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Preference of mode of delivery and associated factors among mothers in East Africa: systematic review and meta-analysis

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Abstract

Introduction Preference of mode of delivery refers to the expectant mother's personal choice or preference for the method by which she would like to have her baby delivered. Although there are many fragmented primary studies on the preference of mode of delivery among women in East Africa, the pooled preference rate is unknown. In addition, those studies disagreed on reporting the associated factors. Therefore, this study was intended to determine the pooled preference for mode of delivery and its associated factors among women in East Africa.

Method We searched studies using PubMed, Scopus, Embase, Science Direct, and Google Scholar that were published between March 01/2014 and March 31/2024. This study used the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines. The quality of studies was evaluated using the modified Newcastle-Ottawa quality assessment tool. The data were extracted by two authors independently using Microsoft Excel and analyzed by Stata version 17. A random effects model was applied to calculate the pooled preference for mode of delivery and its associated factors. The PROSPERO registration number for the review was CRD42024541921.

Results A total of 14 studies comprising 47,561 participants were involved in this meta-analysis. The pooled preference of vaginal delivery and cesarean delivery were 75% ((95% C.I = 67 − 83%) and 25% (95% C.I = 17 − 34%), $I^2 = 99.7$)respectively. This study showed that ANC-follow (OR= 1.11; 95% CI=0.67–1.82), previous intrapartum satisfaction (OR= 2.69; 95% CI = 0.53–13.64), place of residence (OR= 1.10; 95% CI = 0.86–1.42), occupation (*P*=0.000; OR= 0.97; 95% CI=0.67–1.42), planned pregnancy (OR= 1.89; 95% CI=1.26–2.82), previous history of spontaneous abortion (OR= 2.30; 95% CI=0.71–7.44), current pregnancy related problem (OR= 3.86; 95% CI=1.37–10.84), discussion with a partner (OR= 0.67; 95% CI=0.35–1.27), types of the hospital (OR= 1.13; 95% CI = 0.65–1.94) were significant factors associated with preference of mode of delivery.

Conclusion The preference for vaginal delivery was higher than for cesarean delivery. Factors such as antenatal care follow-up, previous intrapartum satisfaction, place of residence, occupation, planned pregnancy, prior history of spontaneous abortion, maternal education, current pregnancy-related problems, discussion with partner, and types of hospital were significantly associated. The findings of this study imply a multifaceted approach is required.

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Keywords Preference of delivery, Vaginal delivery, Cesarean section, Women, East Africa, Meta-analysis, Systematic review

Introduction

Modes of delivery refer to either the vaginal delivery or a delivery by surgical intervention [1]. A vaginal delivery is the birth of offspring through the vagina while Caesarean section delivery is a surgical procedure in which one or more incisions are made through a mother's abdomen and uterus to deliver one or more babies [2]. Vaginal birth may involve any number of medical interventions with the baby ultimately born vaginally [3]. These medical interventions may include surgical or medical induction, oxytocin for augmentation, and episiotomy, and the delivery can be spontaneous i.e. unassisted or assisted by forceps or vacuum extractor. Cesarean section involves surgical delivery of the fetus and is often performed when a vaginal delivery would put the baby's or mother's life or health at risk [1].

Cesarean birth is associated with short- and long-term risks that affect the health of the woman, the child, and future pregnancies, in addition to exposing families to substantial healthcare costs [4]. It may also cause serious health complications, disability, and even death, especially when it is undertaken in settings where the necessary medical facilities are lacking. In addition, cesarean section is associated with significantly increased odds of maternal intensive care unit admission, maternal near miss, and neonatal intensive care unit admission, perinatal mortality and morbidity, surgical site infection [4]. On the other hand, the underuse or inability to use cesarean section may also contribute to maternal and perinatal mortality and morbidity and may lead to postpartum hemorrhaging, reduced fertility, and placental complications in subsequent pregnancies for mothers [2].

Globally, the average cesarean section rate has continued to rise and is now around 23.4% [5]. The preference for cesarean delivery has increased in many developed countries, with rates exceeding 30% in some nations. In Africa, the overall cesarean section rate has slowly edged up to around 8.5% [6]. Northern African countries continue to have the highest rates on the continent, often over 25%, while sub-Saharan African nations generally remain under 10% [7]. According to [7] the average cesarean section rate across East African countries was around 7.2%. According to the World Health Organization, the recommended range for cesarean section rates is 10–15% globally.

Different literature reports that; factors influencing the preference of mode of delivery include abnormalities in prenatal exams, lack of confidence, fear of pain, older maternal age, residence, socioeconomic status, education, occupation, antenatal care, type of hospital delivery, pregnancy complications, were factors significantly affect preference of modes of delivery [2, 8–17].

Nevertheless, there is little agreement about the particular factors that guide these preferences because of the differences in the study population, the ways of doing research, and the circumstances. Considering the many factors that affect the mothers' choices for the delivery method in East Africa, a systematic review and meta-analysis are required to combine the existing evidence, find the common factors and themes, and thus, get a more comprehensive view of the determinants of women's decision-making about childbirth practices in the area. Therefore, this study was intended to determine the pooled preference for mode of delivery and its associated factors among women in East Africa.

