

Poor Newborn Outcomes of Breastfeeding During Pregnancy: A Systematic Review and Meta-Analysis



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Abstract— Background: The poor newborn outcomes of breastfeeding during pregnancy have not been clearly established. The aim of this study was to determine poor newborn outcomes of breastfeeding during pregnancy. **Methods:** A meta-analysis was undertaken to review current studies related to poor newborn outcomes of breastfeeding during pregnancy. A search of PubMed, and ProQuest for related articles published (January 2000 until November 2022). The pooled mean difference from the acquired data were calculated with a 95% CI. The fixed and random effects analysis was performed. The results were presented as forest plots, and Egger's test was used to examine study bias. Review Manager (RevMan) 5.4 and STATA 14.2 were used to process and analyze all of the data. **Results:** Breastfeeding during pregnancy is not related to the baby's body length ($p>0.05$). However, there was an association during breastfeeding pregnancy with birth weight, where the difference in birth weight between the case and control groups was -251.36 gr (95% CI - 701.51-198.79 gr). The heterogeneity analysis revealed heterogeneous in birth weight outcomes of breastfeeding during pregnancy ($I^2 > 50\%$). **Conclusion:** There was an association during breastfeeding pregnancy with birth weight. This study can provide input in the preventing and promoting management to reduce the poor prognosis during pregnancy.

Keywords: Breastfeeding, pregnancy, newborn, outcome

Introduction

The World Health Organization (WHO) advocate for breastfeeding. This organization advocate for exclusive breastfeeding for the first six months, followed by breastfeeding augmented by other foods for at least two years following birth [1]. Breastfeeding has numerous proven health advantages [2]. However, there is frequently a significant cultural taboo when nursing occurs throughout pregnancy, and many mothers wean their children when they become pregnant again, some on the basis of their own convictions, others under social pressure or with the advice of professionals [3-5]. Fear of spontaneous abortion or premature birth as well as the fear of a rapid loss of maternal nutrients, which could increase the risk of malnutrition for mothers, firstborns, and newborns, are among the most prevalent worries of mothers and practitioners when breastfeeding overlaps with pregnancy [4,6].

A complete overlap of lactation during pregnancy reduces the amount of milk produced overall during the following lactation, according to research on dairy cows. It seems sense to wonder if women are similarly affected and whether this might have an impact on the development of a breastfed child [7].

The effects of breastfeeding during pregnancy have not yet been thoroughly studied in humans.⁶ Even though the studies that are currently available have only examined

discrete aspects of breastfeeding during pregnancy, such as newborn outcomes, the reviews that have been conducted on the topic are only partial systematic reviews done in single studies [8]. It is necessary to gather the findings of previous research in order to come to a comprehensive conclusion that can be utilized as a foundation for designing and developing intervention programs. A review is needed to explore poor newborn outcomes of breastfeeding during pregnancy as the key strategies for preventing poor outcomes.

Materials and Methods

1.1 Study design and research sample

A meta-analysis was undertaken to review current studies related to poor newborn outcomes of breastfeeding during pregnancy. This study follows the preferred reporting items for systematic reviews and meta-analysis (PRISMA) guidelines [9].

1.2 Eligibility criteria

Only original publications with a case-control or cohort study design, English language, and human participants as study subjects were included. Unavailability of a full-text version, inappropriate topics, and data from articles that could not be used for further examination were among the study's exclusion criteria.

1.3 Search approach and study collection

A search of PubMed, and Pro Quest for related articles published (January 2000 until November 2022) with three main keywords “pregnant women” AND “breastfeeding” AND “newborn outcome. In this study, newborn outcomes was the outcome variable. The exposure variable was breastfeeding during pregnancy. Two independent investigators conducted the literature search. The duplicates were manually eliminated after the initial search, and the title/abstracts were screened for any relevance. The full texts of potential articles were then assessed using the criteria.

1.4 Data extraction

Two different authors used structured extraction forms to obtain data. The processes of searching for research articles were depicted using PRISMA flowcharts (Figure 1).

