

RESEARCH ARTICLE

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Barriers to utilization of skilled birth attendance among post-natal women in a North Horr ward, Marsarbit County, Kenya: A cross-sectional study

Kame Wato Kofo, Micah Matiang'i, Maureen Akolo

ABSTRACT

Aims: The purpose of this study was to examine barriers to the utilization of skilled birth attendance among women in North Horr ward, Marsarbit County. Specific aims were to assess potential demographic, economic, sociocultural, and health facility barriers that facilitate home deliveries.

Methods: A mixed methods approach was used. A survey questionnaire captured quantitative data from 306 women, while 15 semi-structured interviews were conducted to support the quantitative findings. Quantitative data were analyzed through descriptive and inferential statistics using Stata version 15, while qualitative data were analyzed thematically using NVIVO and presented in tabular form.

Results: A total of 306 women participated (mean age=33 years). 92% (n=281) were married, 97% (n=297) had children, unemployment was 98% (n=300). Age, costs of transport, poor infrastructures, lack of money, and all health-related factors were significantly associated with place of delivery ($p<0.0001$). 50% (n=153) reported health facility as place of last delivery, 47% (n=144) delivered at home, though sociocultural factors like traditional birth attendant (TBA) availability (80% [n=123]) influenced the choice. The regression model showed no significant relationships for sociocultural barriers ($p>0.05$). Qualitative findings revealed financial constraints, sociocultural norms, and health infrastructure deficits as major barriers to skilled birth attendance utilization.

Conclusion: Multifaceted barriers interact as barriers to the utilization of skilled birth attendance among women in North Horr ward, Marsarbit County. Initiatives aimed at improving skilled birth attendance utilization must judiciously tackle poverty, remoteness, inconsistent quality care and traditional mindsets.

Keywords: Economic barriers, Health-facility barriers, Maternal healthcare utilization, Skilled birth attendance, Sociocultural barriers

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INTRODUCTION

Unskilled birth attendance remains a significant challenge for public health systems globally, impeding efforts to reduce maternal and infant mortality. Unskilled birth attendance is a leading factor in avoidable maternal and infant deaths [1]. Although 85% of births worldwide are assisted by skilled personnel, there are stark regional disparities, with Asia, Northern America, and Europe nearing universal coverage, while sub-Saharan Africa lags with only 64% skilled birth attendance [2]. In 2016, approximately 303,000 women died from pregnancy-related complications, with 99% of these deaths occurring in developing countries [3]. Unskilled birth attendance is

Kame Wato Kofo¹, Micah Matiang'i¹, Maureen Akolo¹

Affiliation: ¹Department of Health Systems, Amref International University, School of Public Health, Nairobi, Kenya.

Corresponding Author: Kame Wato Kofo, Amref International University, Department of Health Systems, School of Public Health, Nairobi, Kenya; Email: kamewato3@gmail.com

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a major promoter of maternal morbidity and mortality as recognized by search.

Southern Asia and Africa accounted for 86% of global maternal mortality in 2017, with sub-Saharan Africa alone contributing 66% of these deaths. This was attributed to inadequate care during pregnancy and childbirth [3]. In sub-Saharan Africa, limited access to skilled labor, particularly in rural areas, contributes to over 300,000 pregnancy-related deaths annually [4, 5]. The survival rate for infants also varies significantly by region, with sub-Saharan Africa having the highest infant mortality rate at 27 deaths per 1,000 live births in 2020 [6].

In Kenya, the maternal mortality ratio and infant mortality rate are 362 per 100,000 and 22 per 1,000 live births, respectively. Amid these devastating statistics, only 61.2% of births occur in health facilities in Kenya [7]. Despite government efforts to improve maternal and neonatal health services, there remains a decline in women giving birth in medical facilities, especially in remote parts of the country [8]. In 2013, Kenya had 289,000 maternal deaths [8]. The fifth Millennium Development Goal aimed for a 75% reduction in maternal mortality by 2015, a target Kenya has struggled to meet [9]. Maternal deaths in Kenya are around 488 per 100,000 live births, far from the target of 147 per 100,000 [9].

