*(4), 56-64. https://doi.org/10.4102/curationis.v30i4.1111

Cai, Y., Fu, L., & Li, H. (2022). Key factors influencing the implementation of kangaroo mother care: A scoping review. *Journal of Pediatric Nursing, 62*, 33-40. https://doi.org/10.1016/j.pedn.2021.12.015

Cai, Y., Miyazawa, R., Mwangi, R., Ayebale, P., Mupenda, S., & Colbourn, T. (2022). Kangaroo Mother Care for preterm or low birth weight infants in low- and middle-income countries: A systematic review and meta-analysis. *BMJ Global Health, 7*(7), e008222. https://doi.org/10.1136/bmjgh-2021-008222

Chan G, et al. (2017). Barriers and enablers of kangaroo mother care implementation from a health systems perspective: a systematic review. *Health Policy Plan*. 32(10), 1466–

1475. https://pubmed.ncbi.nlm.nih.gov/28973515/

Chan, G. J., Labar, A. S., Wall, S., &Atun, R. (2016). Kangaroo mother care: A systematic review of barriers and enablers. *Bulletin of the World Health Organisation, 94*(2), 130-141. https://doi.org/10.2471/BLT.15.157818

Chan, G. J., Valsangkar, B., Kajeepeta, S., Boundy, E. O., & Wall, S. (2017). What is kangaroo mother care? Systematic review of the literature. *Journal of Global Health*, *7*(1), 010801. https://doi.org/10.7189/jogh.07.010801

Charpak N, Angel MI, Banker D, Bergh AM, María Bertolotto A, De Leon-Mendoza S. et al. (2020). Strategies discussed at the XIIth International Conference on Kangaroo Mother Care for implementation on a countrywide scale. *Acta Paediatr*. 109(11), 2278–2286. https://doi.org/10.1080/08035250600606037

Charpak N, Gabriel Ruiz-Peláez J. (2006). Resistance to implementing kangaroo mother care in developing countries, and proposed solutions. Acta Paediatr. 95(5), 529–534. https://pubmed.ncbi.nlm.nih.gov/16825131/

Charpak, N., & Ruiz-Peláez, J. G. (2006). The Bogota Declaration on Kangaroo Mother Care: Conclusions at the end of the second international workshop. *Acta Paediatrica, 95*(5), 571-572. https://doi.org/10.1111/j.1651-2227.2000.tb03365.x

Cho, E., Choi, S., & Lee, S. (2022). Barriers and enablers to kangaroo mother care: Gambian health workers' perspectives. *Global Health Action, 15*(1), 2033442. https://doi.org/10.1080/16549716.2022.2033442

Dalati, S., & Marx Gómez, J. (2018). Surveys and questionnaires. In *Data analysis, machine learning and knowledge discovery* (pp. 175–186). Springer, Cham. https://ideas.repec.org/h/spr/prochp/978-3-319-74173-4_10.html

Dannels, S. A. (2018). Research Design. In The Reviewer's Guide to Quantitative Methods in the Social Sciences (pp. 402-416). Abingdon-on-Thames: Routledge. https://doi.org/10.4324/9781315755649-30

Gitobu, C. M., Gichangi, P. B., &Mwanda, W. O. (2017). The impact of free maternity services on the health system in Kenya: A case study of Machakos level 5 hospital. *BMC Health Services Research*, *17*(1), 429. https://doi.org/10.1186/s12913-017-2382-1

Haggerty, J. L., Reid, R. J., Freeman, G. K., Starfield, B. H., Adair, C. E., & McKendry, R. (2003). Continuity of care: A multidisciplinary review. *BMJ*, *327*(7425), 1219-1221. https://doi.org/10.1136/bmj.327.7425.1219

Higman W, Wallace LM, Law S, Bartle NC, Blake K. Assessing clinicians' knowledge and confidence to perform kangaroo care and positive touch in a tertiary neonatal unit in England using the Neonatal Unit Clinician Assessment Tool (NUCAT). *J Neonatal Nurs. 21*(2), 72–82. doi: 10.1016/j.jnn.2014.09.001

Imbo, C. T., Kwamboka, B. L., & Karanja, D. M. (2021). Determinants of neonatal mortality in Kenya: Evidence from the 2014 Kenya Demographic and Health Survey. *African Population Studies*, *35*(1), 5086-5096. https://doi.org/10.11564/35-1-1188

Kavitha, K., &Devadhas, S. (2015). Effectiveness of kangaroo mother care on physiological parameters of low-birth-weight babies. *Asian Journal of Nursing Education and Research*, *5*(2), 245-249. https://doi.org/10.5958/2349-2996.2015.00047.4

Kinshella, M. L. W., Walker, C. R., Hiwa, T., Vidler, M., Nyondo-Mipando, A. L., & Dube, Q. (2021). Barriers and facilitators to implementing kangaroo mother care in Malawi: A multi-method stakeholder analysis. *BMC Pregnancy and Childbirth*, *21*(1), 271. https://doi.org/10.1186/s12884-021-03710-6

Kothari, C.R. (2019) *Research Methodology: Methods and Techniques.* New Age International Publishers.

