Association between pregnancy intention and completion of newborn and infant continuum of care in Sub-Saharan Africa: systematic review and meta-analysis

Birye Dessalegn Mekonnen[1,2]* , Vidanka Vasilevski[1,3] , Ayele Geleto Bali[1,3] and Linda Sweet[1,3]

Abstract

Background The newborn and infant continuum of care such as essential newborn care, early initiation and exclusive breastfeeding, and immunisation are highly recommended for improving the quality of life and survival of infants. However, newborn and infant mortality remains high across Sub-Saharan African countries. While unintended pregnancies are associated with adverse newborn and infant health outcomes, there is inconclusive evidence on whether pregnancy intention influences newborn and infant continuum of care completion. Therefore, this review aimed to pool findings reported in the literature on the association between pregnancy intention and newborn and infant health care across the continuum of care in Sub-Saharan Africa.

Methods We searched MEDLINE Complete, EMBASE, CINAHL Complete, and Global Health databases for studies potentially eligible for this systematic review and meta-analysis. Two researchers independently screened the identified articles by abstract and title, and then full-text using Covidence. We used the Newcastle–Ottawa Scale to assess the quality of the included studies. The Cochran's Q test and I^2 were executed to detect and quantify the presence of statistical heterogeneity in the studies. Meta-analysis was done for each outcome when more than one original study reported relevant data, using Stata statistical software version 18.

Results Eleven studies were included from a total of 235 articles identified by the search. The odds of completing essential newborn care (pooled odds ratio: 3.04, 95% CI: 1.56, 5.90), early initiation of breastfeeding (pooled odds ratio: 1.30, 95% CI: 1.13, 1.52), exclusive breastfeeding (pooled odds ratio: 2.21, 95% CI: 1.68, 2.89), and being fully immunised (pooled odds ratio: 2.73, 95% CI: 1.16, 6.40) were higher among infants born to women with intended pregnancies as compared to women with unintended pregnancies.

Conclusion Intended pregnancy was positively associated with essential newborn care completion, early initiation and exclusive breastfeeding, and full immunisation of infants in SSA countries. Thus, policy-makers and stakeholders should strengthen the provision of quality family planning services to prevent unintended pregnancy. Furthermore, follow-up of women with unintended pregnancies is needed to increase women's opportunity to access essential newborn health care services that further reduce the risk of newborn and infant morbidity and mortality.

Systematic review registration PROSPERO registration number CRD42023409148.

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Introduction

Improving the quality of life and survival chances of newborns, and children remains an urgent global challenge [1]. Worldwide, considerable progress has been made to reduce neonatal mortality from 5 million in 1990 to 2.4 million in 2019 [2], and under-five mortality from 12.5 million in 1990 to 5.3 million in 2018 [2]. However, substantial differences in child mortality continue to exist across regions where Sub-Saharan Africa (SSA) holds the highest perinatal mortality rates of 34.7 deaths per 1,000 live births [3], infant mortality rate of 53 deaths per 1,000 live births [4], and under-five mortality rate of 78 deaths per 1,000 live births [2]. In addition, about 41% of children in SSA are highly affected by stunting, which possibly contributes to increasing child morbidity and mortality [5]. Many of these deaths are preventable or curable using interventions that are simple and cost-effective such as adequate nutrition, vaccination, and appropriate newborn and infant care [6, 7] as well as by improving access to maternal health care services [8].

Parental adherence to children's preventive and curative health care sets children up for better long-term health and considerably reduces the risk for child morbidity and mortality [9–11]. Similarly, maternal pregnancy intention has a significant effect on parent–child attachment and bonding, with a potential impact on children's long-term physical, developmental, and psychological health outcomes [12–14]. Women with unintended pregnancies face more difficulty in establishing a strong attachment with their babies, poor childcare practices, and breastfeeding difficulties [12, 15, 16]. Literature has shown that children born to mothers with unintended pregnancies had less secure mother-to-child attachment during infancy, poor preventive and curative care, and poor behavioural and educational outcomes than women with intended pregnancies [12, 16, 17]. In addition, unintended pregnancy was associated with childhood illness, stunting and underweight, and higher risks of infant and child mortality [16, 18]. Furthermore, adverse birth outcomes, such as congenital anomalies, preterm birth, and low birthweight were observed among children born from unintended pregnancies [18, 19]. Conversely, intended pregnancy was associated with a reduced risk of stillbirth compared to unintended pregnancies [14].