Despite introducing the free maternity care policy in 2013, which increased facility-based births from 44% in 2008 to 61% in 2014 [8, 9], significant regional disparities persist. The Linda Mama program, which ensured free access to maternity services at public health facilities, significantly helped reduce home deliveries attended by traditional birth attendants (TBAs) [10]. However, challenges such as lack of awareness and enrollment in the National Hospital Insurance Fund (NHIF) scheme hindered access to these services in remote areas [11]. Other challenges especially related to delayed disbursements of health facility reimbursements also caused lapses in continuity of care in many parts of the country.

In Marsabit County, unskilled birth attendance remains prevalent. Despite antenatal care counselling, only 13% of women delivered at health facilities in 2021 and 2022 in North Horr ward [12]. This exposes mothers and newborns to severe risks, including maternal and infant mortality and long-term health issues [13]. Factors contributing to the high rate of unskilled home deliveries include cultural preferences, inadequate health facilities, and logistical challenges [10, 14].

The literature highlights various factors contributing to the persistent use of unskilled birth attendances (UBAs) in Kenya, particularly in rural areas. UBAs, often without formal training, provide essential support during childbirth, especially in regions with limited healthcare access [13, 14]. Sociocultural influences, such as traditional beliefs and the need for spousal permission, significantly impact women's choices [15].

Economic barriers, including transportation costs and poverty, further exacerbate the reliance on UBAs [16]. Healthcare system deficiencies, such as inadequate service quality and staff shortages, also deter women from seeking skilled birth attendants [14, 17]. Despite policies advocating for UBAs to transition to supportive roles, their use remains prevalent due to the perceived inadequacy of formal healthcare services [18, 19]. Studies show that maternal education influences the likelihood of seeking skilled care, with educated women more likely to use professional services [12, 20]. This situation underscores the need for comprehensive strategies addressing the multifaceted barriers to skilled birth attendance as outlined in the Health Belief Model [21].

This study aimed to investigate the barriers to utilizing skilled birth attendance services among women in North Horr ward, Marsabit County. By understanding the demographic, economic, sociocultural, and health facility-related factors that influence the utilization of maternal healthcare services, the study sought to inform policymakers and stakeholders on effective strategies to improve maternal and child health outcomes. This study thus aligned with national and global health goals by aiming to support the attainment of sustainable development goal.

MATERIALS AND METHODS

Study design

The study employed a cross-sectional design with a mixed-methods approach. Quantitative data were collected using structured questionnaires designed to gather information on skilled birth attendance while qualitative data were obtained through key informant interviews with community health volunteers, traditional birth attendants, and the area leaders. This approach targeted females aged 15–49 years to provide a thorough understanding of reproductive health practices. Triangulation ensured a robust exploration of the factors influencing skilled birth attendance.

Study site

The research was conducted in North Horr, a sub-county in Marsabit County, Kenya. North Horr is the largest sub-county in Marsabit County by geographical size, with a population of 71,447 as of the Kenya Census 2019. The area includes five wards—Illeret, Dukana, North Horr, Maikona, and Turbi—each with distinct health facility distributions. The selection of North Horr was based on its high rates of home deliveries and associated negative outcomes, making it a critical area for studying skilled birth attendance.

Study population

The target population comprised postnatal women aged 15–49 years, with a focus on those who had delivered within the last six months. The estimated target population was approximately 5,000, according to the 2019 census, representing 29% of the total population of North Horr ward. Key informants, including community elders, were also targeted. The sample size of women was determined using Fisher’s formula, resulting in a target of 327 women after adjustments for non-response [22]. For qualitative data, a sample size of 15 key informants was chosen based on the suggestions of other studies. Typically, saturation in qualitative research occurs between 12 and 15 interviews [23]. The women included in the study were selected using cluster random sampling whereas key informants were selected using a purposive sampling approach.

Data collection instruments

Data collection instruments included structured questionnaires for quantitative data and interview guides for qualitative data. The questionnaires were administered via the Kobo-Collect tool. Qualitative data were gathered through structured interviews with key informants.

Data analysis

Data processing involved sorting, coding, and analyzing data using Stata Version 15 for quantitative data and NVIVO for qualitative data. Whereas numerical data were analyzed using descriptive and inferential statistics, qualitative data were analyzed thematically.