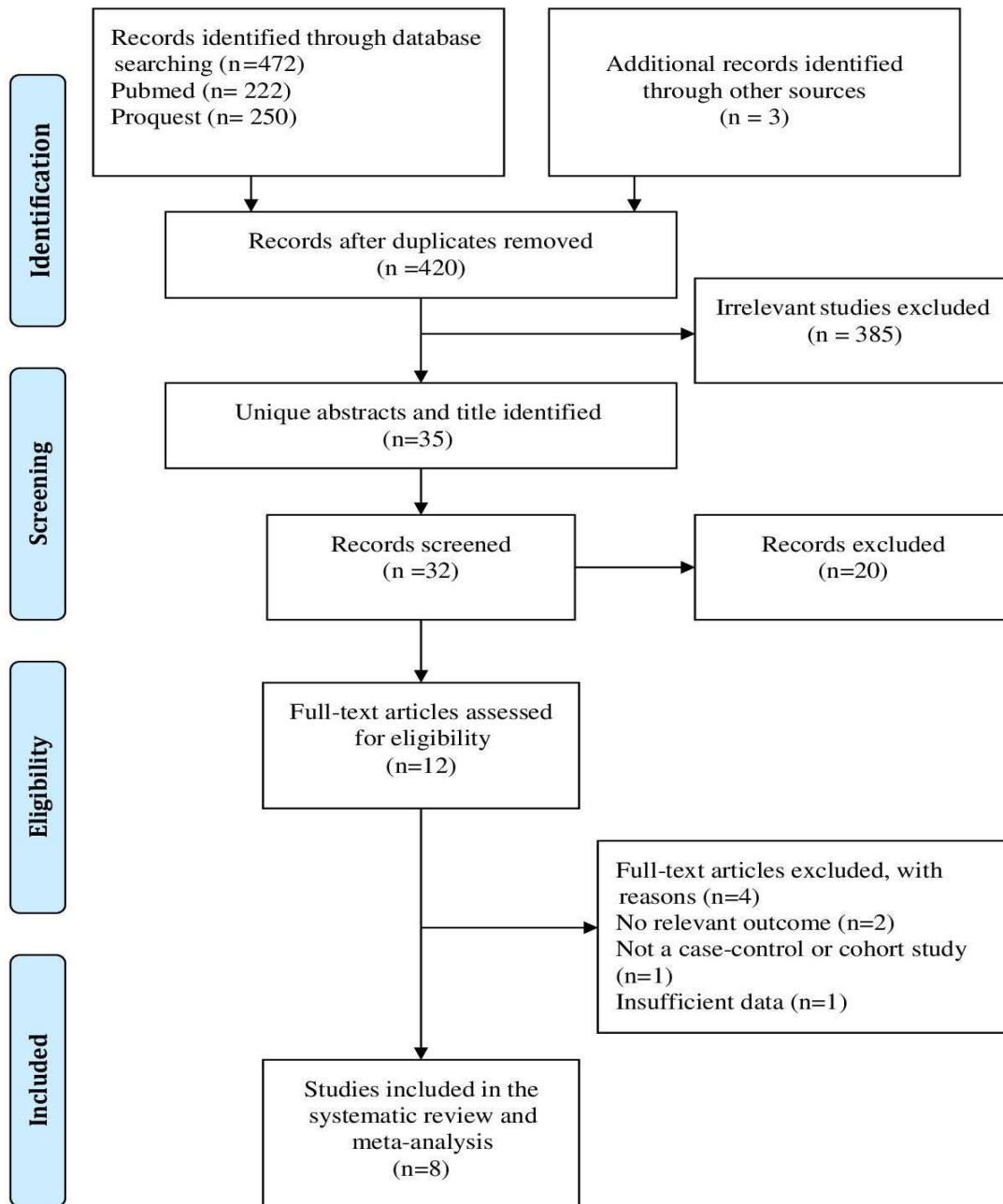


Figure 1. PRISMA flowchart

The quality of the publications was evaluated using the Newcastle-Ottawa Quality Assessment Scale (NOS). Articles were categorized into low, medium, and high-quality groups using the numbers 0–3, 4–6, and 7–9 [10].