Mounting evidence has shown that women who experienced unintended pregnancy had lower likelihoods of timely initiation of breastfeeding, continuing to breastfeed, and exclusive breastfeeding than women with intended pregnancy [20, 21], resulting in poorer physical health of their children [13]. Furthermore, children born from unintended pregnancy were less likely to receive childhood immunisation [20, 22, 23]. These effects could be caused by maternal behaviours during pregnancy, and late initiation, or low use of antenatal care [24–27]. Hence, the prevention of unintended pregnancy and effective implementation of the maternity continuum of care are highly recommended to enhance the survival of newborns and infants through promoting preventive health care practices for children [28, 29]. A recent study has shown that completing the maternity continuum of care, which includes the use of antenatal care, birthing at health facility, and use of postnatal care can considerably improve the use of essential newborn care practices [30].

The World Health Organization and United Nations Children's Fund [2, 31] strongly recommended strategies for the newborn and infant continuum of care, such as exclusive and timely initiation of breastfeeding, improving child nutrition, and child vaccination. This is anticipated to achieve the Sustainable Development Goal aimed to decrease the high rates of neonatal deaths to 12 per 1000 live births and under-five deaths to 25 per 1000 live births by 2030 [32, 33]. Though strong emphasis has been given to the newborn and infant continuum of care, in SSA, only 56.5% of children were fully vaccinated [34], 47% of infants were breastfed within one hour of birth and 35% of children received exclusive breastfeeding in the first six months of life [35]. However, none of these studies have analysed the association between maternal pregnancy intention and completion of the newborn and infant continuum of care including essential newborn care practices, exclusive and timely initiation of breastfeeding, and infant immunisation. Moreover, while unintended pregnancies are associated with adverse newborn and infant health outcomes, there is inconsistent and inconclusive evidence on whether pregnancy intention influences newborn and infant health care across the newborn and infant continuum of care.

Up-to-date evidence with pooled estimates is required to understand whether developing interventions targeting preventing unintended pregnancies with the aim of child survival is required. Therefore, this study aimed to pool findings reported in literature on the association between pregnancy intention and essential newborn and infant health care across the

newborn and infant continuum of care in SSA to contribute reliable evidence that would inform newborn and infant health policy and practice.

Methods

Registration and reporting

We used the updated Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist [36] to prepare and report this review (Supplementary File 1). After checking for a lack of other similar existing reviews and protocols, this systematic review was registered on the International Prospective Register of Systematic Reviews (PROSPERO) with registration number CRD42023409148.

Information sources and search strategy

The search terms were prepared based on the following concepts: pregnancy intention, essential newborn care practice, early initiation of breastfeeding, exclusive breastfeeding, full immunisation status, and Sub-Saharan Africa. The search keywords included free text keywords and Medical Subject Headings (MeSH) using Boolean operators, truncation, wildcards, and phrases in various databases. A comprehensive literature search was done in major databases such as MEDLINE Complete (EBSCOhost platform), EMBASE, CINAHL Complete (EBSCOhost platform), and Global Health (EBSCOhost platform) on August 13, 2023. These databases were selected as they index health and medical-related research. Furthermore, bibliographies of reviews and the identified studies were reviewed in Google Scholar for potentially relevant studies. The EBSCOhost MEDLINE was used to develop the initial search strategy, which was then adapted for other databases. Details of search strategies for each database are provided in Supplementary File 2. A scholarly expert librarian reviewed the search plans and provided advice to improve the search.

Eligibility criteria

Inclusion criteria

We included observational studies that reported essential newborn care practice, or early initiation of breastfeeding, or exclusive breastfeeding, or child immunisation status as an outcome variable and pregnancy intention as an exposure variable. Furthermore, we included peer-reviewed studies published in the English language and conducted in SSA countries. Moreover, studies that reported the odds ratios (OR) with a 95% confidence interval (CI) or have raw data that allowed us to calculate the odds ratios with a 95% confidence interval were included.