Ethical considerations

Ethical approval was obtained from relevant authorities, including the Amref Health Africa Ethics and Scientific Review Committee (ESRC P1442/2023). Informed consent was sought from all participants while measures were implemented to ensure voluntary participation, privacy, and confidentiality.

RESULTS

Influence of participant demographics on the utilization of skilled birth attendance

The age data represent values for 306 individuals. The mean age is 33 years old, with a standard deviation of 8.7 years. This indicates there is a fair amount of variation in

ages, but most individuals are centered around 33 years old. The minimum age was 19 and the maximum was 49. Looking at marital status, the majority of individuals are married (92% [n=281]), 6% (n=18) were widowed, 2% (n=5) were divorced, and only 1% (n=2) were single. As for children per family, 97% (n=297) reported having children, while only 3% (n=9) had no children. For those with children, the mean number of children was 3.5, indicating that families tended to be large. Most participants were unemployed (98% [n=301]) while the majority were Muslims (54% [n=164]). It was also striking that a whopping 97% (n=298) had no education at all. The chi-square test of independence provided an analysis of the association between the “Place of Last Delivery” and the demographic variables. Age group and religion were noted to be associated with the place of last delivery ($p < 0.05$) (Table 1).

Economic factors affecting utilization of skilled birth attendance

The data revealed significant economic constraints affecting women’s access to skilled birth attendance. A substantial majority (86% [n=263]) of women did not earn their income, relying heavily on their husbands (87% [n=263]) or other family members. Of the 14% (n=43) who did earn money, 74% (n=32) made less than KES 10,000 monthly, highlighting widespread low income. Transportation posed a significant barrier, with most women (71% [n=219]) living in manyattas and relying on walking (30% [n=92]) or motorbikes (45% [n=138]). Insufficient funds (77% [n=236]), high transport costs (38% [n=117]), and poor transportation (34% [n=104]) were the primary obstacles to healthcare access reported by women. The chi-square test showed significant associations between these economic factors and delivery locations, underscoring the impact of financial hardship on healthcare choices ($p < 0.05$) (Table 2). Qualitative data supported these findings, with participants citing prohibitive formal and informal costs as barriers. For instance, P7 lamented, “Many people are unemployed and unable to go to good hospitals due to lack of resources.” Similarly, P14 noted, “I had to sacrifice income from not working for several days to stay at the hospital after delivery, which was a financial burden.”

The chi-square analysis of economic barriers revealed significant associations with delivery locations. High transport costs were cited by 57% (n=173/306) of women, while poor means of transport were reported by 50% (n=154/306) of women. Poor roads and infrastructures were noted by 51% (n=155/306) of women and a further 50% (n=153/306) of women cited insufficient money to pay for transport and services as a significant issue. Other economic-related barriers included insecurity reported by 52% (n=159/306), and other unspecified economic factors reported by 49% (n=149/306) of women. All

these economic factors were significantly associated with the place of last delivery ($p < 0.0001$). These findings underscore the profound impact of economic barriers on women's access to skilled birth attendance (Table 3).

Sociocultural factors that affect the utilization of skilled birth attendance

A key decision factor for place of delivery was who determines where the woman gives birth. Although most women (71% [$n=218$]) reported they made the decision themselves, 28% ($n=85$) said their husbands decided. This indicated that male partners play a sizable role in the choice to deliver at a facility or home. For those opting for home delivery, the most common reason was the availability of traditional birth attendants (TBAs) where health facilities were far away (80% [$n=123$]). Still, tradition appeared to be leading many women, especially in rural areas, to depend on TBAs over formal medical care. The data also highlighted the influence

family can have over maternal decisions and behaviors. Most women (91% [$n=277$]) reported getting advice from family members, showing they value input on delivery options (Table 4). A Likert scale question was also used to assess women's cultural aspects and perspectives that influenced their choices to use skilled or unskilled birth attendants (Table 5).

There was a significant association between sociocultural factors and delivery locations (Table 6). Notably, delivery practices by TBAs and the use of herbal/traditional medicines given by TBAs exhibited a statistically significant relationship with the place of last delivery ($p < 0.001$). Conversely, nutrition/chores in pregnancy and after birth done by TBAs, postnatal and baby care, female genital mutilation (FGM), and other sociocultural factors did not show a significant relationship with the place of delivery although they were also significantly reported. These findings emphasize the nuanced influence of sociocultural factors on healthcare choices in the community.

