

Prevalence of exclusive breastfeeding practice in Ethiopia and its association with maternal employment: a systematic review and meta-analysis, 2019.

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Abstract

Background: Exclusive breastfeeding defined as the practice of providing only breast-milk for an infant for the first 6 months of life without the addition of any other food or water, which recommends initiation of breastfeeding within one hour of life and continued breastfeeding for up to 2 years of age or more. Maternal employment is the most important factor contributing to the low practice of exclusive breastfeeding. However; the effect of maternal employment on exclusive breastfeeding is not investigated in Ethiopia.

Methods: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline was used in this systematic review and meta-analysis. The databases used were; PubMed, Google Scholar, Science Direct, and Cochrane library were systematically searched. Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MASARI) was used for critical appraisal of studies.

Results: thirty-six studies were included in the final analysis after reviewing 541 studies in this meta-analysis yielding the pooled prevalence of EBF 59.76% (95% CI: 54.84, 64.68) in Ethiopia.

Those employed mothers were 57% less likely to practice exclusive breastfeeding in comparison to unemployed mothers in Ethiopia [OR] 0.43; 95% CI (0.3, 0.62).

Conclusions: The overall prevalence of exclusive breastfeeding in this meta-analysis is low in comparison to the global recommendation of the practice of exclusive breastfeeding. Maternal employment was significantly associated with the practice of exclusive breastfeeding in comparison to their counterparts. Based On our review findings, we recommended that the Ethiopian government should increase legislated paid maternity leave after delivery beyond current paid maternity leave and implement policies that empower women and create a conducive environment for mothers to practice exclusive breastfeeding at the workplace.

Background

Breast milk is the natural food for newborns and reduces infant mortality and morbidity. Breast milk also helps the newborn to attain normal growth and development. Not only for neonatal health but also breastfeeding has health benefits for mothers and it plays a great role in improving public health [1-3].

To help newborn get appropriate growth and development, in 2001(WHO) set up the recommendation that declares that mothers from both low income and high-income countries should exclusively breastfeed their infants for the first 6 months of life, and then make sure that the infants receive adequate and nutritious semi-solid foods in addition to breastfeeding until the infant reaches 2 years of age or more [4, 5].

Exclusive breastfeeding (EBF) defined as the practice of providing only breast-milk for an infant for the first 6 months of life without the addition of any other food or water, which recommends initiation of

breastfeeding within one hour of life and continued breastfeeding for up to 2 years of age or more accordingly. Exclusive breastfeeding (EBF) is the foundation of child survival and child health. It helps as a child's first immunization which is used for protection from respiratory infections, diarrheal disease, and other potentially life-endangering problems. Besides these Exclusive breastfeeding protects maternal obesity and certain non-communicable diseases later in her life [6, 7].

One of the targets of sustainable development goal (SDG) that was set in 2015 was to reduce the global maternal mortality ratio to less than 70 per 100,000 live births and to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under 5 mortality to at least as low as 25 per 1,000 live births by 2030[8].

But still, we are far behind to make exclusive breastfeeding during the first 6 months of life the norm for infant feeding. Currently, the worldwide prevalence of EBF for infants aged 0-6 months is only 38%. Different researchers indicate that 11.6% of mortality in children under 5 years of age was contributed by non-exclusive breastfeeding which was equivalent to about 804 000 child deaths in 2011[9,10].

In 2012, the World Health Assembly endorsed a Comprehensive implementation plan on the maternal, infant, and young child nutrition with specified six global nutrition targets for 2025 and from this, the fifth target states that, to increase the rate of exclusive breastfeeding in the first 6 months up to 50%. In 2018, only 31 of 194 countries were on the line to meet the global target of exclusive breastfeeding, which aims to increase the prevalence of exclusive breastfeeding to 50% for the infants under 6 months by 2025[11,12].

According to 2015 UNICEF, Breastfeeding Advocacy Initiative For the best start in life report, the rate of EBF is low with the aimed goal of 2015. accordingly the rate of EBF is (25,30,47,32,51,46,38)% in western and central Africa, East Asia and Pacific, South Asia, Central America and the Caribbean, eastern and southern Asia, least developed countries and worldwide respectively[13].

During the years between 1985 and 1995, global rates of exclusive breastfeeding raised by 2.4%. Twenty-five countries raised their rates of exclusive breastfeeding by 20% or more after 1995[14,15].

In addition to the above Cambodia and Malawi showed an increment of exclusive breastfeeding (EBF) from (11 to 74) % and (3 to 71) % respectively for infants less than 6 months between (1992 – 2010) [16].

Another study conducted in 13 western African countries and sub-Saharan countries showed the prevalence of exclusive breastfeeding for infants under 6 months of age ranges from 13.0% in Côte d'Ivoire to 58.0% in Togo and 45.2% in sub-Saharan countries respectively[17,18].

According to the result of the 2016 Ethiopian demographic health survey (EDHS), the prevalence of exclusive breastfeeding for infants under 6 months was 58% [19].

Worldwide around 600,000 children and 100,000 women die each year because of complications that could easily be prevented with breastfeeding. Besides this Millions of dollars have been lost to treat

children with different health problems such as diarrhea and pneumonia that can easily be prevented with only exclusive breastfeeding [20].

Globally 595 379 childhood deaths among (6 to 59) months of age from diarrhea and pneumonia each year were associated with the problem of not breastfeeding according to global recommendations of WHO and UNICEF for breastfeeding [21].

According to a study conducted In Latin America and the Caribbean countries, exclusive breastfeeding for the first 3 months of life can prevent 55% of infant deaths related to diarrheal disease and acute respiratory infection [22].