Exclusion criteria

We excluded studies that did not report the associations of pregnancy intention with essential newborn care practice, or early initiation of breastfeeding, or exclusive breastfeeding, and full immunisation status. Review articles, qualitative studies, case reports, commentaries, case studies, conference abstracts, case series, and opinion pieces were excluded.

Study selection

We used Covidence systematic review software to screen studies. Two researchers (BDM, VV) independently conducted title and abstract screening after removing duplicates. Similarly, potentially eligible studies for full-text review were retrieved and then systematically screened against the eligibility criteria. The third reviewer (AGB) resolved any conflicts during the screening process. The results of the search in each database, screening, and selection process are summarised in a PRISMA 2020 flow diagram (see Fig. 1).

Quality assessment

Two researchers (BDM, AGB) assessed the quality of each primary study using the Newcastle–Ottawa Scale (NOS) for assessing the quality of non-randomised studies [37], with no discrepancies observed. The NOS tool has selection, comparability, and outcome domains and rate articles with a maximum of ten stars. The selection domain focuses on sample size, representativeness of the target population, response rate, and ascertainment of risk factors with a maximum of five stars. The comparability domain focuses on controlling the confounding factors that potentially influence the outcome of the variable with a maximum of two stars. The outcome domain assesses the outcomes of interest and appropriateness of the statistical tests with a maximum of three stars. The quality of the studies was ranked based on the overall number of stars. Accordingly, studies with a star number of 9 or 10, 7 or 8, and 5 or 6 were deemed to be very-good quality, good quality, and satisfactory quality respectively (Suplementary file 3). Studies with four or less stars were deemed unsatisfactory quality and were to be excluded from the review due to poor quality. The NOS tool has been used in previous similar studies [38–40].

Data extraction

Two researchers (BDM, VV) independently extracted data in a Microsoft Excel spreadsheet. No discrepancies occurred during data extraction. All relevant data items such as author(s), study setting and design, sample size, study population, data collection methods, response rate, publication year, odds ratio with a 95% CI for the
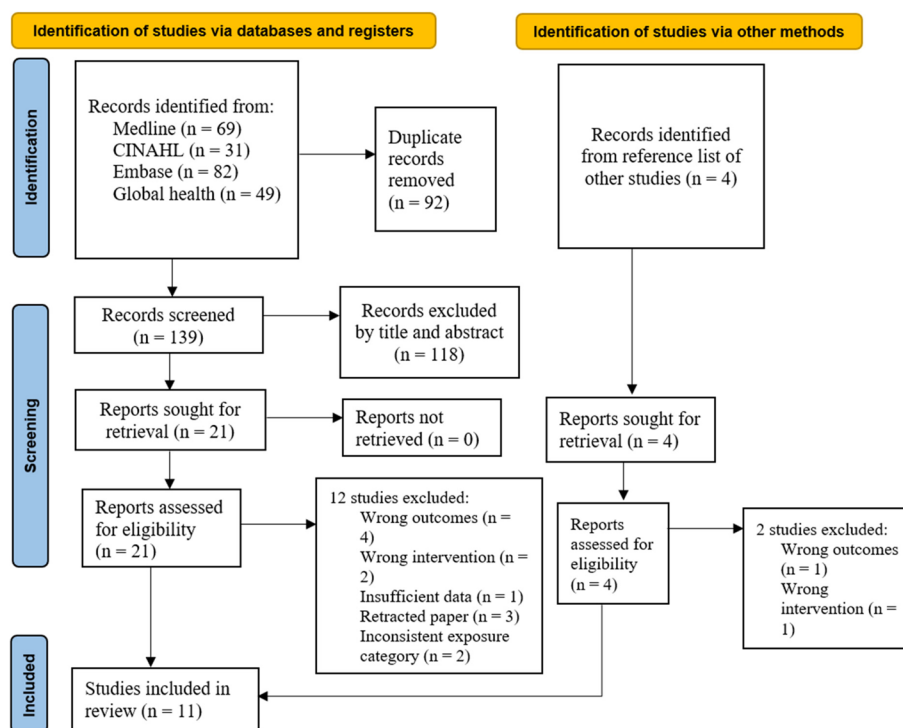
Fig. 1 PRISMA flow diagram of the studies screening process

association of pregnancy intention with each of the four outcome variables (essential newborn care, early initiation of breastfeeding, exclusive breastfeeding, and full immunisation status), and the definition of all four outcome variables were extracted from each included study. The pregnancy intention of participants was also extracted for each outcome variable.