Table 1: Influence of participant demographics on the utilization of skilled birth attendance

Variable		Place of last delivery		Total	Chi-square	p
		0 (Home)	1 (Health facility)	n (%)		
Occupation	Employed	0	5	5 (2)	5.0831	0.079
	Unemployed	153	148	301 (98)		
	Total	153	153	306 (100)		
Age group	15–24	46	24	70	23.6321	0.000
	25–34	52	52	104		
	35–44	34	69	101		
	45–54	16	13	27		
	Total	153	153	306 (100)		
Education	None	151	147	298 (97)	4.0537	0.399
	Primary	2	2	4 (1)		
	Secondary	0	2	2 (1)		
	Tertiary	0	2	2 (1)		
	Total	153	153	306 (100)		
Marital status	Divorced	3	2	5 (2)	3.0537	0.082
	Married	134	147	281 (92)		
	Single	2	0	2 (1)		
	Widowed	14	4	18 (6)		
	Total	153	153	306 (100)		
Religion	Catholic	47	73	120 (39)	16.2143	0.042
	Muslim	106	58	164 (54)		
	Protestant	0	11	11 (4)		
	Others	0	11	11 (4)		
	Total	153	153	306 (100)		

Table 2: Economic factors affecting utilization of skilled birth attendance

Variable	n	Percentage
Do you earn your own money?	306	
No	263	86%
Yes	43	14%
If you do earn, what is your Monthly income?	43	
KES <10,000	32	74%
KES 11,000–20,140	9	21%
KES 21,000–40,000	1	2%
Above KES 41,000	1	2%
Mode of transport to hospital		
Walking	92	30%
Motorbike	138	45%
Vehicle	76	25%
Type of house you live in		
Manyatta	219	71%
Semi/Permanent	87	29%
Are you dependent on your family or husband for monetary support?		
Yes	265	86.3%
No	41	13.4%
Sources of money for hospital visits	263	
Others (specify)	16	6%
Parents	6	2%
Relative	13	5%
Siblings	1	0%
Spouse	227	86%

Table 3: Chi-square analysis of economic barriers

Variable	Label	Place of delivery		Total (%)	Chi-square	p
		1 (Health facility)	0 (Home)			
EF1	High transport fare	9	164	173 (57)	132.9003	0.0000
EF2	Poor means of transport	7	146	154 (50)	117.4414	0.0000
EF3	Poor roads/infrastructures	10	145	155 (51)	106.25	0.0000
EF4	Insufficient money	105	48	153 (50)	11.57688	0.0007
EF5	Insecurity	19	140	159 (52)	15.94464	0.0001
EF6	Other economic factors	47	102	149 (49)	39.10062	0.0000

Table 4: Summary of sociocultural factors

Variable name	Particulars	n	Percentage
Decision on where to deliver	Self	218	71%
	Husband	86	28%
	Mother-in-law	1	0.5%
	Others	218	0.5%
Why did you choose home delivery?	TBA availability	123	80%
	It is our culture	7	5%
	Religion	1	1%
	Sudden labor	20	13%
	Other reasons	2	1%
Family members influence decisions	No	29	9%
	Yes	277	91%

Table 5: Women's perspectives on cultural issues affecting delivery decisions

S/No	Statement	Frequency (%)					Mean
		1	2	3	4	5	
	Home deliveries are safe	20.5	20.8	16.9	16.3	23.1	3.01
	Male partners accompany female spouses to the hospital	22.1	19.5	16.6	21.8	17.6	2.93
	TBAs are more skilled than facility midwives	14.0	19.5	21.2	21.2	21.8	3.18
	Only women delivering for the first time should deliver in a hospital	17.6	23.1	19.5	17.9	19.5	2.99
	Herbal drugs are safe to use during pregnancy	17.6	19.2	20.8	23.1	16.9	3.03
	FGM does not affect women during delivery	19.5	20.2	17.6	21.2	19.2	3.00