Methods

Study protocol and registration

This study was conducted on the preference of mode of delivery and associated factors among mothers in East Africa, and conducted following guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). The study has been registered on the International Prospective Register of Systematic Review (PROSPERO), with registration number CRD42024541921.

Searching strategies and sources of information

We searched studies that were published between March 01//2014 to March 31/2024 using electronic databases such as PubMed, Scopus, Embase, Science Direct, Google Scholar, and other sources. Keywords like mode of delivery, preference, vaginal delivery, cesarean section, determinants, and East Africa with their corresponding Medical Subject Headings (MeSH) terms were used to search by combining using Boolean operators (AND, OR, NOT). For instance, the advanced PubMed search strategy was: ("preference" OR "Choice") AND ("Mode of delivery" OR "vaginal delivery" OR "cesarean section") AND ("Mothers") AND ("Determinants" OR "Risk Factor" OR "Associated Factor" OR "Related Factor") AND ("East Africa" OR "Eastern Africa") and Filters applied: from 01/03/2014–31/03/2024.

Inclusion and exclusion criteria

Inclusion criteria

This meta-analysis included studies that fulfilled the following criteria: research carried out only in East Africa, full-text articles, abstracts, and thesis or dissertations that were written only in English, studies published in

peer-reviewed journals, all observational studies that report the preference of mode of delivery among pregnant women, and the publication year between March 01/2014 to March 31/2024 were included in the analysis.

Exclusion criteria

Studies with different outcomes of interest, data from letters and meetings abstracts, duplicated or useless data, research done in languages other than English, and studies conducted before March 01/2014, and after 31/2024 were excluded from this study.

Study selection and quality assessment

All explored studies were exported to Endnote 21 software. After duplicates were removed, studies were assessed for eligibility criteria by two authors (BYW and AKB) individually. Finally, studies that fulfilled the inclusion criteria were included. The studies' quality was evaluated using modified Newcastle-Ottawa quality assessment tools that are adopted for cross-sectional data and cohort studies [18] and the criteria were representativeness of the sample, sample size, non-response rate, outcome ascertainment, and comparability of the study. The quality assessment was determined by providing a numerical score, with scores 8–9 considered excellent quality, 6–7 very good quality, 4–5 good quality, and below 4 considered poor quality or unsatisfactory, and hence numerical value below 4 excluded from the study. The quality of the studies was evaluated independently by two authors (BGY and MED), and disagreements were settled by involving a third author (BAT). Finally, our study included high-quality studies that received at least 8 out of a possible 9 points for both cross-sectional studies and case-control studies

The outcome of the study

The primary outcome of the study was to determine the pooled preference of mode of delivery among women in East Africa, and the secondary outcome of the study was to identify the determinant factors associated with preference of mode of delivery among women in East Africa.

Data extraction process

Two authors (BAT and AKB) extract all relevant data using data extraction form. This form was prepared in Microsoft Excel and contains the following variables: The author's name, publication year, study setting or country, study period, study design, sample size, percentage of vaginal deliveries and cesarean section mode of deliveries, data collection period, and adjusted odds ratio (AOR) with a 95% confidence interval for associated factors of preference of mode of delivery among mothers were extracted.

Handling missing data, author contact protocol, and inter-rater reliability measures

Effective handling of missing data is essential in meta-analysis, employing techniques like multiple imputation and sensitivity analyses to assess impacts on findings. A structured author contact protocol facilitates obtaining additional data, specifying contact attempts and timelines. Additionally, inter-rater reliability is measured using Cohen's kappa or interclass correlation coefficients to ensure consistency among reviewers in data interpretation, thereby enhancing the validity of conclusions [19, 20].

Statistical analysis

The random-effect (DerSimonian) model was used to determine the pooled preference and associated factors of the mode of delivery among women in East Africa. For those different studies, heterogeneity was assessed by I2 statistic, and sub-group analysis and sensitivity analysis were used to analyze potential sources of heterogeneity. The value of $the\, I^2$ statistic was an indication of variation across studies, and values of 25%, 50%, and 75% were indications of low, medium, and high presence of heterogeneity [21]. We assessed the publication bias using the Egger test, and p-values less than 0.05 were an indication of a significant presence of publication bias [22]. As the asymmetry was detected using the funnel plot and Egger's test; the trim-and-fill method was used to re-estimate the pooled effect size by removing the outlying effect sizes, and then added back into the funnel plot and mirroring on the opposite side to identify the best estimate of the unbiased pooled effect size [22].

Zero-cell handling methods in meta-analysis are crucial for ensuring valid statistical estimates, particularly when dealing with studies that report zero events in contingency tables. Common approaches include excluding studies with zero cells, applying continuity corrections, or using imputation techniques to estimate missing values. In meta-regression, it is important to consider study characteristics that may influence effect sizes, such as sample size and intervention type, while also assessing heterogeneity among studies to understand variability in results. Sensitivity analysis protocols should involve identifying key assumptions, conducting analyses under various scenarios, and evaluating the impact of these changes on overall conclusions to ensure the robustness of findings [19, 23]. The analysis was done using statistical software, STATA version 17.