Outcome measurement

The association between pregnancy intention and newborn and infant health care across the continuum of care was the outcome of interest in this review. For this research, the newborn and infant health continuum of care includes essential newborn care, early initiation of breastfeeding, exclusive breastfeeding, and full immunisation status. Essential newborn care is defined in this research as the newborn has received all the recommended elements of the services, including safe cord care, initiating skin-to-skin contact, eye care, and delayed baby bathing for at least 24 h after birth [41]. Early initiation of breastfeeding is defined as the provision of mother's breast milk to the baby within the first hour of birth [42]. Exclusive breastfeeding is defined as an infant receiving only breast milk from birth until six months of age without adding water or any other food except for mineral supplements, vitamins, or prescribed medicines [42]. Full immunisation is defined as a child who

has received a single dose of Bacillus Calmette–Guérin (BCG) vaccine, four poliomyelitis vaccines, three doses of pentavalent vaccines (diphtheria, pertussis, tetanus, hepatitis B and Haemophilus influenza type B), three doses of pneumococcal conjugate vaccine (PCV), two doses of Rota vaccine, and one dose of measles vaccine before their first birthday [43].

Pregnancy intention has been classified into intended and unintended [44]. For this study, intended pregnancy was when the woman reported that she planned or wanted her last pregnancy at the time of conception; otherwise, a pregnancy is considered an unintended pregnancy. Both unwanted pregnancies (no children are desired at all) and mistimed pregnancies (wanted at some time but occurred sooner than desired) were considered as unintended pregnancies [45].

Data analysis

The adjusted odds ratios (AOR) of the association between pregnancy intention and each outcome variable were extracted from each primary study as the measure of effect. For the outcome of early initiation of breastfeeding, the crude odds ratios (COR) and confidence intervals were calculated from the raw data. The COR was used for the outcome of early initiation of breastfeeding due to the lack of AOR data in the included studies. Since COR was calculated from

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all included studies for this outcome, this approach ensured that we did not mix AOR with COR in the same analysis. Logit transformations were made for the individual measure of effect before computing the pooled summary. When two or more studies reported relevant data, a quantitative meta-analysis was done for each outcome. Forest plots and tables are used to graphically display the summary of effect sizes with 95% CI and other results. The random-effects model was employed for the outcomes of essential newborn care, early initiation breastfeeding and child immunisation status. The random-effect model was employed to assume the variations or heterogeneity in the effect estimates across the studies [46, 47]. For the outcome of exclusive breastfeeding, the fixed effects model was used as the number of included studies was only two, which makes it inappropriate to perform the random-effects model because the precision in estimating variability in studies is limited [46, 48]. The weight of each study in the pooled estimates was calculated using the inverse of the variance. The potential variation between the primary studies was statistically estimated using Cochran's Q test and quantified by I^2 with significant heterogeneity to be deemed at p-value < 0.1 or $I^2 > 50\%$ [49, 50]. Since very few studies were included in the meta-analysis of each outcome, publication bias, subgroup analysis, and sensitivity analysis were not conducted [48, 51]. In this analysis, early initiation of breastfeeding, while a component of essential newborn care, was analysed separately to better understand how pregnancy intention specifically influences this practice. The studies used for the early initiation of breastfeeding analysis differed from those included in the broader essential newborn care analysis, ensuring that our findings on early initiation are based on a unique set of data. Furthermore, unwanted and mistimed pregnancies were used interchangeably if the original studies had reported one of the two instead of unintended pregnancy. Likewise, wanted and planned pregnancy were used interchangeably if the original studies had reported one of the two instead of intended pregnancy. All statistical analyses were executed using Stata statistical software version 18.

Results

The database searches produced a total of 231 records, with a further 4 articles identified from manual searches of bibliographies of relevant studies. After a comprehensive screening, eleven studies met the inclusion criteria and retained for the review [52–62]. The steps and outcomes of the study selection process are shown in the PRISMA flow diagram (see Fig. 1).

