



Research review

Does maternal psychopathology increase the risk of pre-schooler obesity? A systematic review



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ABSTRACT

The preschool years may be a critical period for child obesity onset; however, literature examining obesity risk factors to date has largely focused on school-aged children. Several links have been made between maternal depression and childhood obesity risks; however, other types of maternal psychopathology have been widely neglected. The aim of the present review was to systematically identify articles that examined relationships between maternal psychopathology variables, including depressive and anxiety symptoms, self-esteem and body dissatisfaction, and risks for pre-schooler obesity, including weight outcomes, physical activity and sedentary behaviour levels, and nutrition/diet variables. Twenty articles meeting review criteria were identified. Results showed positive associations between maternal depressive symptoms and increased risks for pre-schooler obesity in the majority of studies. Results were inconsistent depending on the time at which depression was measured (i.e., antenatal, postnatal, in isolation or longitudinally). Anxiety and body dissatisfaction were only measured in single studies; however, both were linked to pre-schooler obesity risks; self-esteem was not measured by any studies. We concluded that maternal depressive symptoms are important to consider when assessing risks for obesity in preschool-aged children; however, more research is needed examining the impact of other facets of maternal psychopathology on obesity risk in pre-schoolers.

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Introduction

Childhood overweight and obesity is an ever increasing problem, with current estimates that approximately 42 million children worldwide under the age of five are overweight, 35 million of which are living in developed countries (World Health Organisation, 2012). Most recent national statistics in the US indicate 17% of children aged 2–19 years, and 10.4% of children aged 2–5 years are obese (Ogden, Carroll, Kit, & Flegal, 2012). Comprehensive reviews have identified notable increases in obesity rates in preschool-aged children, in both developing and developed countries over the past three decades (De Onis & Blossner, 2000; Martorell, Kettel Khan, Hughes, & Grummer-Strawn, 2000; Y. Wang & Lobstein, 2006).

A growing body of evidence has suggested that parents play a pivotal role in the development of childhood overweight and obesity (Skouteris et al., 2011; Ventura & Birch, 2008). Several maternal factors have been identified as risk factors for child overweight and obesity, including maternal overweight/obesity (Whitaker, Jarvis, Beeken, Boniface, & Wardle, 2010), socio-demographic variables such as education and family income (Cho, Kang, Kim, & Song, 2009; Lamerz et al., 2005; Y. Wang, 2001), pressure and restrictive feeding practices (Baughcum et al., 2001), and more recently, maternal psychological well-being (McConley et al., 2011; Topham et al., 2010), including depression, self-esteem and anxiety (Gundersen, Lohman, Garasky, Stewart, & Eisenmann, 2008; McConley et al., 2011; Pott, Albayrak, Hebebrand, & Pauli-Pott, 2010; Topham et al., 2010). Studies have also demonstrated associations between maternal body dissatisfaction and child obesity risk factors, such as shorter breastfeeding duration (Hauff & Demerath, 2012) or bottle-feeding only (Huang, Wang, & Chen, 2004), and restrictive and pressure feeding practices (Duke, Bryson, Hammer, & Agras, 2004; Francis, Hofer, & Birch, 2001; Lowes & Tiggemann, 2003). There is also evidence that maternal body dissatisfaction, modelling of weight concerns, and restrictive eating are associated with body dissatisfaction and restrictive eating in offspring (Anschutz, Kanter, Strien, Vermulst, & Engels, 2009; Gonçalves, Silva, Gomes, & Machado, 2012; Keery, Eisenberg, Boutelle, Neumark-Sztainer, & Story, 2006; McCabe et al., 2007). Body dissatisfaction is an increased risk for later overweight and obesity (Neumark-Sztainer et al., 2006; Shunk & Birch, 2004; Stice, Presnell, Shaw, & Rohde, 2005).

Maternal psychopathology may also be related to lifestyle risk factors for child overweight/obesity, including low physical activity levels, poor nutrition, and increased sedentary behaviour (Sothorn, 2004; Taveras, Gillman, Kleinman, Rich-Edwards, & Rifas-Shiman, 2010; Tremblay & Wilms, 2003; Trost, Sirard, Dowda, Pfeiffer, & Pate, 2003; Viner & Cole, 2005). McConley et al. (2011) found a significant association between maternal depressive symptoms and child BMI, which was mediated by lower child physical activity and higher sedentary behaviour. Thus, it is important to consider the various ways in which maternal psychosocial health may impact on children's risk for overweight and obesity.