Results

Search outcomes and characteristics of included studies

A total of 641 studies were searched from different databases and all studies about the preference for mode of delivery were included. Then the data was exported to

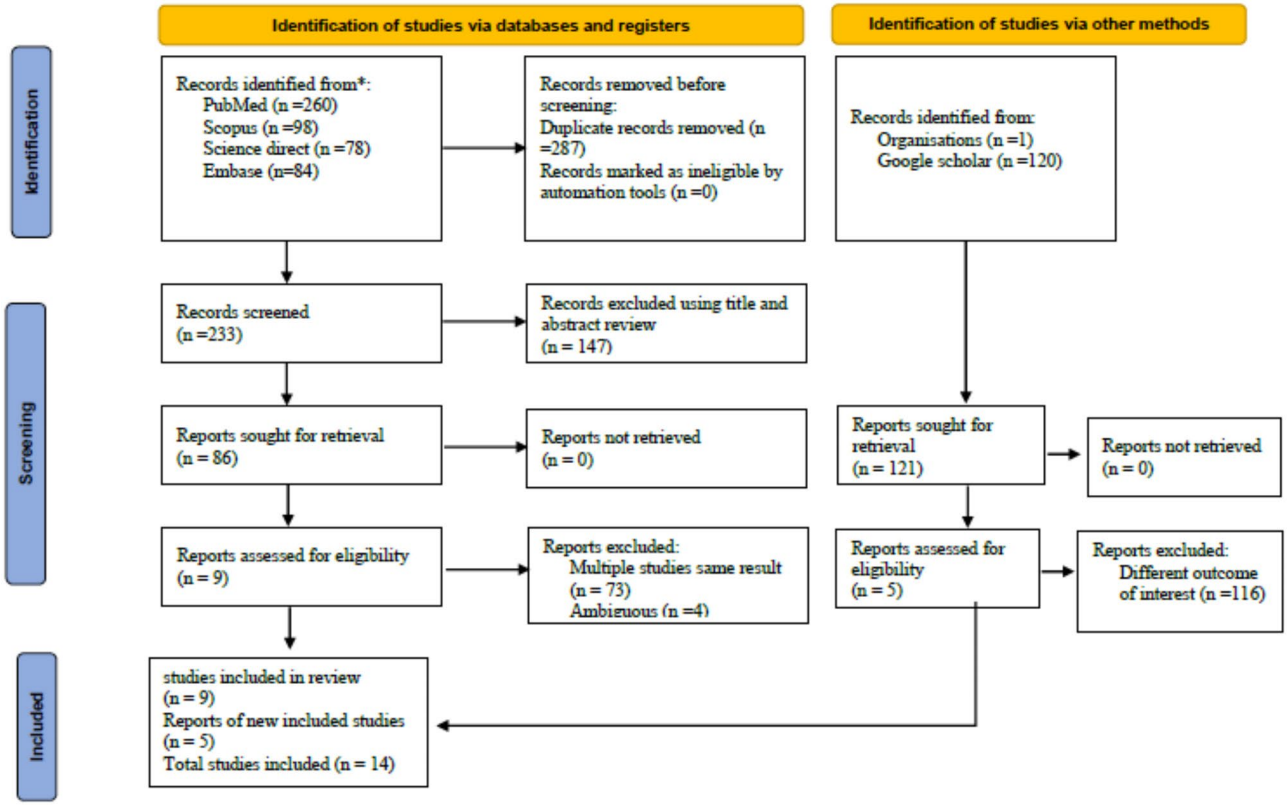

Fig. 1 PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers, and other sources for mothers' preference for mode of delivery in East Africa

Table 1 Summary statistics for the number of women in the study preference of mode of delivery among women

Variable	Number of studies	Mean	Std. dev.	Min	Max	Total
Sample Size	14	3397.214	8282.344	169	31,079	47,561

Endnote 21 Reference Manager for screening and a total of 627 studies were excluded from the analysis because of irrelevant (unrelated) titles, duplicate findings, and different outcomes of interest. Finally, fourteen studies with a total of 47,561 women that fulfilled the inclusion criteria were included for systematic and meta-analysis (Fig. 1).

Characteristics of included studies

A total of 14 studies were included to estimate the pooled preference for mode of delivery. The studies were conducted in East African countries between 2014 and 2024. The minimum number of women who participated in the single study was 169 and the maximum number was 31,079 (Table 1).

Regarding the study design, twelve studies were cross-sectional and two studies were case-control studies. Concerning publication year, from a total of 14 studies, 3 [21.43%] were in 2017, 2 [14.29%] in 2020,2021,2023 and 2024, and 1 [7.14%] in 2018, 2019, and 2022 individually. In the case of Counties 6(42.86%) of studies were conducted in Kenya, 5 (35.72%) in Ethiopia, and 1 (7.14%) in Rwanda, Tanzania, and Uganda each country (Table 2).