A study conducted in Bangladesh showed that Infants who were partially breastfed or not breastfed had a risk of diarrheal death 3.94 times greater than those exclusively breastfed infants [23]. Globally, more than 1.45 million lives were lost due to suboptimal breastfeeding in developing countries [24].

A study conducted in Ghana showed that the risk of neonatal death was fourfold higher in children given milk-based fluids or solids in addition to breast milk in comparison to those fed breast milk exclusively according to WHO recommendation [25].

According to the Federal Democratic Republic of Ethiopia, the Ministry of Health report, In Ethiopia up to 70,000 infant deaths were associated with problems of nonexclusive breastfeeding [26].

Inadequate rates of exclusive breastfeeding result from different factors. These factors include Inadequate maternity and paternity leave legislation that enforces the mothers returning early to work and other workplace policies that don't support a woman's ability to breastfeed when she returns to work plays a great role.

In addition to the above factors, caregiver and societal belief which favor nonexclusive breastfeeding before 6 months of age also affect adequacy and quality of exclusive breastfeeding.

To attain progress on the global exclusive breastfeeding target by 2025 women should be empowered to practice exclusively breastfeed, by providing 6 months of mandatory paid maternity leave [27].

Breastfeeding and work shouldn't be a dilemma for employed women. They should not have to decide between breastfeeding and working. The International Labour Organization states that countries should enact legislation giving women the right to 18 weeks of paid maternity leave and make sure that women have time and adequate space for continuing breastfeeding when they return to work [28].

Countries are expected to make policies that create a conducive environment for breastfeeding in the workplace and help women to breastfeed their children exclusively for the first 6 months and thereafter. Some Evidence shows that longer maternity leave helps the mothers to practice exclusive breastfeeding more as per WHO recommendations [29].

The governments of India and Viet Nam have been successfully protecting exclusive breastfeeding by the implementation of supportive policies that guarantee mothers to get six months' paid maternity leave. In addition to the above, both countries place strong legislation that prohibits the use of marketing breast milk substitutes, bottles, and teats before 6 months of infants age [30,31].

But, contrary to WHO recommendation, the Constitution of Ethiopia and Labour Proclamation, recommends employed mothers to get fully paid maternity leave of 120 working days only (30 days antenatal and 90 days postnatal) on the recommendation of the medical doctor and the proclamation doesn't support women to breastfeed in the workplace and the public area after they return to work which has its effect on good practice of exclusive breastfeeding [32].

In Ethiopia, many studies have been conducted to determine the prevalence of exclusive breastfeeding (EBF) and its associated factors between January 1/2015 to October 30/2019.

But the findings of these different studies documented that there was great variability in the prevalence of EBF across the regions of the country during the mentioned year in the above.

Concerning associated factors, these studies showed that different maternal and health service-related factors influenced EBF;

Maternal employment [33-50], Mode of delivery [34,39,41,42,43,45,50-54], Marital status [33,34,41,42,47,55,56,57], colostrum feeding [35,37,38,43,58,59,60,61], prelacteal feeding [34,38,43,55,57,62], age of mother [63,64,65,66,67], place of delivery [34,39,56,68] were some of the associated factors with practice of exclusive breast feeding (EBF).

From the above factors, we selected one factor (maternal employment) to investigate its effect on the practice of exclusive breastfeeding (EBF). We selected this factor because of the following reasons: The first reason is that maternal employment was the most important factor, which ultimately influencing EBF, especially in our country where the legislation of civil Service give only 4 months of paid maternity leave and enforce mother to return quickly to their job before 6 months after delivery. The second reason is that the primary studies conducted previously showed that controversial findings regarding the effect of maternal employment on EBF. among those primary studies some of them showed a negative association of maternal employment with exclusive breastfeeding with the presence of grate variation among them [33-38,41-50] and the rest studies showed a positive association of maternal employment with EBF [39,40]. Because of the above-mentioned factors, we intended to undertake this meta-analysis. As far as our knowledge is concerned, Even if there were small and fragmented studies, there is no published systematic review and meta-analysis which investigated the pooled prevalence of exclusive breastfeeding and its association with maternal employment between January 1/2015 to October 30/2019 which is in line with 3rd target of sustainable development goal by 2030 in Ethiopia. So, the purpose of this systematic review and meta-analysis was to estimate the pooled prevalence of EBF and its association with maternal employment in the context of Ethiopia.

This Systematic review will generate concrete evidence that helps policymakers and program planners to make an appropriate intervention and remold some policies concerning maternal employment and practice of exclusive breastfeeding for the best benefits of mothers and infants in Ethiopia.

Methods

Searching strategies

The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) [69] was used in our systematic review and meta-analysis to evaluate the pooled prevalence of exclusive breastfeeding practice and its association with maternal employment in the context of Ethiopia.

Databases, such as PubMed, Google Scholar, Science Direct, and Cochrane library were used for searching. ("exclusive breastfeeding" OR "Feeding, Breast"[MeSH Terms] OR "Breastfeeding"[MeSH Terms] OR "Breast Feeding, Exclusive"[MeSH Terms] OR "Exclusive Breast Feeding"[MeSH Terms] OR "Breastfeeding, Exclusive"[MeSH Terms] OR "Exclusive Breastfeeding"[MeSH Terms] AND ("factors" OR "determinants")) AND Ethiopia was some of the search keywords in this systematic review and meta-analysis research.

The above terms were applied individually and together with each other using Boolean operators like "OR" or "AND". We performed this search from September 11/2019 to October 30, 2019. The whole number of primary studies published until October 30, 2019, were used in this systematic review and meta-analysis.