Table 6: Association between sociocultural factors and delivery place

Variable	Label	Place of delivery		Chi-square	p-value
		1 (Health facility)	o (Home)		
SC1	Nutrition/chores in pregnancy and after birth	1	152	0	1.0000
SC2	Herbal/traditional medicines given by TBAs	67	86	76.64502	0.0000
SC3	Postnatal and baby care by TBAs	0	153	0	1.0000
SC4	Delivery practices by TBAs	51	102	139.2478	0.0000
SC5	Female genital mutilation	1	152	0	1.0000
SC6	Other sociocultural factors	36	117	35.54064	0.0000

The qualitative analysis also unearthed deeply entrenched sociocultural barriers hindering the uptake of skilled birth attendance. A poignant perspective emerged from a community health volunteer (CHV), encapsulating the prevailing cultural aversion toward hospital deliveries: "Cultural practice dislikes hospital deliveries." This sentiment underscores the preference for home births facilitated by TBAs in the community. The community generally considered TBAs more aligned with local traditions as per the thematic analysis performed. Further delving into these barriers, a TBA woman revealed

the pervasive fear and shame surrounding facility-based deliveries: "Women often fear to be known by others and feel ashamed about going to deliver at the clinic." These narratives shed light on the intricate web of cultural beliefs and social dynamics shaping maternal healthcare decision-making. Moreover, the influence of family dynamics is palpable, as articulated by one participant: "My mother-in-law insisted I have the baby at home... and her opinion holds a lot of weight in our household." These insights underscore the profound influence of sociocultural factors on healthcare-seeking behaviors.

Health facility-related factors that affect the utilization of skilled birth attendance

The data indicated most women (82% [n=251]) have a facility in their area providing maternity care. Proximity did not appear to be a universal barrier, as over half (56% [n=170]) of respondents had a facility within 5 km, with 34% (n=104) living 11–15 km away and some up to 24 km away. Also, most health centers were not open 24 hours (78% [n=238]). The majority described services as very good (49% [n=151]), followed by good at 33% (n=100). Commendably, 73% (n=224) of the participants stated that they received health education at the facility (Table 7). The data also highlighted several key barriers related to health facilities that deter women from seeking skilled delivery services. Distance was one major issue (42.5%), unsanitary maternity environments (37.6%), inadequate medical equipment/drugs (16.7%), negative healthcare worker attitudes (53.9%), insufficient emotional support (33.7%), and annoying language (33.7%) were reported as major barriers (Figure 1).

Further analysis explored health facility factors and their correlation with the place of delivery. The results underscored significant associations between health facility factors and delivery locations, with all factors showing statistical significance ($p < 0.001$). Notably, the operation of public health facilities 24 hours, the proximity of hospitals, cleanliness of maternity environments, health worker attitudes, emotional support, language used by health workers, skill levels of health workers, and availability of medical equipment and drugs all exhibited significant relationships with the place of delivery selected by women ($p < 0.001$). These findings emphasize the pivotal role of health facility factors in influencing maternal healthcare choices.

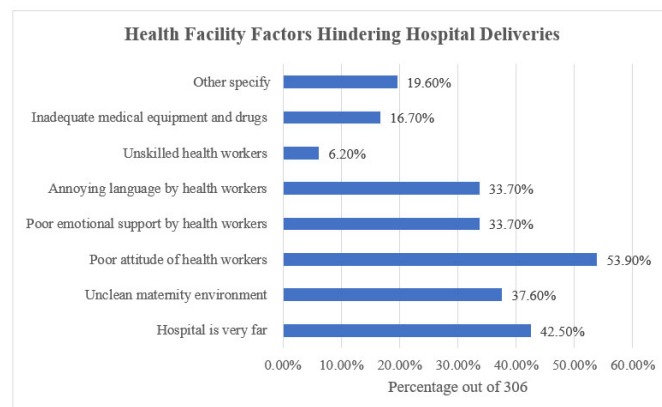


Figure 1: Health facility factors hindering hospital deliveries.

The qualitative analysis delved into the multifaceted health facility-related barriers impeding the adoption of skilled birth attendance. The thematic analysis revealed a landscape fraught with structural and capacity deficits within the healthcare system. The scarcity of dedicated maternal health establishments and trained personnel emerged as prominent themes. One CHV observed that the “unavailability of health facilities and few health workers here” were major barriers. Geographic inaccessibility also compounded these challenges. One community leader highlighted that “Distance from the facility means a 2-hour walk.” These barriers coalesced into two overarching themes: insufficient health infrastructure and workforce to serve dispersed villages, and vast distances to limited facilities. Participant testimonies vividly depicted the harsh realities of navigating these barriers, from enduring long journeys to attending understaffed facilities.