Pooled preference of mode of delivery among women in east Africa

As Fig. 2 showed from a total of 14 studies, the overall pooled preference of a mode of delivery among pregnant women in East Africa showed that the majority, 75% (95% CI: 67 – 87%), with observed heterogeneity (I^2 = 99.7%; p-value < 0.0001) of the women preferred vaginal delivery, whereas the rest 25% (95% CI:17 -34%) preferred cesarean section.

Source of heterogeneity and handling

Sub-group analysis

Table 3 depicts the preference for mode of delivery (vaginal delivery vs. cesarean section) based on year of publication, country, and study design. Regarding publication year, the preference for vaginal delivery ranged from 52 to 92%, with the highest preference recorded in 2018 and 2020. Conversely, the preference for cesarean section

Table 2 Characteristics of included studies' preference of mode of delivery among women

		Number of studies	Percent
Country	Ethiopia	5	35.72
	Kenya	6	42.86
	Rwanda	1	7.14
	Tanzania	1	7.14
	Uganda	1	7.14
	Total	14	100
Publication Year	2017	3	21.43
	2018	1	7.14
	2019	1	7.14
	2020	2	14.29
	2021	2	14.29
	2022	1	7.14
	2023	2	14.29
	2024	2	14.29
	Total	14	100
Study design	case-control	2	14.29
	cross-sectional	12	85.71
	Total	14	100

ranged from 8 to 48%, with the highest preference in 2019. Here, the highest heterogeneity was observed in studies conducted in 2024 (I^2= 98.4% %).

When examining the study setting, the preference for vaginal delivery was highest in Kenya 87% (95%CI: 85- 90%) and lowest in Rwanda 56% (95%CI: 55- 57%) and Tanzania 58% (95%CI: 53- 62%). The preference for cesarean section was highest in Rwanda 44% (95%CI: 43- 45%) and Tanzania 42% (95%CI: 38- 47%), and lowest in Kenya 13% (95%CI: 10- 15%). The highest heterogeneity (I^2 = 95%) was observed in studies conducted in Kenya.

Regarding study design, the preference for vaginal delivery was 89% (95%CI: 82- 96%) for cross-sectional studies and 72% (95%CI: 63- 82%) for case-control studies. The preference for cesarean section was 11% (95%CI: 4- 18%) for cross-sectional studies and 28% (95%CI: 18- 37%) for case-control studies. Based on the study design highest heterogeneity (I^2 = 99.8%) was observed in studies conducted using cross-sectional study designs. Overall we have seen Vaginal delivery is a preferable mode of delivery to cesarean section.

Sensitivity analysis

The influence of individual studies on the pooled preference of mode of delivery was evaluated using sensitivity analysis. The result showed that there is no single study whose value lies outside the 95% CI of the overall estimate or pooled preference of mode of delivery (Fig. 3).

Publication bias or small study effects

The Egger's test and the funnel plot were used to assess the presence of small study effects or publication bias across the studies. However, there was no publication bias across studies (a p-value of 0.07 for Eggers regression