Eligibility criteria

Inclusion criteria:

- Only studies conducted in Ethiopia.
- All papers published in peer-reviewed journals.
- Any observational study design such as Cross-sectional, case-control, and cohort which report the prevalence of EBF or associations between maternal employments with EBF were considered.
- All primary papers that reported necessary information on the prevalence of exclusive breastfeeding or the primary studies reported data on the association of maternal employment with exclusive breastfeeding were included.
- All primary studies stated in the English language were included.
- Only studies published from January 1/2015 to October 30/2019 were considered.

Exclusion criteria

- Study Conducted in women with HIV/AIDS, preterm newborns, and newborns in an intensive care unit were excluded.
- Study with abstracts without full text and Qualitative studies, symposium/conference, case reports.

- Primary studies, which were not obtained, even if the investigator made repetitive Email contact.

Outcome measurement

The primary outcome of this review was the Prevalence of Exclusive Breastfeeding practice among mothers with infants less than 6 months. Exclusive breastfeeding (EBF) is defined as the practice of providing only breast-milk for an infant for the first 6 months of life without the addition of any other food or water, except for vitamins, mineral supplements, or medicines [6]. The other outcome was to investigate the association between maternal employment and exclusive breastfeeding and we calculated the log odds ratio based on the results of the primary studies.

Data extraction: Standardized data extraction format, which was adopted from the JBI data extraction format was applied. Two authors (GE and YM) independently collected all the needed information. Any unclear information and disagreement which arises between the

Reviewers during data abstraction were resolved through discussion and concurrence. Data was collected on the following variables: primary author, publication year, and study Area, study design, sample size, the prevalence of exclusive breastfeeding, and the quality score of primary studies.

Quality assessment: The Joanna Briggs Institute Critical Appraisal tools for use in JBI Systematic Reviews (JBI-MASARI) was used for critical appraisal of primary studies [70]. The tool has 8 major criteria for critical appraisal of each primary study. Accordingly primary studies with a score of 50% and above included in the Meta-analysis research.

Statistical analysis and methods: Data were entered in Microsoft Excel, then exported to STATA version 11 software for further analysis. Heterogeneity concerning reported prevalence was assessed by computing p-values for Cochrane Q-statistics and I² tests and I² test statistics of 25%, 50%, and 75% were declared as low, moderate, and high heterogeneity respectively [71].

The pooled prevalence of exclusive breastfeeding with a 95% confidence interval (CI) in this meta-analysis was presented with the Forest plot. Besides, subgroup analysis was done by the publication year of primary studies and an administrative area (region) in Ethiopia. We checked Publication bias by funnel plot and Egger's and Begg's tests subjectively and objectively respectively and a p-value less than 0.05 was used to declare the statistical significance of publication bias [72]. Ln odds ratio was applied to examine the association between maternal employment and EBF in Ethiopia.

Results

As described in Fig.1, 541 studies were identified regarding EBF in Ethiopia through PubMed, Google Scholar, Science Direct, and others initially. Then 90 studies were excluded because of duplication. From the remaining 451 studies, 200 articles were excluded after reviewing their titles based on assessment

because of a lack of relevance to the current study. The rest 251 records were screened by abstracts and this made 198 records to be excluded. Furthermore, 53 full-text records were screened for the fulfillment of the stated inclusion criteria. After all 17 articles were excluded due to lack of fulfillment of inclusion criteria. Amid excluded studies, three of the studies were excluded because of missing of the outcome of interests [73, 74, 75]. Two studies conducted among HIV infected mothers [76, 77]. The rest 12 articles were excluded because of publication year; one Study published in 2009[78], two studies were published in 2012[79,80],three of the studies were published in 2013[81,82,83],six studies were published in 2014[84,85,86,87,88,89]. Eventually, 36 studies included in the systematic review and meta-analysis after we checked for inclusion criteria.

As displayed in Additional file1: Table S1, entire of these thirty-six studies were published between January 1/2015 to October 30/2019. A total of 27907 breastfeeding women were included in our Meta-analysis and systematic review. Thirty-three of the studies were cross-sectional study design. The lowest and highest sample size included the studies found between 226 and 5,227 respectively. A study conducted in Addis Ababa, Ethiopia (29.29%) [54], and a study conducted in Bahir dar, Amhara Region, Ethiopia (86.44%) [35] Reported lowest and highest prevalence of exclusive breastfeeding respectively. From nine an administrative area (regions) of Ethiopia, primary studies from seven administrative areas and one council city were included in this meta-analysis.

Among all of included primary studies, Twelve of these studies were from Amhara [34-43,55,68], two from Addis Ababa [52,53], three from Affar [33,58,63], three from Oromia [45,64,65], twelve from SNNP [46-48,51,52, 54,57, 59, 60,61,62,66], one from Tigray [67], one from Somalia[49],one from Harari[44]and one from nationwide[50]. We didn't find any study representing Benishangul Gumiz,Gagmbela and Dire dawa council city in this review research. Regarding the quality score of each primary study, the score was between the lowest 4 and highest 8.

Meta-analysis

Pooled Prevalence of exclusive breastfeeding in Ethiopia

The pooled prevalence of EBF in Ethiopia from 36 included studies is 59.76% (95% CI: 54.84-64.68) (fig.2). The I² test result indicated high heterogeneity among included studies (I² 98.7%, p = <0.000), because of this high heterogeneity the random effect model was used. In our review research, Belachew et al (86.44%) and shiferaw et al (29.29%) reported the highest and lowest prevalence of exclusive breastfeeding respectively (fig.2).