Studies characteristics

All the studies included in the review used cross-sectional study designs and were published between 2016 and 2022. A total of 18,781 study participants were involved in the original studies. Many studies ($n = 9$) were set in Ethiopia [52–54, 56, 57, 59–62]. Eight studies collected the data via face-to-face surveys developed from literature reviews [52–54, 57–60, 62], two studies used the demographic and health survey [56, 61], and the remaining one study used data from multiple indicator cluster survey [55]. Of the included studies in the review, eight studies employed multistage random sampling [52–56, 58, 59, 61], two studies used systematic random sampling [60, 62], and one study used simple random sampling to collect data [57]. Almost all ($n = 10$) of the studies were of good quality methodological rigour (7 or 8 stars) on the NOS assessment. The summary of the 11 papers is shown in Table 1.

Association between pregnancy intention and newborn and infant continuum of care

Three studies examined the association between pregnancy intention and essential newborn care practice [52–54]. The results of the meta-analysis showed that women whose pregnancy was intended were about three times (AOR: 3.04, 95% CI: 1.56, 5.90) more likely to practice essential newborn care as compared to women with unintended pregnancy (Fig. 2).

Three studies were included to estimate the association between pregnancy intention and early initiation of breastfeeding [55–57]. Meta-analysis of the three studies showed that women with intended pregnancy had 1.31 times (COR: 1.30, 95% CI: 1.13, 1.52) higher odds of early initiation of breastfeeding than women who had an unintended pregnancy (Fig. 3).

Two studies reported the association between pregnancy intention and exclusive breastfeeding [58, 59]. Meta-analysis of the two studies showed that women with an intended pregnancy had 2.21 times (AOR: 2.21, 95% CI: 1.68, 2.89) higher odds of exclusive breastfeeding than women who had an unintended pregnancy (Fig. 4).

Three studies reported the association between pregnancy intention and child immunisation status [60–62]. Accordingly, the pooled odds of being fully immunised was 2.73 times (AOR: 2.73, 95% CI: 1.16, 6.40) higher in children born from mothers with an intended pregnancy than children born from mothers with an unintended pregnancy (Fig. 5).

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Table 1 Characteristics of studies included in the review of the association between pregnancy intention and newborn and infant continuum of care in SSA, 2023

Authors, year	Study country	Study design	Study population	Sample size	NOS score	Reported outcome type	Outcome prevalence (%)	Pregnancy intention		Association of outcome with pregnancy intention (OR)	Controlled confounding factors
								Intended (%)	Unintended (%)		
Alemu and Eshete, 2020 [53]	Ethiopia	Cross-sectional	Mothers who had infants under six months of age	834	8	Essential newborn care	24.1	72.3	27.7	1.7 (1.2, 2.2)	Maternal education, employment, birth interval, and antenatal care
Chichiabellu et al. 2018 [54]	Ethiopia	Cross-sectional	Reproductive-age women who had given birth at home	450	8	Essential newborn care	24	14.9	85.1	7.0 (3.73, 11.81)	Receive antenatal care, advice about essential newborn care, postnatal care visits, residence, birth preparedness, knowledge about newborn danger signs, and knowledge about newborn care
Habte et al. 2022 [52]	Ethiopia	Cross-sectional	Mothers who had infants under six months of age	818	8	Essential newborn care	33.1	77.6	22.4	2.66 (1.56, 4.51)	Mother's age, mother's educational level, wealth index, family size, parity, birth preparedness and complication readiness plan, mode of delivery, timing of postnatal visits, knowledge on danger signs, time to reach nearby health facility, and attending monthly pregnant women conference

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Table 1 (continued)