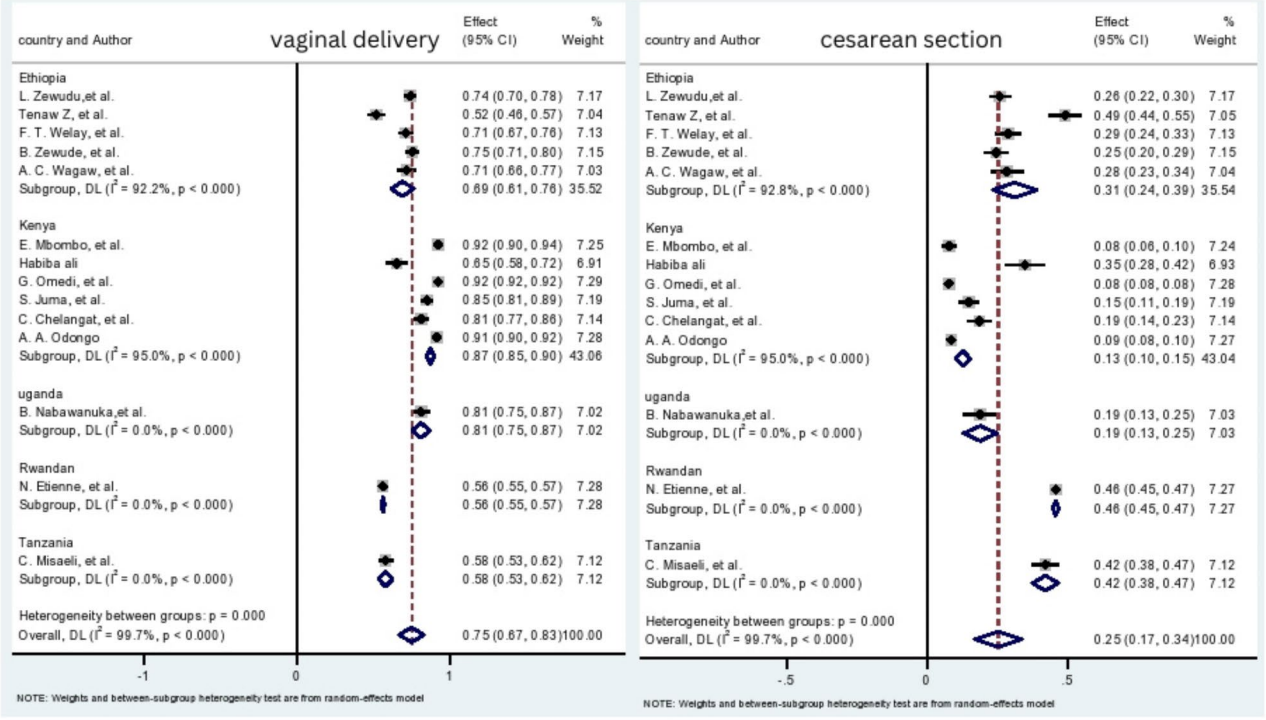

Fig. 2 Forest plot for pooled preference of mode of delivery among women in East Africa

Table 3 Subgroup analysis for the year of publication, country, and study design preference of mode of delivery among women

Subgroup analysis		Number of studies	Pooled Preference of mode of delivery % (95% C.I)		I^2	*p*-value
			VD	CS		
Publication Year	2017	3	69(51,68)	31(12,49)	97.8%	0.000
	2018	1	92(90,94)	8(6,10)	0.0%	0.000
	2019	1	52(46,56)	48(44,56)	0.0%	0.000
	2020	2	92(91,93)	8(7,9)	75.5%	0.043
	2021	2	76(66,86)	24(14,34)	90.3%	0.000
	2022	1	75(71,80)	25(20,29)	0.0%)	0.000
	2023	2	76(67,86)	24(14,33)	80.3%	0.024
	2024	2	65(47,82)	35(18,53)	98.4%	0.000
	Overall	**14**	**75(67,83)**	**25(17,33)**	**99.7%**	**0.000**
Country	Ethiopia	5	69(61,76)	31(24,39)	92.2%	0.000
	Kenya	6	87(85,90)	13(10,15)	95.0%	0.000
	Rwanda	1	56(55,57)	44(43,45)	0.0%	0.000
	Tanzania	1	58(53,62)	42(38,47)	0.0%	0.000
	Uganda	1	81(75,87)	19(13,25)	0.0%	0.000
	Overall	**14**	**75(67,83)**	**25(17,33)**	**99.7%**	**0.000**
Study design	case-control	2	72(63,82)	28(18,37)	90.8%	0.000
	cross-sectional	12	89(82,96)	11 (4,18)	99.8%	0.000
	Overall	**14**	**75(67,83)**	**25(17,33)**	**99.7%**	**0.000**

Note (I^2=0.0%: implies there was a single study in that specific category so that I^2 was not calculated), VD: Vaginal delivery, Cs: cesarean section

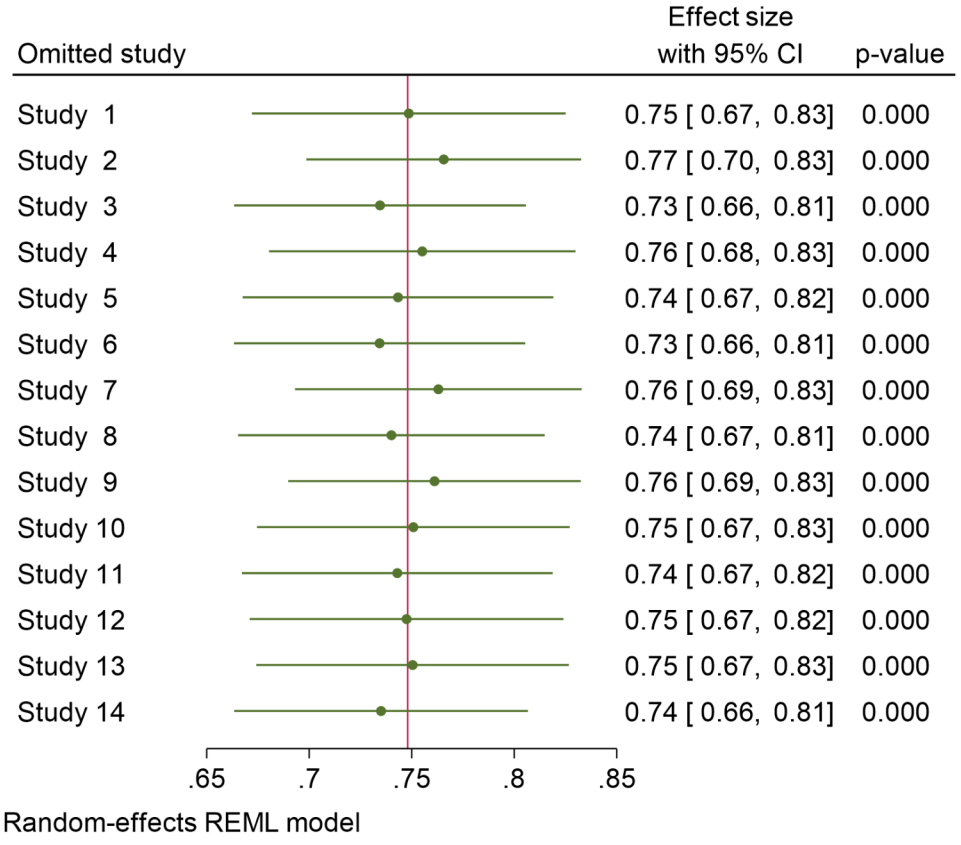

Fig. 3 Sensitivity analysis for preference of mode of delivery among women in East Africa

test). In addition, a funnel plot was used to check the presence of publication bias and it shows the absence of publication bias across the studies (Fig. 4).