Subgroup analysis

A subgroup analysis was done by an administrative area (region) in Ethiopia and the year of publication to compare the prevalence of exclusive breastfeeding across different studies. This systematic review and meta-analysis showed that the highest prevalence reported in a study conducted in Somalia 71.16% (95% CI: 67.39, 74.91) (Table.2) and a study published during (2015-2016) 64.60 % (52.90, 76.30) (fig.3).

Table 2. The subgroup analysis for the prevalence of exclusive breastfeeding by administrative area (region) in Ethiopia, 2019 (n = 36)

bles	Characteristics	Number of Included study	Prevalence (95% CI)	I2	p-value
gion	Addis Ababa	2	36.84(22.02,51.26)	95.8%	<0.001
	Affar	3	70.01(53.36,86.66)	98.8%	<0.001
	Amhara	12	58.81(49.58,70.04)	99.2%	<0.001
	Harari	1	40.94(36.27,46.62)	-	-
	Nationwide	1	59.91(58.36,61.46)	-	-
	Oromia	3	66.47(40.21,90.71)	99.4%	<0.001
	SNNP	12	59.31(52.49,66.14)	96.8%	<0.001
	Somalia	1	71.16(67.39,74.91)	-	-
	Tigray	1	70.19(66.29,74.08)	-	-

Association between maternal employment and exclusive breastfeeding in Ethiopia: in this review, we assessed the association between maternal employment and EBF practice using eighteen primary studies [33-50]. The final finding of these primary studies indicated that the practice of EBF was significantly associated with maternal employment. Those employed mothers were 57% less likely to practice exclusive breastfeeding in comparison to unemployed mothers [OR] 0.43 (95% CI: 0.3-0.62) (fig.4).

A random-effect model was applied to examine the association between maternal employment and EBF in Ethiopia since High heterogeneity (I2 = 85.8% and p-value < 0.000) was observed across the included records.

We also assessed publication bias subjectively using the funnel plot and objectively using Begg's and Egger's tests respectively in this meta-analysis. Even if the funnel plot showed the presence of publication bias, Begg's and Egger's tests showed the absence of significant publication bias (p-value>0.544 and p=0.190) respectively (fig.5).

Discussion

To our knowledge, this is the first systematic review and meta-analysis research examining the impact of maternal employment on exclusive breastfeeding in Ethiopian using a study published between 2015 -2019. The main aim of this systematic review and meta-analysis research was to estimate the pooled prevalence of exclusive breastfeeding and its association with maternal employment in Ethiopia among study conducted between January 1/2015 and October 30/2019.

Breastfeeding is core is part of the 2030 Agenda for Sustainable Development goal which is linked with many targets of Sustainable Development Goals (SDGs) especially with 3rd target which deals with ending preventable maternal and neonatal death [8]. This type of meta-analysis plays a great role for program planners and policymakers to make all mothers practice optimum breastfeeding practice in Ethiopia according to WHO recommendation and helps to end preventable maternal and neonatal death.

According to the results of 36 studies included in this meta-analysis the pooled prevalence of exclusive breastfeeding in Ethiopia is 59.76 % (95% CI=54.84, 64.68).

The overall prevalence of exclusive breastfeeding in this study is almost similar with the result of the 2016 Ethiopian demographic and health survey (EDHS) result (58%) [19] And the result of a meta-analysis conducted in Ethiopia (59.31%) [90]. This similarities could be attributed to similarities in socio-demographic, methodological, and the characters of individual studies included in both review and EDHS reports. The overall reported prevalence of EBF in this review is higher than the result of meta-analysis result conducted in Iran (49.1%) [91] and 29 sub-Saharan African countries, which showed the prevalence of EBF (23.70% in Central Africa) and (56.57% in Southern Africa) [92]. The pooled prevalence in this review is also higher than the results of the study conducted in 27 sub-Saharan African countries (SSA) (36%) [93], Demographic and health survey of Tanzania (22.9%) [94], demographic and health survey of Madagascar (48.8% [95] and study conducted in developing countries (39%) [96].

This variation might be because of methodological differences, differences in infants and maternal socio-demographic characteristics, economical, health service utilization, the gap of the year at which the study was conducted, and the number of studies included in the review.

Again the overall prevalence of exclusive breastfeeding in this research is much higher than the results of primary study conducted in Bangladesh (5%) [97], Southern Brazil (43.7%) [98], Lebanon (27.4%) [99], Al Hassa, Saudi Arabia (12.2%) [100], Tamil Nadu India (34%) [101], Canada (15.3%) [102], Tabuk Saudi Arabia (31.4%) [103]. This difference might be because of methodological differences and differences in health service utilization and health service coverage. But the overall prevalence exclusive breastfeeding in our review is lower than the result of the primary study conducted in Indian regions, which indicated the prevalence of exclusive breastfeeding was (79.2% in southern India and 68.0% in northeastern India) respectively [104], Nepal demographic and health survey result (66.3%) [105], and the result of the study conducted in Ghana (64%) [106].

Besides, we performed sub-group analysis based on the study areas or Regions in Ethiopia where the studies were conducted and year of publication of the primary studies. Accordingly, the highest (71.16%) and lowest (36.84%) prevalence of exclusive breastfeeding was reported in a study conducted in Somalia and Addis Ababa City respectively. This regional difference of prevalence of exclusive breastfeeding might be because of differences in socio-demographic, the difference in numbers of the study included the two regions during analysis. In addition to the above, in the study conducted in the Somalia region, a large number of study participants were unemployed mothers and according to different literature, unemployment is associated with a high prevalence of exclusive breastfeeding practice [41, 84].