Whilst most of the child obesity literature has focused on school-aged children, the preschool years (i.e., ages 2–6) have been identified as critical in the formation of enduring obesity problems (Eddy et al., 2007; Fisher & Birch, 1999; Pott et al., 2010; Reilly et al., 2005). It is thought that if the child fails to learn to self-regulate hunger and food intake during this period, he/she will be more susceptible to developing obesity (Dietz, 1997). The pre-school period also precedes the onset of major social and community influences on child weight status. Once children commence school, they are exposed to broader factors that may contribute to obesity risk, such as peer attitudes towards food and physical activity (Cullen, Baranowski, Rittenberry, & Olvera, 2000; Finnerty, Reeves, Dabinett, Jeanes, & Vögele, 2010; Grimm, Harnack, & Story, 2004). Thus, the pre-school years are a critical period for identifying obesity risk factors closer to the child, such as maternal influences, without the

additional confounding impact of the child's wider community. Given the significant role the formative years play in the development of persistent overweight and obesity in later childhood (Birch & Fisher, 1998), adolescence, and even into adulthood (Clark, Goyder, Bissell, Blank, & Peters, 2007), it is important to identify factors that may influence child weight during the preschool years in order to prevent later obesity and its myriad of complications.

The main aim of this paper therefore, was to systematically review the existing literature that examines relationships between maternal psychopathology, including depression, anxiety, self-esteem and body dissatisfaction, with risk factors for overweight and obesity in preschool-aged children. In light of the above literature examining obesity-promoting risk factors, the present review defines preschooler obesity risk factors as either child weight-related variables (e.g., BMI z-scores), or lifestyle risk factors including physical activity levels, nutrition and dietary variables (e.g. soft-drink consumption), or sedentary behaviours (e.g. TV viewing time). Thus, studies including any of these indices of pre-schooler obesity risk as outcome variables were included. We are aware of two other systematic reviews that have considered the relationship between maternal depressive symptoms and childhood obesity (Lampard, Franckle, & Davison, 2014; Milgrom, Skouteris, Worotniuk, Henwood, & Bruce, 2012). However, these reviews focused exclusively on the impact of maternal depressive symptoms exclusively, whereas our review extends beyond maternal depression to also include studies examining maternal anxiety, self-esteem and body dissatisfaction, providing an expansive insight into the potential maternal mental health risk factors for child obesity. Our review also expands on these previous reviews by including broader indicators of child obesity, such as physical activity, sedentary behaviours and nutrition/diet variables, whereas the reviews by Milgrom et al. (2012) and Lampard et al. (2014) examined only child weight outcomes. Finally, as identified above, the pre-school years appear to be a critical period in the development of obesity; therefore, our review focused exclusively on pre-school aged children (up to 6 years) only, compared to school-aged children up to age 8 (Milgrom et al., 2012), and children and adolescents aged up to 18 (Lampard et al., 2014). Two papers in the Milgrom et al. (2012) review, and five papers in the Lampard et al. (2014) review were identified in our systematic search and have been included in the current review. Thus, our review is the first to examine the influence of a wider range of maternal psychopathology variables on the weight, activity and diet-related risks for obesity, exclusively in preschool aged children. A secondary aim of the review was to outline the strengths and limitations of the existing literature examining maternal psychopathology and preschooler obesity risks, articulating any gaps to be addressed by future research, in order to improve the study of maternal factors linked to obesity risk in pre-school children.

Method

Search strategy

Articles were sourced from three databases: Medline, PsychINFO, and Global Health. The review adhered to the PRISMA guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009), a 27-item checklist that informs the necessary components of a systematic review aiming to identify, select and critically evaluate relevant research to the review question. It also provides a four-phase diagram of the processes involved in systematically identifying and selecting articles for review inclusion. In addition to database searching, a hand search of the reference lists of articles meeting inclusion criteria yielded in the systematic search was conducted. The search terms used to identify relevant articles in the current review are provided in Appendix.

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