Lawn, J. E., Mwansa-Kambafwile, J., Horta, B. L., Barros, F. C., & Cousens, S. (2010). 'Kangaroo mother care' to prevent neonatal deaths due to preterm birth complications. *International Journal of Epidemiology*, *39*(1),144-154. https://doi.org/10.1093/ije/dyq031

Lee HC, Martin-Anderson S, Dudley RA. 2011 Clinician perspectives on barriers to and opportunities for skin-to-skin contact for premature infants in neonatal intensive care units. Breastfeed Med. 2012 Apr;7(2):79–84. doi: http://dx.doi.org/10.1089/bfm.2011.0004 PMID: 22011130

Lee, H. C., Kurtin, P. S., Wight, N. E., & Sylvester, K. G. (2012). A quality improvement project to increase the percentage of mothers who use kangaroo care with their preterm infants. *The Journal of Perinatal & Neonatal Nursing*, *26*(4), 329-337. https://doi.org/10.1097/JPN.0b013e318271f824

Legare, F., Stacey, D., Pouliot, S., Gauvin, F. P., Desroches, S., Kryworuchko, J., ... & Elwyn, G. (2011). Interprofessionalism and shared decision-making in primary care: A stepwise approach towards a new model. *Journal of Interprofessional Care*, *25*(1), 18-25. https://doi.org/10.3109/13561820.2010.490502

McAuley, J., Duberley, J., & Johnson, P. (2007). *Organisation theory: Challenges and perspectives*. Pearson Education.

Ministry of Health [MOH], Kenya. (2023). *National guidelines for Kangaroo Mother Care implementation*. Government of Kenya.

Mohamed, A. A. (2019). Impact of training on the implementation of Kangaroo Mother Care (KMC) among healthcare workers in Murang'a County Hospital, Kenya. *International Journal of Health Sciences and Research*, *9*(5), 125-133. https://doi.org/10.37845/ijhsr.v9i5.1347

Mohammadi, M., Haghdoost, A. A., & Heydari, A. (2021). Continuous kangaroo mother care: The necessity of financial support and coordination for successful implementation. *Journal of Neonatal-Perinatal Medicine*, *14*(2), 197-204. https://doi.org/10.3233/NPM-200409

Montealegre-Pomar, A., Charpak, N., Gabriel, P. G., & Diaz-Rossello, J. (2022). Kangaroo mother care for preterm and low birthweight infants: A clinical practice guideline. *WHO*. https://doi.org/10.1503/cmaj.191114

Mony, P. K., Tadele, H., Gobezayehu, A. G., Daka, D. W., & Kinney, M. V. (2021). Scaling up kangaroo mother care in Ethiopia and India to save newborn lives: A study protocol for a mixed-methods evaluation. *BMC Pregnancy and Childbirth*, *21*(1), 456. https://doi.org/10.1186/s12884-021-03916-7

Moreira, M. E., Romagnoli, R. C., & Dias, M. A. B. (2009). Kangaroo Mother Care: Recommendations based on the scientific evidence. *Journal de Pédiatrie*, *85*(3), 188-195. https://doi.org/10.1590/S0021-75572009000300006

Muttau, J., Kisia, J. W., Mutiso, P., & Okal, J. A. (2022). Continuous kangaroo mother care for preterm babies: Lessons from an African

country. *BMC Pregnancy and Childbirth, 22*(1), 600. https://doi.org/10.1186/s12884-022-04907-9

Nyaga, L. W. (2021). Neonatal mortality in Kenya: An overview of current status and key interventions. *International Journal of Maternal and Child Health and AIDS, 10*(1), 64-71. https://doi.org/10.21106/ijma.406

Rahmatika, R., Rachmawati, S., & Nurhayati, N. (2022). Healthcare providers' perception of kangaroo mother care implementation in Indonesia: A qualitative study. *Journal of Pediatric Nursing, 63*, e80-e86. https://doi.org/10.1016/j.pedn.2021.11.011

Ruiz-Peláez, J. G., Charpak, N., & Cuervo, L. G. (2006). Kangaroo mother care, an example to follow from developing countries. *BMJ, 332*(7548), 1176-1177. https://doi.org/10.1136/bmj.332.7548.1176

Saunders, M., Lewis, P. and Thornhill, A. (2012) *Research Methods for Business Students*. Pearson Education.

Schmitt, M. H. (2011). Shared decision-making and professional autonomy. *Nursing Outlook, 59*(1), 1-2. https://doi.org/10.1016/j.outlook.2010.12.005

Taherdoost, H. (2019). What is the best response scale for survey and questionnaire design; review of different lengths of rating scale / attitude scale / Likert scale. *International Journal of Academic Research in Management, 8*(1), 1–10. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3588604

Uwaezuoke, S. N. (2017). Kangaroo mother care in resource-limited settings: Implications for healthcare delivery. *Journal of Neonatal Nursing, 23*(2), 60-64. https://doi.org/10.1016/j.jnn.2016.09.001

Waldo, D. (1978). *The administrative state: A study of the political theory of American public administration*. Holmes & Meier Publishers.

Wambu, G. W., Godana, P. W., & Ochieng, D. J. (2022). Factors influencing the implementation of kangaroo mother care in Kenya: A case study of Bungoma County health facilities. *African Journal of Midwifery and Women's Health*, *16*(3), 402-409. https://doi.org/10.12968/ajmw.2022.16.3.402

Wennberg, J. E., O'Connor, A. M., Collins, E. D., & Weinstein, J. N. (2007). Extending the P4P agenda, part 1: How Medicare's centres of excellence improve quality and reduce costs. *Health Affairs*, *26*(6), 1575-1585. https://doi.org/10.1377/hlthaff.26.6.1575

World Health Organisation. (2021). *Kangaroo mother care: A practical guide*. WHO. https://www.who.int/publications/i/item/9789240027686