We also performed a subgroup analysis using a year of study publication. Accordingly, the highest (64.60%) and lowest (57.05%) prevalence of exclusive breastfeeding were reported in the study published during 2015-2016 and 2017-2019 respectively. This difference could be attributed to the difference in coverage of health information regarding exclusive breastfeeding and effective utilization of health

extension workers, adherence to the national and international policy by health institutions [107]. Also, this difference might be attributed to the number of studies included in each category during analysis.

Maternal employment was significantly associated with exclusive breastfeeding in this systematic review and meta-analysis research. Accordingly, Employed mothers were 57% less likely to practice exclusive breastfeeding as compared to unemployed mothers. This result is in line with the results of the primary study conducted in Lebanon [99], a study conducted in Iran [108], a study conducted in Malaysia [109], a study conducted in Saudi Arabia [103] and the study conducted in Somalia [110].

This similarity could be attributed to Mothers who returned to work at an earlier time before 6 months have less frequency of contact with their baby and employed mothers begin liquid and solid based supplementation of food before the expected age of starting weaning food which will end up with the decreased practice of exclusive breastfeeding [111].

Some evidence showed that employed mothers face unique barriers to practice exclusive breastfeeding and returning to work too early after the birth has been shown to harm the practice of exclusive breastfeeding. one study showed that the more we increase the legislated duration of paid maternity leave, the more the mothers practice exclusive breastfeeding and this will result in a higher prevalence of exclusive breastfeeding [112,113,114].

Limitations of the study: like other studies, our systematic review and meta-analysis research has some limitation. Among these; majorities of the primary study included in the review were cross-sectional study which might affect the outcome variable because of other confounding factors, studies published in a language other than English were not included in the review, the review addressed only one associated factor (maternal employment) on exclusive breastfeeding and the last limitation is that the review included some studies with small sample size which might affect the pooled report of exclusive breastfeeding.

Conclusions

The overall prevalence of exclusive breastfeeding in this meta-analysis is low in comparison to the global recommendation of the practice of exclusive breastfeeding.

Maternal employment was significantly associated with the practice of exclusive breastfeeding in comparison to their counterparts. Based On our review findings, we recommended that the Ethiopian government should increase legislated paid maternity leave after delivery beyond current paid maternity leave and implement policies that empower women and create a conducive environment for employed mothers to practice exclusive breastfeeding at the workplace.

Abbreviations

AIDS: Acquired Immune Deficiency Syndrome; CI: Confidence Interval; EBF: Exclusive breastfeeding; EDHS: Ethiopian demographic health survey; HIV: Human immunodeficiency virus; HSTP: Health Sector Transformation Plan; JBI: Joanna Briggs Institute; JBI-MAStARI: Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument; MMR: Maternal mortality ratio; NM: Neonatal mortality; OR: Odds ratio; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; SDG: sustainable development goal; SNNP; Southern Nations, Nationalities, and Peoples'; SSA: Sub Saharan African; UNICEF: United Nations International Children's Emergency Fund; WHO: world health organization.

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

Datasets used for this study and other supplementing materials are available from the corresponding author on request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

GE: Conception of the research protocol, study design, literature review, data extraction, data analysis, interpretation, and drafting of the manuscript. YM: data extraction, quality assessment, data analysis, and reviewing the manuscript. Both authors have read and approved the manuscript.

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Not applicable

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Additional File Legends

Additional file1: table S1: Descriptive summary of 36 studies included in the meta-analysis of the prevalence of exclusive breastfeeding in Ethiopia, 2019.

Additional file2: PRISMA 2009 check list that insure uniformity of systematic review.

