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Meta-analyses

Association between breastfeeding duration and postpartum weight retention of lactating mothers: A meta-analysis of cohort studies

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SUMMARY

Background & aims: To clarify the relationship between different breastfeeding duration and postpartum weight retention through meta-analysis.

Methods: In this study, all relevant studies that described the effect of breastfeeding duration on postpartum weight retention were identified from Pubmed, Cochrane, and WANGFANG databases and so on (1960–2016). This meta-analysis had been registered in International Prospective Register of Systematic Reviews (CRD42016038409).

Results: Fourteen cohort studies involving 66 comparisons were included. Compared with bottle-feeding mothers, breastfeeding mothers had significantly lower postpartum weight retention of -0.38 kg (95% confidence interval: -0.64 , -0.11 kg). Subgroup analysis showed that, mothers who were primipara, less than 30 years old or normal pre-pregnancy body mass index had lower postpartum weight retention. When breastfeeding duration were stratified into <12 weeks, 12 weeks–24 weeks, 24 weeks–48 weeks, and ≥ 48 weeks, postpartum weight retention in breastfeeding women presented a U-shaped trend: a decline during early breastfeeding duration (year 1) (from 0.23 kg at <12 weeks to -1.58 kg at 24–48 weeks) and then an increase in the follow-up duration (from -1.58 kg at 24–48 weeks to -0.97 kg at more than 48 weeks).

Conclusions: Our results indicated that breastfeeding including exclusive breastfeeding and mixed breastfeeding were inversely related to postpartum weight retention. The decreasing influence of breastfeeding was more significant when the lactating mothers were less than 30 years old, primipara, normal pre-pregnant body mass index, or breastfeeding duration for 6–12 months.

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1. Introduction

Overweight and obesity are risk factors for non-communicable diseases such as hyperlipidemia, cardiovascular diseases, diabetes, atherosclerosis, and some cancers [1]. Recently, the morbidity of overweight and obesity has increased worldwide in all age groups,

particularly in childbearing women [2]. Childbearing is one of the biological and natural causes of weight gain for the female. Substantial weight is gained during childbearing period for most women, which considerably alters their future weight gain trajectory [2].

Approximately one in six women of childbearing age is obese in wealthy countries; in particular, approximately one in three women are obese in Europe [3] and the number of obese childbearing women increases in America [4]. The National Nutrition and Health Survey Report in 2002 showed that the overweight and obesity rates of 18–44-year-old women are higher than those of the other age groups in China [5].

Postpartum weight retention (PPWR) is the d-value from postpartum weight minus pre-pregnancy weight. Epidemiological evidence showed that PPWR can lead to the development of obesity

Abbreviations: PPWR, postpartum weight retention; MOOSE, Meta-analysis of Observation Studies in Epidemiology; CNKI, China National Knowledge Infrastructure Chinese citation database; CIs, confidence intervals; BMI, body mass index.

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for the female and exert long-term influence on maternal health [6]. PPWR may cause woman obesity, resulting in increased risks of diabetes, cardiovascular diseases, and metabolic syndrome in later life. For women of childbearing age, PPWR is an important biological and nutritional health problem. Based on the previous studies, Gunderson and Abrams suggested that PPWR could be caused by a lot of factors, such as lack of physical exercise, excessive dietary intake, smoking status lactation duration, pre-pregnancy body weight, parity, and gestational weight gain [7].

Recently, a number of studies had investigated the relationship between breastfeeding duration and PPWR with inconsistent results. Breastfeeding significantly decreases maternal weight in some studies, but this effect was not reported in other studies [8,9]. Sichieri et al. reported that the women who breastfed obtained a weight gain of approximately 1 kg in comparison with women who did not [8]. Moreover, breastfeeding duration was not related to the magnitude of weight change [8]. However, Krause et al. found that, at 6 months postpartum, breast-feeding was inversely associated with weight retention by a retrospective follow-up study. Further, compared with breast-feeding combined with formula-feeding, full breast-feeding presented a larger decreasing effect on PPWR [9]. Previous studies on the influence of breastfeeding on PPWR varied in terms of samples, ethnics, regions, breastfeeding periods, and designs. Hence, no consistent conclusion has been established.

Meta-analysis is a method combining different results of multiple studies and obtaining a comprehensive effect value. In this study, a systematic study search and meta-analysis using cohort studies were performed to evaluate the influences of different breastfeeding duration on PPWR of lactating mothers.

2. Materials and methods

According to the Meta-analysis of Observation Studies in Epidemiology (MOOSE) guidelines, the meta-analysis was performed [10]. This meta-analysis has been registered in International Prospective Register of Systematic Reviews (PROSPERO) and the registration number was CRD42016038409.

3. Literature search

Two independent authors (Haer Gao and Mingjun Jiang) searched articles in English using databases including PubMed (1966 to June 2016), Cochrane Controlled Trials Register, EMBASE (1985 to June 2016), Science Citation Index Expanded, Biosis Previews (1960–2016), Current Contents Connects (1998–2016) under the guidance of professional librarian. China National Knowledge Infrastructure Chinese citation database (CNKI) and WANFANG database were used to search articles in Chinese. Titles, abstracts, and subject headings were searched through the following keywords: (“breastfeeding” OR “breast feeding” OR “breast-feeding” OR “breast-fed” OR “breast-feed” OR “lactation” OR “duration”) AND (“Postpartum” OR “Post-partum” OR “Post partum” OR “Post pregnancy” OR “Post-natal” OR “After delivery” OR “After birth” OR “After childbirth”) AND (“Retention” OR “Retain weight” OR “Maintain weight” OR “Keep weight” OR “Stabilization” OR “Sustain weight” OR “Upload weight” OR “weight change” OR “weight gain” OR “PPWR”) in the databases. In addition, the reference lists of PPWR relevant and related articles were manually searched to ensure a complete inclusion. When the required data was only partially reported in the published articles, authors of articles were contacted via e-mail to try to obtain all necessary data that were needed.