Authors, year	Study country	Study design	Sample size	NOS score	Reported outcome type	Outcome prevalence (%)	Pregnancy intention		Association of outcome with pregnancy intention (OR)	Controlled confounding factors
							Intended (%)	Unintended (%)		
Apanga and Kumbeni, 2021 [55]	Ghana	Cross-sectional	3,466	7	Early initiation of breastfeeding	52.3	51	49	1.19 (1.04, 1.36)	Not adjusted
Gebremeskel et al. 2019 [57]	Ethiopia	Cross-sectional	809	7	Early initiation of breastfeeding	61.9	81	19	1.8 (1.25, 2.57)	Not adjusted
Gedefaw et al. 2020 [56]	Ethiopia	Cross-sectional	7,115	8	Early initiation of breastfeeding	75	74	26	1.3 (1.15, 1.49)	Not adjusted
Duarte Lopes et al. 2022 [58]	Cape Verde	Cross-sectional	1,765	8	Exclusive breastfeeding	32.5	-	-	1.06 (0.73, 1.54)	Maternal age, education, marital status, family income, residence, parity, prenatal care, number of prenatal visits, maternity leave, child's birth weight, breastfeeding in the first hour after delivery
Mamo et al. 2020 [59]	Ethiopia	Cross-sectional	725	8	Exclusive breastfeeding	65.4	61.3	38.7	4.73 (3.22, 6.95)	Marital status, residence, antenatal care, postnatal care attendance, mode of delivery, counselling on exclusive breastfeeding, sex of the child

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Table 1 (continued)

Authors, year	Study country	Study design	Study population	Sample size	NOS score	Reported outcome type	Outcome prevalence (%)	Pregnancy intention		Association of outcome with pregnancy intention (OR)	Controlled confounding factors
								Intended (%)	Unintended (%)		
Fenta and Fenta, 2021 [61]	Ethiopia	Cross-sectional	Women with children aged 12–23 months	1,929	9	Child's immunisation status	48.6	80.1	19.9	1.44 (1.08, 1.91)	Maternal education status, number of antenatal care visits, place of delivery, presence of vaccination card, maternal occupation, husband education status, husband occupational status, religion, wealth index, mother tetanus injections received, place of residence, community-level maternal education, community-level wealth index, community-level media exposure, the place of delivery, region
Gualu and Dilie, 2017 [62]	Ethiopia	Cross-sectional	Mothers with children aged 12–23 months	298	8	Child's immunisation status	91.7	78.8	21.2	2.89 (1.17, 7.17)	Mother's occupational status, child's sex, place of delivery, antenatal care, knowledge of time of vaccination schedule, and distance from the vaccination site

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Table 1 (continued)

| Authors, year	Study country	Study design	Study population	Sample size	NOS score	Reported outcome type	Outcome prevalence (%)	Pregnancy intention		Association of outcome with pregnancy intention (OR)	Controlled confounding factors
								Intended (%)	Unintended (%)		
Mebrate et al. 2022 [60]	Ethiopia	Cross-sectional	Mothers with children aged 12–23 months	664	8	Child's immunisation status	72.6	93.3	6.7	5.9 (2.4, 11.3)	Mother's age, educational status of the mother, district number of antenatal care visits, at least one postnatal care by a health care worker, number of children the mother has, child's age in months, attitude to vaccination, knowledge of vaccination schedule
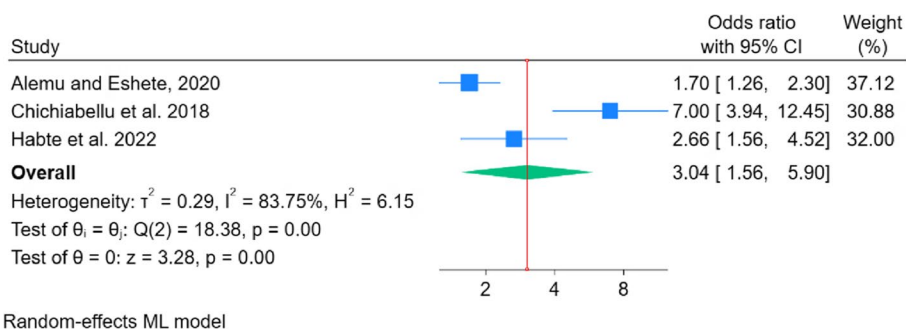
Fig. 2 Pooled odds ratio of the association between essential newborn care and pregnancy intention
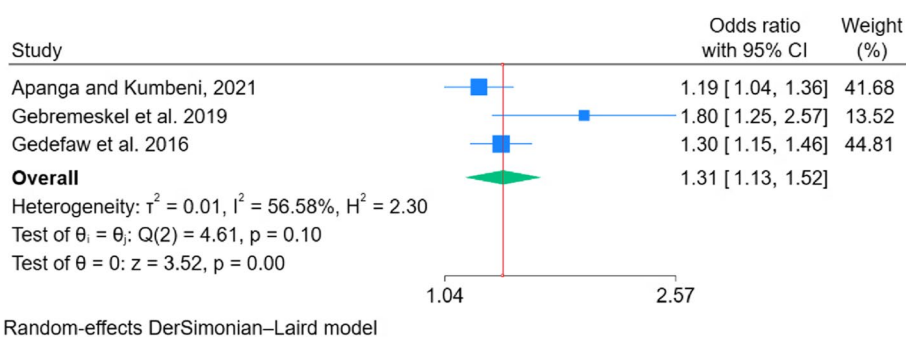

