Exclusive Breastfeeding: A Potential Protective Factor for Childhood Obesity?

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ABSTRACT

Background: The rate of obesity in Canada has been increasing at an alarming rate with one-third of children and adolescents being overweight or obese. Canadians are closely following the American’s lead in the obesity epidemic, which poses a serious public health concern. Childhood obesity increases the likelihood of long-term complications, and hence, burdens the healthcare system. The World Health Organization recommends exclusive breastfeeding as the golden standard in achieving the appropriate growth factors and nutritional needs for children. Thus, exclusive breastfeeding has gained researchers’ attention as a potential protective or modifiable factor for childhood obesity.

Objective: The aim of this literature review was to assess whether exclusive breastfeeding for at least three months is protective against obesity in Canadian and American children ages 1 to 11, when compared to those who were not exclusively breastfed for at least three months.

Methods: A search of published studies using the terms “child* OR pediatric” and “obesity OR overweight OR obesity” in PubMed, Medline, and Scopus was conducted. Results were subjected to inclusion and exclusion criteria, yielding five relevant articles for further review.

Results: One prospective cohort study and four cross-sectional studies were reviewed. Obesity was measured with BMI scales and nine-level figure drawings, and breastfeeding data was collected through interviews and surveys. Three studies found no significant relationship between exclusive breastfeeding and childhood obesity, while the remaining two studies found a significant association.

Conclusions: Exclusive breastfeeding for at least three months may be protective against obesity in Canadian and American children ages 1 to 11 when compared to those who were not exclusively breastfed for at least three months. To our knowledge, this is the first systematic review, to our knowledge, that highlights the protective role against preschool obesity of exclusive breastfeeding.

INTRODUCTION

Both Canada and the United States are facing an obesity epidemic. In Canada, the prevalence of overweight and obese children and adolescents has been rising since the late 1970s. Today, about 33% of Canadian children and adolescents are overweight or obese – approximately 1.6 million. In contrast, the prevalence of obesity among American children and adolescents has been stable at roughly 17%; however, around 12.7 million children and adolescents are affected. Childhood obesity increases the risk of long-term complications, such as diabetes, hypertension, and obesity in adulthood, and consequently, strains the healthcare system. Therefore, childhood obesity is a public health concern, and the development of effective interventions requires the identification of modifiable factors contributing to childhood obesity. Exclusive breastfeeding is defined as the practice of feeding an infant strictly breast milk. According to the World Health Organization, exclusive breastfeeding for the first six months in infancy is deemed as the golden standard in achieving the appropriate amount of growth factors, nutrients, and immunological needs for a child. Exclusive breastfeeding has thus caught researchers’ attention as a potential protective or modifiable factor for childhood obesity.

RESEARCH QUESTION

Is exclusive breastfeeding for at least three months protective against obesity in Canadian and American children ages 1 to 11, when compared to those who were not exclusively breastfed for at least three months?

METHODS

The systematic review began with the selection of a general topic (i.e., breastfeeding and childhood obesity) and the creation of inclusion and exclusion criteria. The literature search was conducted individually by the two authors, and any discrepancies were discussed and resolved.

Figure 1. Overview of the literature search with the number of articles listed on the left, and the article selection methodology on the right.

RESULTS

Table 1. Summary of the reviewed articles. (Abbreviations: n, sample size; AOR, adjusted odds ratio; CI, confidence interval; BMI, body mass index)

<table>
<thead>
<tr>
<th>Article</th>
<th>Study Design</th>
<th>Sample</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis et al. (2014)³</td>
<td>Cross-sectional</td>
<td>n = 2,295</td>
<td>Compared to never breastfed, exclusive breastfeeding for 6 months was associated with a reduced prevalence in obesity.</td>
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<tr>
<td>Michels et al. (2007)⁴</td>
<td>Prospective cohort</td>
<td>n = 35,526</td>
<td>No significant relationship between exclusive breastfeeding and obesity prevalence in children [AOR 0.60 (95% CI 0.3-1.1)]; P = 0.08</td>
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<tr>
<td>Novotny et al. (2007)⁵</td>
<td>Cross-sectional</td>
<td>n = 420</td>
<td>No significant relationship or trend between exclusive breastfeeding for 3 months and body shapes at: - age 5 [AOR 0.98 (95% CI 0.81-1.19)]; - age 10 [AOR 1.12 (95% CI 0.95-1.31)]</td>
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<tr>
<td>Shi et al. (2013)⁶</td>
<td>Cross-sectional</td>
<td>n = 968</td>
<td>Any breastfeeding was significantly associated with a lower BMI (P = 0.043); No significant relationship among BMI, exclusive breastfeeding, and duration of breastfeeding</td>
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CONCLUSIONS

Exclusive breastfeeding for at least three months may be protective against obesity in Canadian and American children, when compared to children who are not exclusively breastfed for at least three months. Due to discrepancies, further research is required to investigate the covariates that may predispose or protect a child from obesity.

REFERENCES


Footnotes:

2. Variances were not adjusted for multiple comparisons.
3. Odds ratios were also adjusted for different confounders, limiting the review further. Information bias was minimized through individual literature searches.
4. Future research on the modulating and preventative factors of childhood obesity is imperative due to the rising prevalence of obesity. Although the association between exclusive breastfeeding and childhood obesity is inconclusive, the known benefits of exclusive breastfeeding, such as protection against infections and diarrhea, should provide reason to encourage breastfeeding promotion by health professionals regardless of the association with obesity.