4. Inclusion criteria

Studies were included for the meta-analysis if they met all of the following a-priori-defined inclusion criteria: 1) different breastfeeding (exclusive breastfeeding and mixed feeding) duration groups were reported in the study and compared with bottle-fed group as control; 2) PPWR was documented as a continuous variable between breast-fed group and bottle-fed group; 3) follow-up time is more than one month. Only publication with the largest sample was used if the study sample overlapped with that of another article or if two articles described the aspects of the same study. If different breastfeeding method, breastfeeding durations, and postpartum time points were reported in a study, these items were all included as independent comparisons in the meta-analysis.

5. Information abstraction and quality evaluation

Information from original studies was independently extracted by two reviewers through a standardized data collection form. If there were some disagreements between the two reviewers, the disagreements were resolved through discussion with the third reviewer. The following information was extracted: (1) first author, publication year; (2) sample information including country, maternal age, parity, pre-pregnancy BMI, and sample size; (3) study characteristics, including breastfeeding definition, PPWR definition, breastfeeding duration, and postpartum duration; and (4) information about the value of PPWR.

The Newcastle–Ottawa scale for assessing cohort studies was used to evaluate the methodological quality of studies in the meta-analysis [11]. Star was given where follow-up was more than 6 months, the loss to follow up was calculated for the study and reported in the article, and the loss rate was less than 25%.

6. Data analysis

The mean differences in the PPWR of woman breastfeeding minus the PPWR of woman bottle-feeding were used to calculate the mean net changes for each subgroup. The weight of each study was calculated using inverse variance. Weighted mean differences and the 95% confidence intervals (CIs) were calculated for all cases. The heterogeneity across trials was tested through Q statistics. Statistical significance was established at $P < 0.10$. The I^2 statistic that described the proportion of the total variation caused by heterogeneity was also calculated. Both fixed-effects model and random-effects model were performed in the meta-analysis. If a heterogeneity test is statistically significant, the random-effects model was performed as the method of combination. Sensitivity analysis that was estimated by omitting one study in each turn was conducted to investigate the influence of a single trial on the overall effect. Moreover, sensitivity analyses were performed by excluding studies with self-reported pre-pregnancy weight, self-reported PPWR, without clear definitions of breastfeeding, or without clear definitions of PPWR. In addition, subgroup analysis was performed on studies according to the breastfeeding method (exclusive breast, mixed, or exclusive/mixed), maternal age (maternal age ≤ 30 years or maternal age > 30 years), maternal parity (primipara or multipara), pre-pregnancy BMI (BMI < 25 kg/m² or BMI ≥ 25 kg/m²), breastfeeding duration (less than 12 weeks, 12–24 weeks, 24–48 weeks, or more than 48 weeks), and time postpartum (less than 12 weeks, 12–24 weeks, 24–48 weeks, or more than 48 weeks). Furthermore, meta-regression analysis was conducted to assess whether PPWR differences are related to breastfeeding duration and time postpartum. Funnel plots, Egger's linear regression test and Begg's rank correlation test were conducted to detect



در اجرای درخواست شما مشکلی رخ داده است

با سلام ☐ متأسفانه
مشکلی در فرایند
اجرای درخواست شما
رخ داده است ☐

همکاران ما در حال تلاش برای رفع این

مشکل هستند ☐

لطفاً درخواست خود را در ساعات دیگری

مجدداً تکرار فرمایید و اگر باز هم با این

مشکل رو به رو شدید، از طریق فرم تماس

با ما به واحد پشتیبانی اطلاع دهید ☐

برای یافتن مطلب مورد نظر خود می

توانید از روش های جستجوی زیر استفاده

فرمایید :

جستجو در میان موضوعات

برای جستجو در میان موضوعات، به محض این که عبارت خود را در فیلد زیر بنویسید، موضوع های مرتبط در درخت سمت چپ با رنگ متمایزی مشخص می شوند.

جستجو ...

جستجو در میان مقالات

اگر موضوع مورد نظر شما در لیست موضوعات اصلی وجود نداشت، با استفاده از فیلد زیر می توانید آن را در بین کل مقاله های سایت جستجو فرمایید.

جستجو ...

جستجو

لیست
درختی
موضوعات

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- بازاریابی و مدیریت بازار + <
- حسابداری و حسابرسی + <
- روش های آماری + <
- سازمان و مدیریت + <
- سیستم های اطلاعاتی + <
- علوم اقتصادی + <
- مدیریت استراتژیک + <
- مدیریت امور فرهنگی + <
- مدیریت تولید + <
- مدیریت دولتی + <
- مدیریت رفتار سازمانی + <
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- مطالعات اسلامی + <
- کارآفرینی و مدیریت کسب و کار + <

تماس با واحد پشتیبانی

همکاران ما در واحد پشتیبانی آمادگی دارند تمامی درخواست های شما عزیزان را بررسی نموده و در اسرع وقت رسیدگی نمایند.

پیگیری خرید مقاله

پس از خرید هر مقاله، یک کد رهگیری منحصر به فرد به شما تقدیم خواهد شد که با استفاده از آن می توانید وضعیت خرید خود را پیگیری فرمایید.

کد رهگیری

ارسال

پیگیری سفارش ترجمه

با ثبت کد رهگیری پرداخت، می توانید سفارش خود را پیگیری نموده و به محض اتمام ترجمه، فایل ترجمه مقاله خود را دانلود نمایید □

کد رهگیری

ارسال

کلیه حقوق برای «مرجع مقالات ISI» در ایران محفوظ است □

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