Figures



PRISMA 2009 Flow Diagram

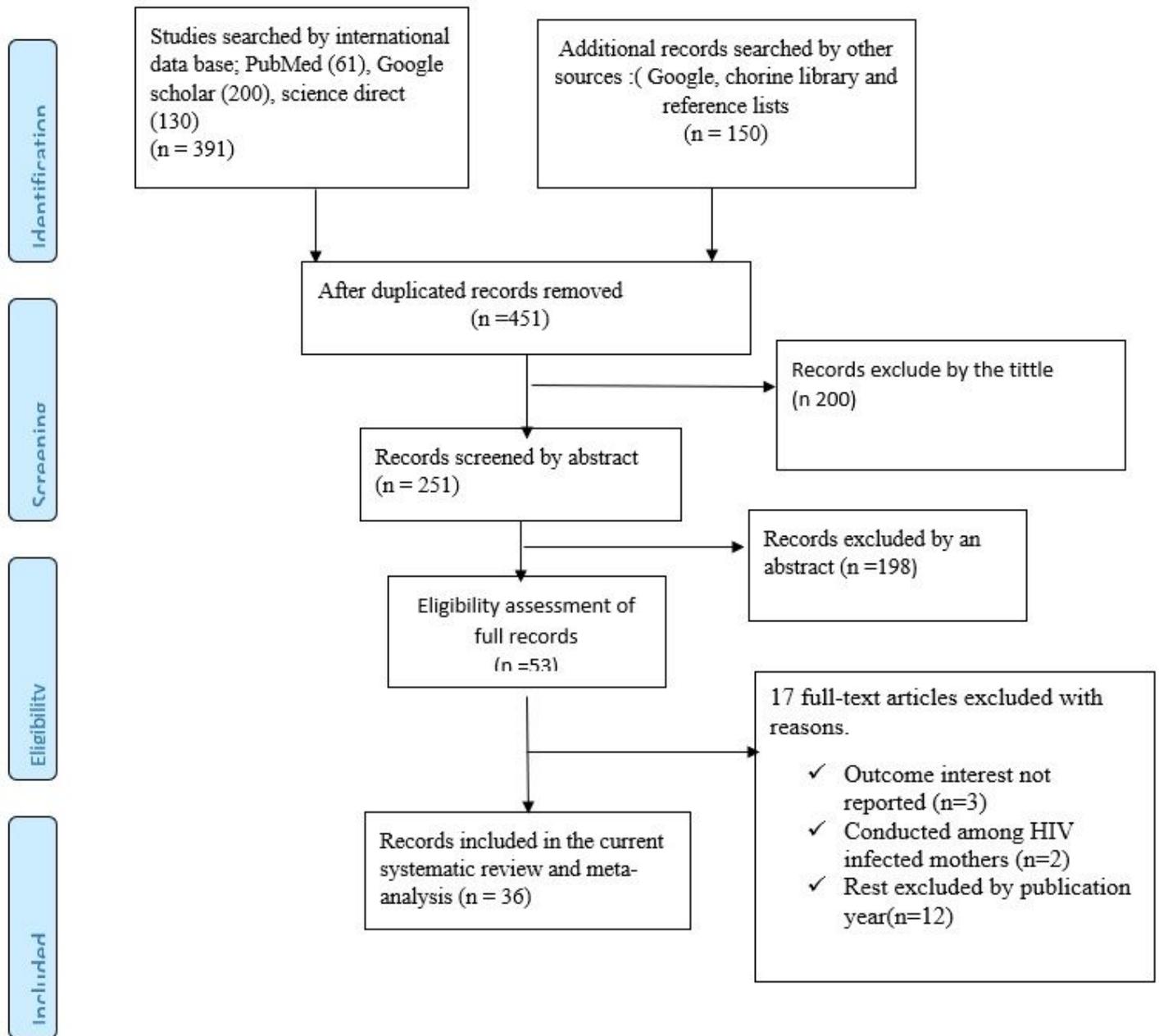


Figure 1

Flow diagram of studies included in systematic review and meta-analysis, 2019.

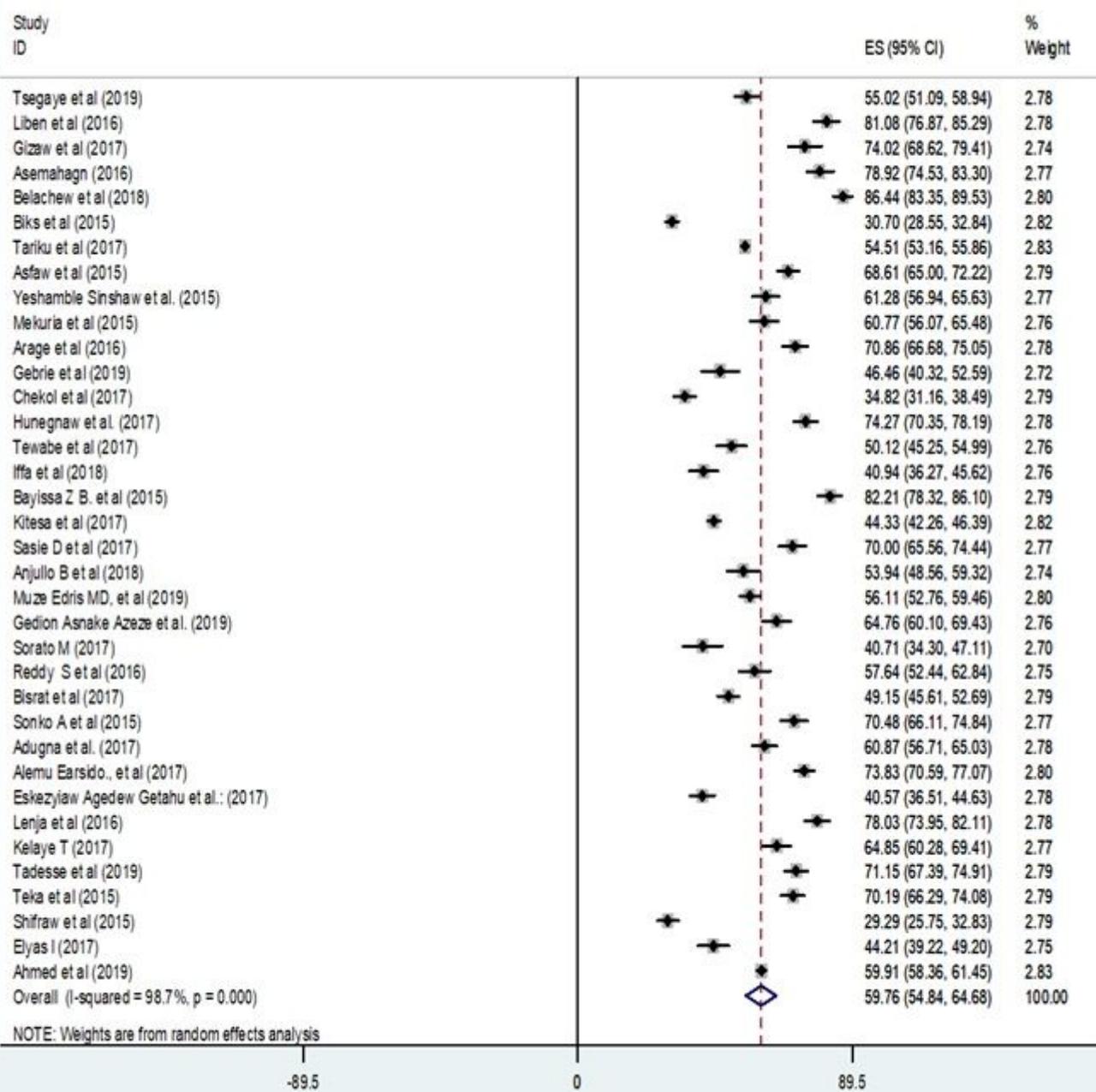


Figure 2

Forest plot displaying the pooled prevalence of exclusive breastfeeding of 36 studies in Ethiopia, 2019.