Table 7: Summary of health facility factors

Variable name	Particulars	Frequency	Percentage
Availability of health maternity services	No	54	18%
	Yes	251	82%
Distance to nearest health facility	0–5 kilometer	170	56%
	11–15 kilometer	104	34%
	16–24 kilometer	2	1%
	6–10 kilometer	30	10%
Health facility operates 24 hours	No	238	78%
	Yes	68	22%
Rate hospital delivery service	Excellent	54	18%
	Very good	151	49%
	Good	100	33%
	Poor	1	0%
	Very poor	0	0%
Health education at the facility	Yes	224	73%
	No	82	27%

DISCUSSION

This study delved into the multifaceted barriers influencing the utilization of skilled birth attendance (SBA) among women in North Horr ward, Marsabit County, Kenya. It drew from both quantitative data analysis and qualitative insights to present an in-depth analysis of the diverse factors that determine the choice of women on where they deliver their children. This study aligns findings with national maternal health statistics, revealing patterns in maternal age, marital status, parity, and education levels that impact maternal health-seeking behaviors [24, 25]. These demographic factors, particularly low education levels and economic constraints, emerged as significant barriers to accessing skilled birth attendance services [20]. Echoing research from South Asia and Ethiopia, addressing sociodemographic disparities can help improve maternal care utilization in developing countries [26, 27].

Transitioning to economic factors, the analysis underscores the pervasive influence of financial dependence, low incomes, and limited financial autonomy on women's decision-making regarding childbirth [28, 29]. The study aligns with prior research, emphasizing the need for policy interventions such as health insurance subsidy programs and social protection initiatives to mitigate economic barriers and improve access to skilled birth attendance [30]. Sociocultural factors emerge as another critical determinant of maternal health-seeking behavior, with familial expectations, cultural norms, and trust in traditional birth attendants shaping women's preferences for home births [3, 31]. Despite efforts to promote facility-based deliveries, deeply ingrained cultural traditions continue to influence women's choices, underscoring the need for community engagement and sensitization approaches to shift societal perceptions [32].

Lastly, health facility-related barriers are examined, revealing challenges related to distance, infrastructure, service quality, and health worker attitudes [16, 20, 33]. Despite geographic proximity to health facilities, deficiencies in staffing, resources, and quality of care undermine women's confidence in facility-based deliveries [24]. The study recommends holistic health systems strengthening initiatives to address these barriers, including improvements in infrastructure, staffing, and interpersonal communication to ensure supportive and dignified skilled birth attendance experiences [20, 33]. Overall, the discussion underscores the interconnected nature of the barriers facing women in accessing skilled birth attendance, emphasizing the need for multifaceted interventions that address demographic, economic, sociocultural, and health facility-related factors to improve maternal health outcomes.

CONCLUSION

The study concludes that the barriers to utilizing skilled birth attendance services are multifaceted and deeply entrenched, encompassing economic, sociocultural, and health facility-related factors. It emphasizes the need for integrated interventions that address these challenges concurrently, requiring coordinated efforts from various stakeholders, including governments, non-governmental organizations (NGOs), and community leaders. Recommendations include targeted policy interventions to address poverty and infrastructure deficiencies, community engagement initiatives to shift cultural norms toward accepting skilled care, and strategic incorporation of unskilled attendants into formal health systems. However, it is acknowledged that no single solution can resolve these complex issues alone, necessitating sustained, long-term strategies that encompass access, infrastructure, quality of care, financing, and norms collectively over time through strategic integration. Additionally, future research directions include longitudinal analyses to evaluate the impact of interventions over time and expanded geographical diversity to validate findings across different settings. Overall, the study contributes valuable insights into the challenges surrounding skilled birth attendance and provides a foundation for developing effective strategies to improve maternal health outcomes in remote areas.