1.5 Data analysis

The pooled mean difference from the acquired data were calculated with a 95% confidence interval (CI). I^2 indicates that there was heterogeneity between publications if it was greater than 50%. If the outcome was heterogeneous, the random effect analysis was performed, and if it was homogeneous, the fixed-effect analysis was utilized. Furthermore, the findings were presented as forest plots, and Egger's test was used to identify study bias. There was no publication bias among the studies, according to the $p > 0.05$ findings of the two tests. Review Manager (RevMan) 5.4 and STATA 14.2 were used to process and analyze all of the data.

2. Results

Eight current studies were considered in this systematic review research on poor newborn outcomes of breastfeeding during pregnancy (Table 1). The total sample from the included studies was 2,075 subjects [3,5,11-16]. This study revealed poor newborn outcomes of breastfeeding during pregnancy were infant growth and birth weight.

Table 1. Systematic review on poor newborn outcomes of breastfeeding during pregnancy

First author	Region	Design	Sample size	Characteristics	Outcome(s)
Marquisetal (a) ^[11]	Peru	Cohort	Cases (n=68); control (n=65)	Multiparous pregnant women, aged for cases group was 25.9±5.5 years and aged for control group was 25.9±4.7 years	Infant growth
Marquisetal (b) ^[12]	Peru	Cohort	Cases (n=68); control (n=65)	Multiparous pregnant women, aged for cases group was 25.9±5.5 years and aged for control group was 25.9±4.7 years	Infant growth

Parejaet al ^[13]	Peru	Case-control	Cases (n=78); control (n=15)	Multiparous pregnant women, aged for cases group was 26.2±5.9 years and aged for control group was 27.8±6 years	Birthweight
Madarshahian et al ^[5]	Iran	Case-control	Cases (n=80); control (n=24)	Multiparous pregnant women, aged for cases group was 28.4±4.6 years and aged for control group was 29.6±5.7 years	Birthweight
Sengul et al ^[14]	Turkey	Case-control	Cases (n=39); control (n=22)	Multiparous pregnant women, aged for cases group was 25.3±4.4 years and aged for control group was 23.2±3.3 years	Birthweight
Albadranet al ^[15]	Iraq	Case-control	Cases (n=21); control (n=28)	Multiparous pregnant women, aged for cases group was 27.6±0.28 years and aged for control group was 27.9±0.27 years	Birthweight

Ayrim et al ^[3]	Turkey	Case-control	Cases (n=45); control (n=12)	Multiparous pregnant women, aged for cases group was 24.3±4.9 years and aged for control group was 23.2±3.3 years	Birthweight
Shaabanet al ^[16]	Egypt	Case-control	Cases (n=27); control (n=27)	Multiparous pregnant women, aged for cases group was 28.82±6.18 years and aged for control group was 30.5±5.20 years	Birthweight

Meta-estimate of poor newborn outcomes of breastfeeding during pregnancy (Figure2).