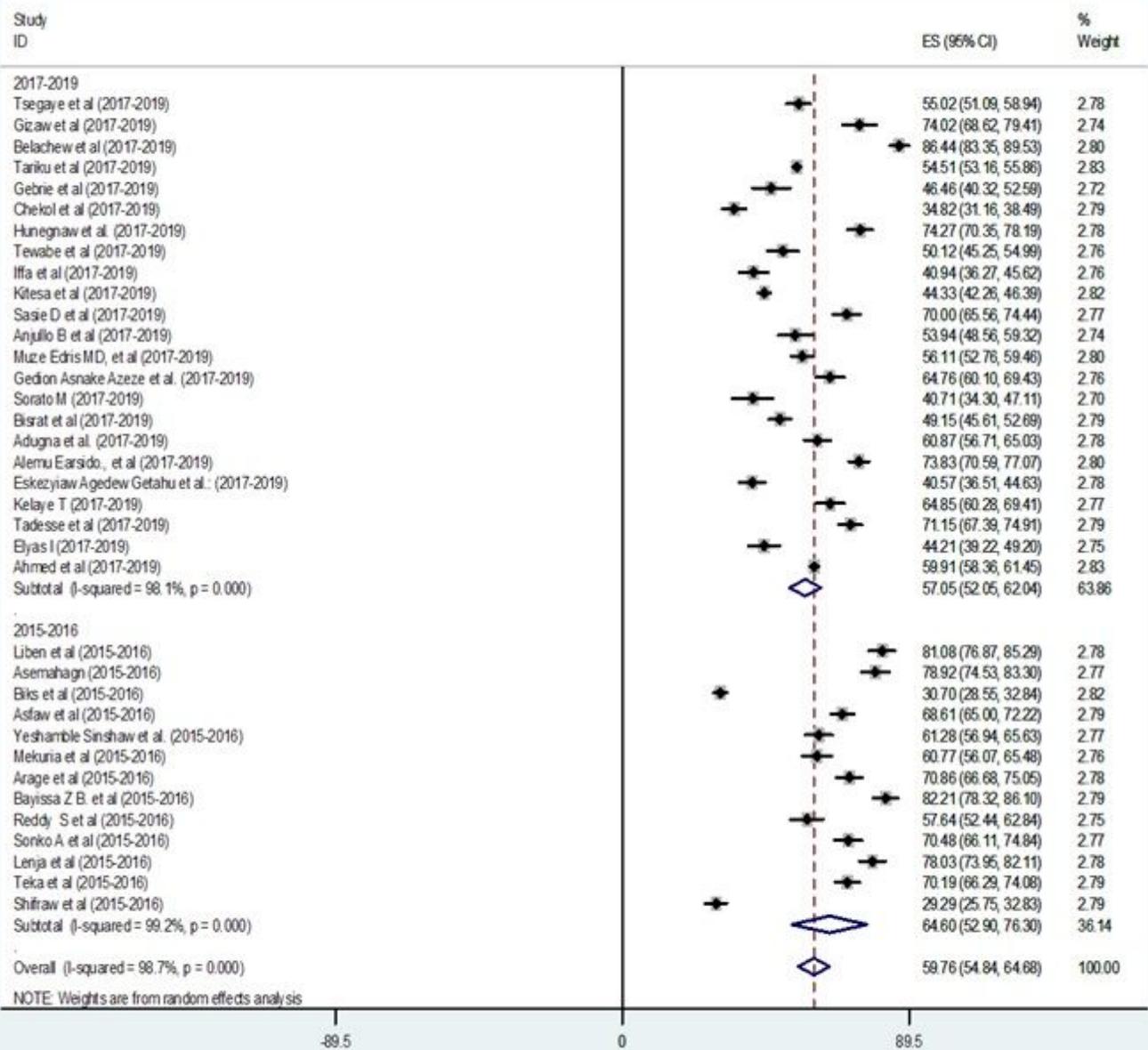


Figure 3

The subgroup analysis for the prevalence of exclusive breastfeeding by year of publication in Ethiopia, 2019 (n = 36).