Fig. 3 Pooled odds ratio of the association between early initiation of breastfeeding and pregnancy intention
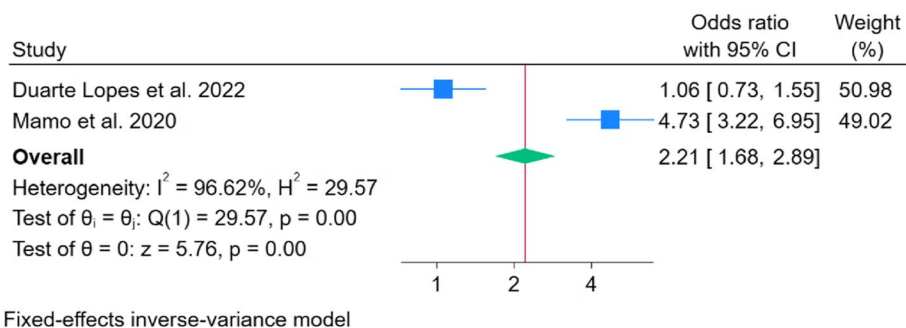

Fig. 4 Pooled odds ratio of the association between exclusive breastfeeding and pregnancy intention
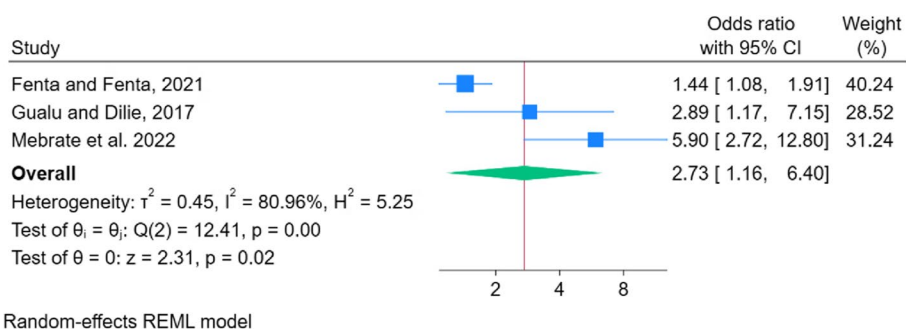

Fig. 5 Pooled odds ratio of the association between child immunisation status and pregnancy intention

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Discussion

Adjusted effect estimates were used to determine the association between pregnancy intention and newborn and infant continuum of care, including essential newborn care, early initiation and exclusive breastfeeding, and full immunisation. However, the studies did not control for the same mix of confounders. Furthermore, the association between pregnancy intention and early initiation of breastfeeding is likely to be affected by several other factors, as the analysis was executed based on an unadjusted effect measure. The results of the present meta-analyses did however suggest that intended pregnancy was associated with greater completion of essential newborn care practices, early initiation and exclusive of breastfeeding, and being fully immunised.