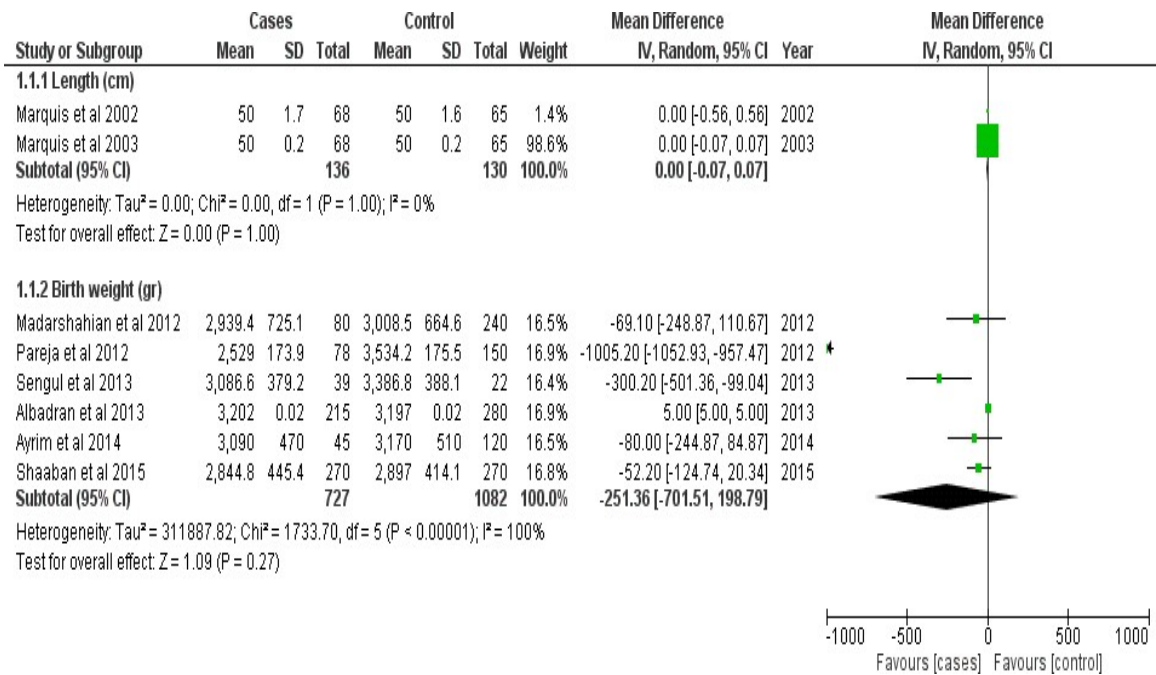


Figure2.Meta-estimate of poor newborn outcomes of breastfeeding during pregnancy

Figure2 shows that breastfeeding during pregnancy is not related to the baby's body length($p>0.05$). However, there was association during breastfeeding pregnancy with birth weight, where the difference in birth weight between the case and control groups was -251.36gr (95%CI-701.51-198.79gr). The heterogeneity analysis revealed heterogeneous in birth weight outcomes of breastfeeding during pregnancy($I^2>50%$).

Publication bias of poor newborn outcomes of breastfeeding during pregnancy (Table2andFigure3).

Table2.Publication bias of poor newborn outcomes of breastfeeding during pregnancy

Newborn outcomes	Egger's test ^a
Length(cm)	0.051
Birth weight(gr)	0.067

a, Egger's test, $p<0.05$ considered significant.

The results of Egger's test revealed that newborn outcomes (length and birth weight) had no study bias among publications included ($p > 0.05$).