Factors associated with preference of mode of delivery among women in east Africa

Table 4 shows the pooled odds ratio of studies that had two and above-associated factors in common with the preference for a mode of delivery among women. Therefore, women's preference for the mode of delivery is significantly associated with ANC follow-up, previous intrapartum satisfaction, place of residence, occupation, planned pregnancy, previous history of spontaneous abortion, maternal education, pregnancy problems, discussion with partner, types of hospital, and wealth status.

A pooled meta-analysis showed that women who had ANC-follow up were 1.11 times more likely to prefer cesarean section than those who had not ($P = 0.013$; OR = 1.11; 95% CI = 0.67–1.82, $I^2 = 72.2\%$). Likewise, those who were satisfied with the previous intrapartum were 2.69 times more likely to prefer a cesarean section than those who were dissatisfied ($P = 0.000$; OR = 2.69; 95% CI = 0.53–13.64). Regarding the place of residence, women who were from urban settings were 1.01 times more likely to prefer cesarean section than rural ($P = 0.045$; OR = 1.10; 95% CI = 0.86–1.42).

Regarding occupation, employed women had 0.97 times lower odds of preferring a cesarean section compared to unemployed women ($P = 0.000$; OR = 0.97; 95% CI = 0.67–1.42). In terms of planned pregnancy, women with a planned pregnancy had 1.89 times higher odds of preferring cesarean section compared to those with an unplanned pregnancy ($P = 0.041$; OR = 1.89; 95% CI = 1.26–2.82). Regarding previous history of spontaneous abortion, those with a previous history of spontaneous abortion had 2.30 times higher odds of preferring a cesarean section than those who had not ($P = 0.000$; OR = 2.30; 95% CI = 0.71–7.44). Women with primary education had 0.91 times lower odds, those with secondary education had 1.29 times higher odds, and those with college education had 1.32 times higher odds, compared to women with no education. Women experiencing current pregnancy-related problems had 3.86 times higher odds of preferring a cesarean section than their counterparts ($P = 0.008$; OR = 3.86; 95% CI = 1.37–10.84). Regarding discussion with a partner, those who discussed their preferences with their partner had 0.67 times lower odds than those who had not ($P = 0.038$; OR = 0.67; 95% CI = 0.35–1.27). Finally, women who delivered in public hospitals had 1.13 times higher odds of preferring a cesarean section compared to those in private hospitals ($P = 0.000$; OR = 1.13; 95% CI = 0.65–1.94).

Discussion

This study was intended to determine the pooled preference for mode of delivery and its associated factors among women in East Africa. Our systematic and meta-analysis used a total of fourteen eligible studies with 47,561 women and found that pooled preference for vaginal delivery (75%) and cesarean Sect. (25%) of women in East Africa. This report showed that the prevalence of cesarean section is higher than the study done in sub-Saharan Africa 7.3% [24], Nigeria 3.11% [25], and Asia 19.1% [26]. This discrepancy might be due to limitations in the accessibility or provision of these services, socioeconomic and cultural influences, and increasing electronic fetal monitoring availability and accessibility in referral and general hospitals. On the contrary, this study found a lower preference for cesarean section as compared to studies carried out in Iran 48% [27], India 60% [28], China 54.9% [29], Europe 27.8% [7], Pakistan 28.9% [30], and Latin America 73.0% [31]. This difference might