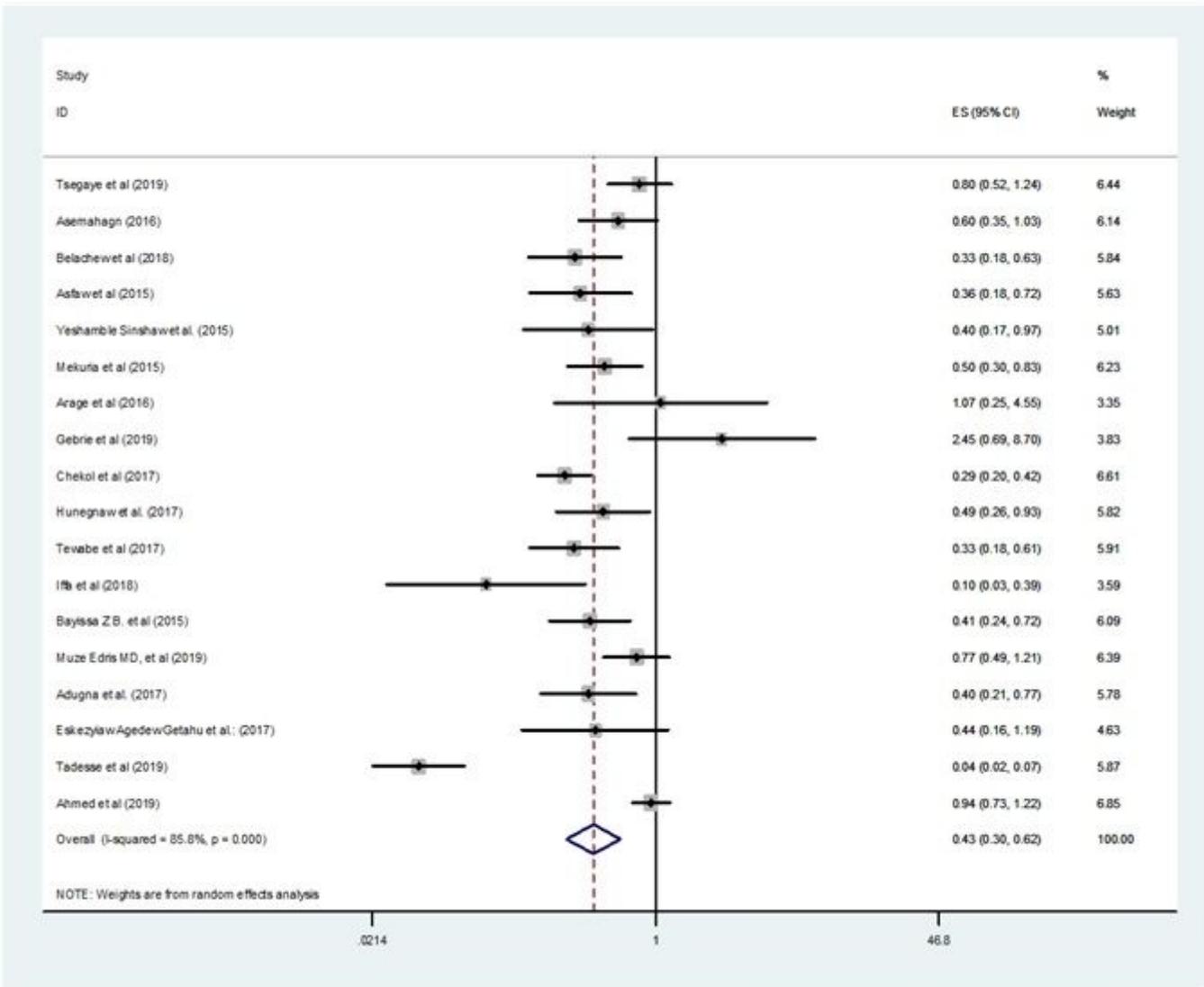


Figure 4

The pooled odds ratio of the association between maternal employment and exclusive breastfeeding in Ethiopia in 2019.

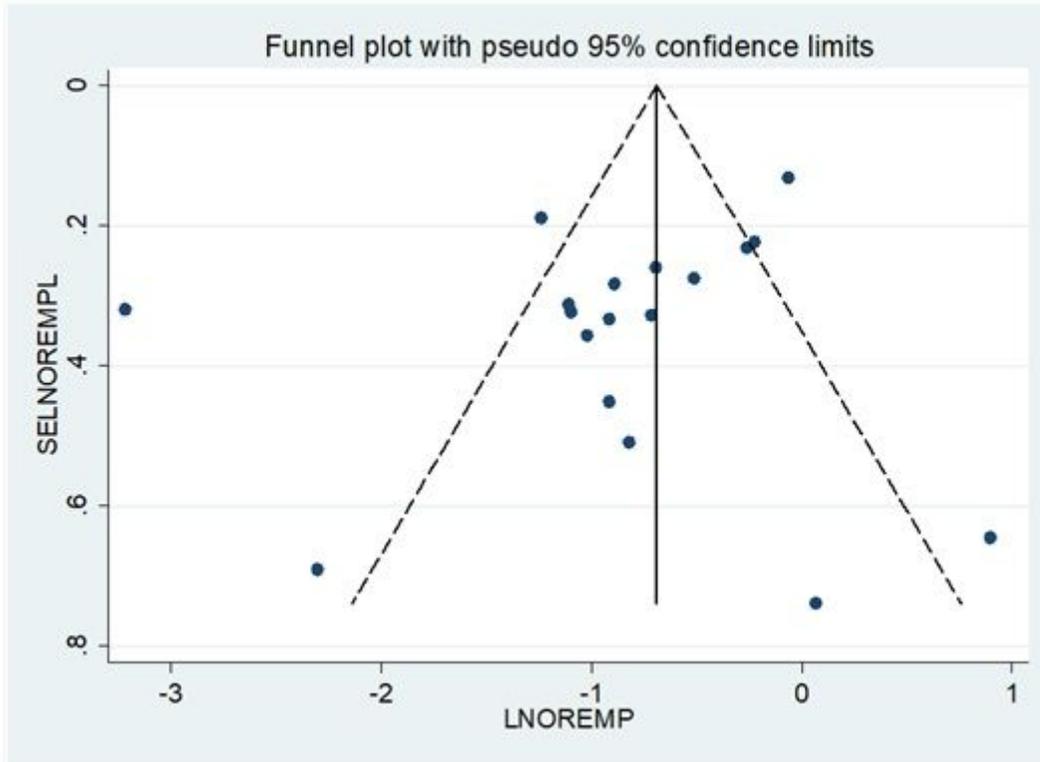


Figure 5

Funnel plot for publication bias, LNOREMP represented in the x-axis and standard error of LNOREMP on the y-axis

Supplementary Files

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