Women with intended pregnancy had higher odds of essential newborn care practice, early initiation and exclusive breastfeeding and fully immunised infants than women with unintended pregnancy. This could be explained by the fact that mothers with intended pregnancy may have greater psychological preparedness for providing care to their newborn infants [63]. Conversely, women experiencing an unintended pregnancy may not feel equipped to take on a maternal role, leading to poor mother-to-child attachment and low engagement with essential newborn practices [13, 64]. Previous studies have indicated that negligence, carelessness, aggression, and maltreatment of children were observed more often in mothers with unintended pregnancies [65, 66]. Furthermore, these women may have low health-seeking behaviour for themselves and their infants due to stress associated with unintended pregnancy, and less support from their partners or families [24, 67, 68]. Women who experience an unintended pregnancy may also receive little information and counselling regarding the benefit of appropriate newborn and infant feeding practices and care because of absent or delayed engagement with the continuum of perinatal health services [27, 69–72].

This review implies that preventing unplanned pregnancy may have an important role in improving essential newborn care, early initiation and exclusive breastfeeding, and completion of immunisation of infants in SSA and possibly other low-resource settings. The prevention of unintended pregnancy could be achieved through improving access to quality family planning services [73, 74]. Strengthening preconception services and information about the consequences of unintended pregnancy on newborn and infant health outcomes could improve newborn and infant health and survival [75]. Furthermore, counselling about maternal-child attachment in women with an unplanned pregnancy could contribute to better newborn and infant health outcomes [71].

Post-conception responses from partners, family and community members, and psychological consequences such as depression and anxiety following an unintended pregnancy possibly influence newborn and infant health care practices among women with unintended pregnancies [68, 76, 77]. Furthermore, women with unintended pregnancies may have several socioeconomic and cultural challenges to visiting health facilities [78, 79]. Previous studies in low- and middle-income countries reported that multiple visits to healthcare facilities, which require travel, money, and assistance from others, substantially deter women from using antenatal care, skilled birth attendance, and postnatal care following the occurrence of an unintended pregnancy [80–82]. Hence, encouraging perinatal service use and preventive and curative care of infants resulting from unintended pregnancies may require policies and practices that support identification of women with unintended pregnancies. Behavioural change approaches regarding unintended pregnancy also need to be considered at individual, family, and community levels [83–85]. This may reduce the humiliation of women from unsolicited post-conception responses from partner, family and community members following unintended pregnancies [86, 87].

This systematic review has the following limitations. In all the included studies, pregnancy intention was examined with other multiple determinants of newborn and infant continuum of care in cross-sectional studies for each outcome; it is thus not possible to establish causal effect relationships with certainty. Although there was significant heterogeneity among the included studies, addressing the sources of heterogeneity was not undertaken due to the limited number of studies included for each outcome. In addition, sensitivity analysis, publication bias and subgroup analyses were not conducted because of the limited number of studies included in each sub-topic. Furthermore, some studies were excluded due inconsistent categorisation of the exposure variable. Moreover, studies published in a language other than English and non-peer-reviewed articles may have been missed as only peer-reviewed articles published in English were included. While grey literature may exist on this topic, we included only peer-reviewed studies to ensure a robust approach and consistency across studies. Finally, the generalizability of this review may be limited because the included studies were not representative of all regions of SSA, with the majority of studies coming from Ethiopia. Nevertheless, this review used adjusted effect measures to quantitatively estimate the association between pregnancy intention on newborn and infant health across the continuum of care in SSA.

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Conclusions

This review pinpointed that there were statistically significant positive associations between intended pregnancy and increased completion of essential newborn care practices, early initiation and exclusive breastfeeding and full immunisation of infants in SSA. There is a need for collaboration among stakeholders, policy-makers and health care providers to strengthen the provision of quality family planning services and enhancing preconception care services to prevent unintended pregnancy. Furthermore, strategies that help identify women with unintended pregnancies are needed to increase women's access to essential maternal and neonatal/infant healthcare services that further reduce the risk of newborn and infant deaths. Moreover, further research with better design is needed to clearly understand the relationship between pregnancy intention and completion of newborn and infant health practices across the continuum of care.

Abbreviations

CINAHL	Cumulative Index to Nursing and Allied Health Literature
NOS	Newcastle-Ottawa scale
PROSPERO	International Prospective Register of Systematic Reviews
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SSA	Sub-Saharan African countries

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12887-024-05036-y.

Supplementary Material 1.

Supplementary Material 2.

Supplementary Material 3.

Availability of data and materials

All relevant data is included either in the manuscript or as supplementary files.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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