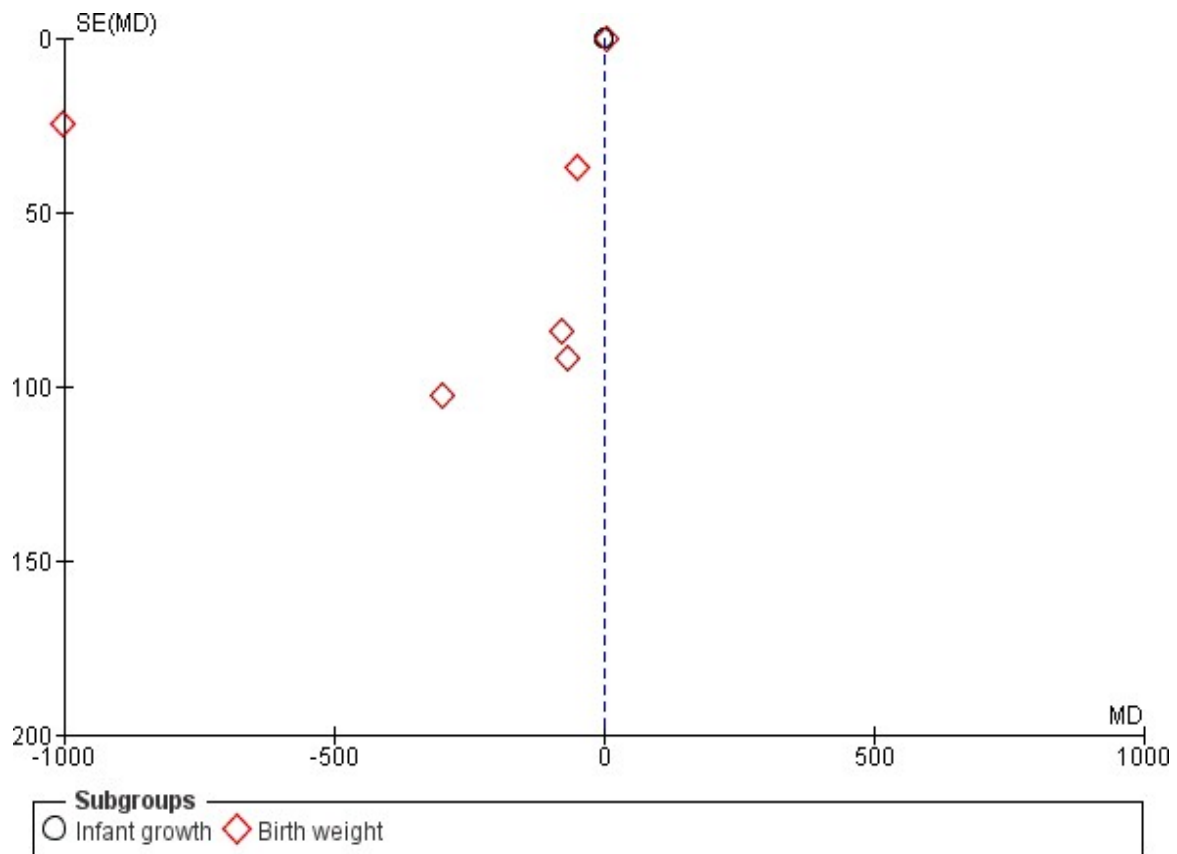


Figure 3. Funnel plot of poor newborn outcomes of breastfeeding during pregnancy

Discussion

Breastfeeding during pregnancy is not related to the baby's body length. But, there was an association during breastfeeding pregnancy with birth weight, where the difference in birth weight between the case and control groups was -251.36 gr (95% CI -701.51-198.79 gr).

A previous study found no discernible difference between the two groups in the rates of full-term and non-full-term births or the mean neonatal birth weight. Furthermore, we discovered no discernible difference between full-term or non-full-term births, as well as between women who kept breastfeeding during pregnancy and those who stopped, in the overlap group [5].

Breastfeeding enhances uterine contraction and aids postpartum uterine involution thanks to oxytocin from the posterior pituitary. As a result, breastfeeding during pregnancy may result in decreased utero-placental blood flow, fetal growth restriction, early labor,

lowbirthweight, abortion, and intrauterine mortality [5,8].

For pregnant women who are still lactating, adequate nutrition advice needs to be given with caution. Vitamin and mineral intake may increase for pregnant and nursing women. Non exclusive breastfeeding and mixed feeding were more prevalent in the overlap group, which may be related to overeating (particularly high-calorie foods), poor sucking, and inadequate breast milk emptying due to the older child's fullness during pregnancy [3,4,7].

The implications of this study may be valuable to identifying the optimal strategy to reduce the poor prognosis of newborn outcome during pregnancy. Additionally, health promotion and education regarding the prevention of breastfeeding during pregnancy. Health professionals and capable health volunteers can provide community- or individual-based promotion and education from home to home. In order for the public to understand the poor prognosis of breastfeeding during pregnancy, it is crucial to disseminate this information via the right promotional media, both online and offline.

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