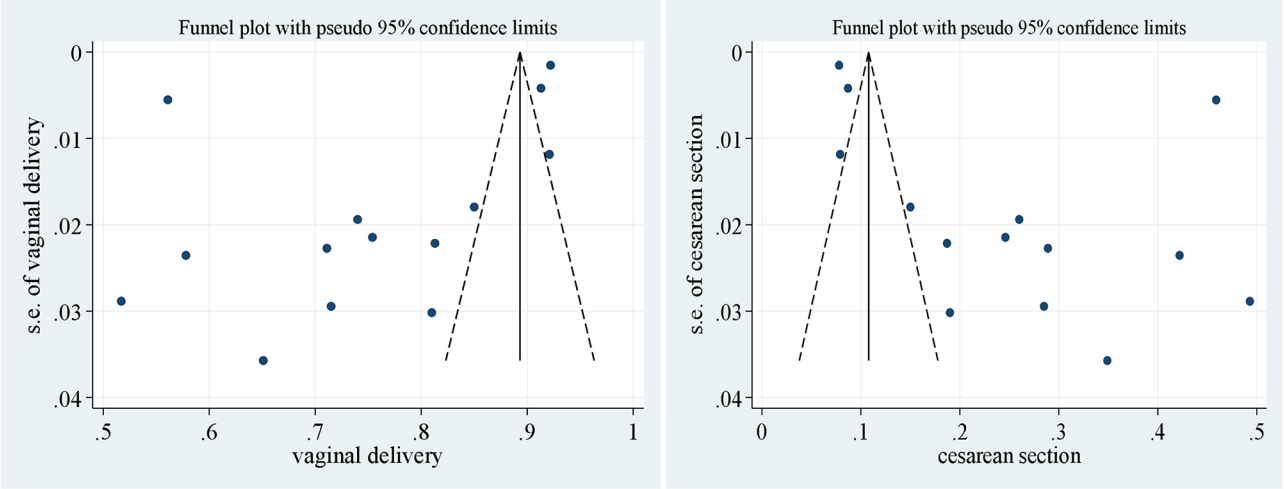

Fig. 4 Funnel plot of preference of mode of delivery with standard error

Table 4 Summary of pooled odds ratio for factors associated with preference of mode of delivery among women

Associated factor	Category	No of studies	Pooled odds ratio	*p*-value	I^2
Marital status	Married	4	1.42(0.72,2.72)	0.066	58.3%
	Not married (reference)				
ANC follow-up	Yes	4	1.11(0.67,1.82)	0.013 *	72.2%
	No(reference)				
Previous intrapartum satisfaction	Satisfied	2	2.69(0.53,13.64)	0.000 ***	96.6%
	Not Satisfied(reference)				
Place of residence	Urban	5	1.10(0.86,1.42)	0.045 *	58.9%
	Rural (reference)				
Occupation	Employed	4	0.97(0.67,1.42)	0.000 ***	82.2%
	Not employed (reference)				
Planned pregnancy	Yes	4	1.89(1.26,2.82)	0.041 *	0%
	No (reference)				
Previous history of spontaneous abortion	Yes	3	2.30(0.71,7.44)	0.000 ***	94.3%
	No (reference)				
Maternal education	No education (reference)	4	0.91(0.561.1.46)	0.031 *	66.1%
	Primary education				
	Secondary education		1.29(0.70,2.37)	0.000 ***	86.6%
	College		1.32(0.79,2.20)	0.003 **	78.6%
Current pregnancy problem	Yes	3	3.86(1.37,10.84	0.008 **	79.3%
	No(reference)				
Discussion with partner	Yes	3	0.67(0.35,1.27)	0.038 *	69.3%
	No(reference)				
Types of hospital	Public	6	1.13(0.65,1.94)	0.000 ***	90.3%
	Private				
Wealth	Poor (reference)	4	1.37(0.34,5.49	0.782	0%
	Middle				
	Rich		1.12(0.98,1.29)	0.978	0%

Notes: ***$P < 0.001$, **$P < 0.01$, *$P < 0.05$

be due to countries with a rich wealth index that may have the capacity to have modern operative obstetrics management as compared to low and middle countries. Hence, low and middle-income countries have resource limitations, and cesarean section is resource-constrained and may have low comprehensive obstetric health care services.

Furthermore, the present study found that women who had antenatal care follow-up were more likely to prefer cesarean section. This is supported by the study done in China [32]. The possible explanation might be due to increased contact with healthcare providers during pregnancy attributable to greater exposure to information about the procedure and healthcare provider recommendations. In addition, being satisfied with previous intrapartum experience was significantly associated with the preference for cesarean section. This study is consistent with the study done in Tehran [33]. The reason might be that positive past experiences can shape future delivery preferences.

The result of this study showed that there were higher odds of urban women preferring cesarean section than their counterparts. This aligns with a study done in Ethiopia [34]. This could be a result of urban-rural disparity differences in accessibility to health facilities, the level of economic development, and cultural differences. According to this study, women who were employed had relatively lesser odds of preferring CS as compared with unemployed women. This is in agreement with the research that has been conducted in the UK [35]. This could be a result of factors like time constraints and financial considerations.

Women with a planned pregnancy had higher odds of preferring a cesarean section as compared to those who had not. This is consistent with studies done in Italy [36]. This suggests that planning and preparation for childbirth may influence delivery preferences.

A woman with a previous history of spontaneous abortion had higher odds of preferring a cesarean section than one who had not. This is similar to a study done in China [37]. The reason might be fear of the potential risks based on their past traumatic experience, healthcare providers may also be more inclined to recommend a cesarean option for this patient group, fertility concerns, and the availability of the cesarean choice in their healthcare setting.

Women with primary education had lower odds, those with secondary education had higher odds, and those

with college education had higher odds, compared to women with no education. These varying odds of preferring cesarean section based on maternal education level align with studies done in Iran [38]. The reason might be that more educated women tend to have greater knowledge, autonomy, access, and financial means, which can shape their preferences towards or against cesarean sections compared to less educated women. Women who had current pregnancy-related problems had higher odds of preferring a cesarean section than their counterparts. This report is in line with studies done in Pakistan [39]. The possible reasons might be due to perceived safety, healthcare provider recommendations, concerns about labor, and past experiences. Regarding discussion with a partner, those who discussed their preferences with their partner had lower odds of preferring cesarean section than those who had not. This study is similar to a study done in America [40]. The reason may be the active discussion and incorporation of the partner's perspective reduces the woman's odds of preferring a cesarean section, as it promotes a collaborative decision-making dynamic between the couple. Finally, women who delivered in public hospitals had higher odds of preferring a cesarean section compared to those in private hospitals. This result is similar to studies done in South East Asia [41]. The reason might be due to differences in access to information, socioeconomic factors, provider preferences, and patient characteristics.