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Author Contributions

Kame Wato Kofo – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Micah Matiang'i – Design of the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Maureen Akolo – Design of the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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ABOUT THE AUTHORS

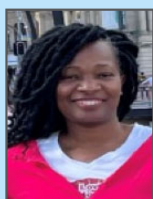
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Kame Wato Kofo is Project Associate at the Amref Health Africa. She has a bachelor's degree in Public Health and a master's degree in Public Health (Applied Epidemiology and Biostatic). Her research interests are on maternal health.
Email: Kamewato3@gmail.co



Micah Matiang'i (BscN, MCHD, PhD) is a Senior Lecturer in the School of Medical Sciences, Nursing and Midwifery Sciences Department at the Amref International University. He is an academician, with substantial experience in Human Resource for Health (HRH) development and Maternal Health programs management. Administratively in the university he is the Director of Online and Blended Learning Directorate. His areas of professional interest include Maternal Health, HRH training, infectious diseases management, and disruptive training technologies.



Maureen Akolo is an Adjunct Assistant Professor at the Aga Khan University-School of Nursing and Midwifery-East Africa and a visiting lecturer at Catholic University of Eastern Africa, University of Nairobi and Kenyatta University. She seats on several Committee of Experts at the National HIV program, several research Ethics committees and currently a member of ANAC nominating committee. She has a bachelor's degree in Nursing, a master's degree in Public Health (Monitoring and Evaluation), a PhD in Public Health, and a Fellowship in Higher Education and Learning (FHEA) from UK. Her research interests are in HIV and SRH.

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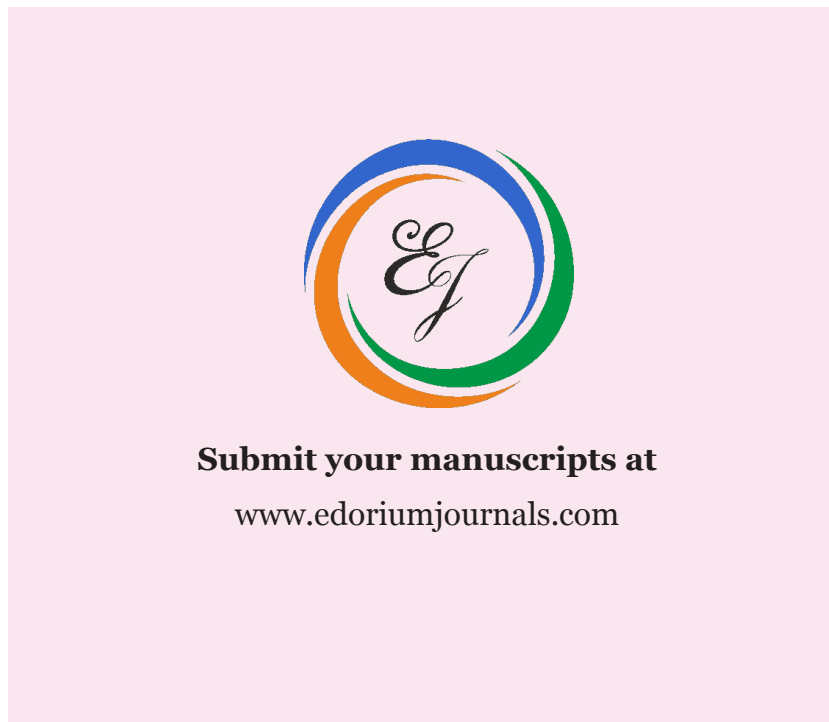
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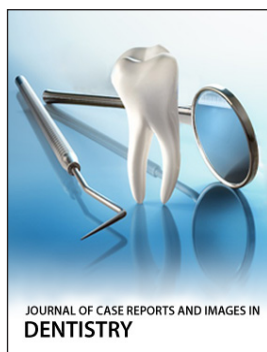
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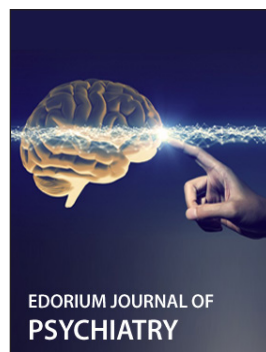
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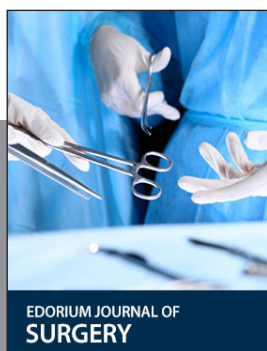
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