Identification of the sources of heterogeneity

The present systematic review and meta-analysis showed that there is substantial inter-study variability in the studies incorporated in the analysis. The degree of variability may stem from the differences in healthcare organizational structures between countries, the community's perception of childbearing, differential socio-economic status, or geographical allocation of obstetric facilities. The choice of methodology, sample size, and even definition of delivery modes may also explain the differences in preferences evidenced across the studies.

Unexpected findings explanation

One of the surprises derived from this research was the fact that a comparatively elevated rate of deliveries through cesarean sections was identified within the East African countries, elevated even in comparison with the rates reported in such regions as sub-Saharan Africa and Asia. This difference may have been caused by the enhancement of the availability of healthcare resources, changing culture, and awareness of maternal health resources. Furthermore, unexpected relations were found between the preference formation and antenatal care and previous birth experience, which would require further analysis.

Meta-analyses comparison

Comparative meta-analyses highlighted the differences in cesarean section preferences across regions. While East Africa showed a preference of 25%, other regions reported higher rates, such as Iran (48%) and India (60%). This suggests a regional disparity likely influenced by socioeconomic factors, healthcare infrastructure, and cultural perceptions of childbirth.

Clinical vs. statistical significance

Clinical and statistical significance distinction was discussed and highlighted by the results of the present research. These studies show that pooled preference for vaginal delivery was significant statistically even though the observed clinical significance of 25% preference for CS could not be ignored. Knowledge of these preferences' settings may assist healthcare providers in meeting women's needs and perceiving their opinions about delivery modes.

Subgroup differences interpretation

We found subgroup preferences preference differences by educational level, urban/rural residence, and pregnancy history. For example, education level with increased women with higher education levels wants cesarean section, indicating better achievement of the pertinent information and tools. Likewise, urban women had a higher preference for CS than rural women, as a result of accessibility and Increased societal values. These interpretations thus call for the perception of major adjusted interferences to cater to the variable demand of the mothers.

Conclusion and recommendation

In this study, the overall pooled preference for vaginal delivery was higher than cesarean delivery among women in East Africa. Even though, cesarean section in East Africa was high compared to the recommended range given by the World Health Organization. ANC-follow, previous intrapartum satisfaction, place of residence, occupation, planned pregnancy, previous history of spontaneous abortion, maternal education, current Pregnancy-related problems, discussion with a partner, and types of the hospital were significant factors associated with preference of mode of delivery.

The findings of this study recommend a multifaceted approach is required. This includes improving access to comprehensive antenatal care, enhancing intrapartum satisfaction, addressing socioeconomic disparities, strengthening family planning support, providing specialized care for pregnancy complications, investing in maternal education, encouraging partner communication, and reviewing hospital policies to be patient-centered.

Women with a history of uterine surgery face unique delivery considerations, such as increased risks of complications and the potential for uterine rupture. Informed discussions about the risks and benefits of vaginal birth after cesarean (VBAC) versus repeat cesarean are essential, along with personalized care plans that address individual medical histories and psychological factors.

To improve the quality of decision-making among women, healthcare providers should improve their knowledge of options and delivery of counseling about experience and educational needs. First, there is a need for policymakers to enhance the mitigation of quality maternal healthcare and secondly, there is a need to change attitudes towards childbirth. Scarce information is available about delivery choices and possible impacts on future health consequences. Enacting these recommendations must therefore take into account the local contexts as well as involve the community. Measurement to enhance maternal healthcare services is revealed to have first-time economic overheads whereby enhancing means of improving the health standards of mothers must be viewed as worthy the investment despite its financial costs since it reduces morbidity and mortality not forgetting to recommend a befitting technique to lowered overall health cost.

Strengths and limitations of the study

A key strength of the current meta-analysis is its large sample size of over 47,000 women across 14 studies. This adds statistical power and enhances the generalizability of the findings compared to individual studies. Among the limitations of this study; firstly, studies written other than in English were ignored, so studies conducted in other languages were missed.

Abbreviations

ANC	Antenatal Care
CI	Confidence Interval
CS	Cesarean Section
OR	Odds Ratio
VD	Vaginal Delivery
WHO	World Health Organizations

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Author contributions

BAT, BYW, BGY, and AKB developed the concept of the study idea, the searching strategy and searching were conducted by BAT, BYW, BGY, AKB, and BYW; data extraction was done by BAT and AKB; Quality assessments were evaluated by BGY and MED; analysis, interpretation, and discussion of results were conducted by BAT, BYW, BGY, AKB, FFA, ABT, MED and all authors participated, read and approved the final manuscript.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethical approval and consent to participate

As the study used existing public recorded studies; hence ethical approval was not necessary for this study and there are no names of individuals or household addresses in the data file.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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