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Childhood maltreatment and high dietary fat intake behaviors in adulthood: A birth cohort study



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ABSTRACT

Childhood maltreatment has been associated with a wide range of chronic medical conditions including obesity, other metabolic events and eating disorders. However, little is known about the association between childhood maltreatment and high dietary fat intake. This study addresses the extent to which co-occurring and specific forms of substantiated childhood maltreatment are associated with self-reported high dietary fat intake in adulthood and whether there is a gender-childhood maltreatment interaction in predicting this association. The study also examines the association between age at substantiation of maltreatment, number of childhood maltreatment substantiations and high dietary fat intake-related behaviors. The data were from a prospective Australian pre-birth mother-child dyads study, the Mater-University of Queensland Study of Pregnancy. The study followed 7223 mother-child dyads following the birth of a live, singleton baby at the Mater hospital. Recruitment was early in pregnancy, and then follow-ups at 3–5 days postpartum and again when the child was 6 months, 5, 14 and 21 years of age. The data were linked to agency-substantiated cases of childhood maltreatment 0–14 years. This study extended the data linkage to 3766 (47.4% female) participants who had complete data on dietary fat intake behaviors at the 21-year follow-up. Consecutive logistic regressions were used to estimate odds ratios with respective 95% confidence intervals for high dietary fat intake for multiple and specific forms of childhood maltreatment, as well as age at and number of childhood maltreatment substantiations. Finally, a gender-childhood maltreatment interaction term was used to predict the outcome. In both unadjusted and adjusted analyses, substantiated childhood maltreatment including physical abuse were associated with high dietary fat intake-related behaviors. Similarly, substantiation of childhood maltreatment between the ages of 5 and 14 years was significantly associated with high dietary fat intake-related behaviors as were two or more substantiations of maltreatment. Inclusion of gender-childhood maltreatment interaction only had a minor impact on the size and direction of the association. Chronic and severe forms of childhood maltreatment including physical abuse are associated with a higher rate of dietary fat

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intake in young adulthood. Further research to replicate this association might focus on possible neuro-hormonal mechanisms that might explain this behavior.

1. Introduction

In recent decades, obesity has been a leading risk factor for a number of chronic diseases worldwide contributing to a substantial portion of the disability adjusted life years lost (Jia & Lubetkin, 2010). Common modifiable risk factors are associated with an “obesogenic” environment (Hebebrand & Hinney, 2009; Herbert et al., 2006). However, there are some specific risk factors with possible epigenetic consequences such as childhood maltreatment (Danese & Tan, 2014; Fuller-Thomson, Sinclair, & Brennenstuhl, 2013; Irish, Kobayashi, & Delahanty, 2009; Mamun et al., 2007; Norman et al., 2012; Power, Pereira, & Li, 2015) possibly involving sexual abuse (Fuller-Thomson et al., 2013; Irish et al., 2009; Mamun et al., 2007; Power et al., 2015), physical abuse (Fuller-Thomson et al., 2013; Norman et al., 2012; Power et al., 2015), emotional abuse and neglect (Norman et al., 2012). Childhood maltreatment has been associated with obesity (Fuller-Thomson et al., 2013; Irish et al., 2009; Mamun et al., 2007; Power et al., 2015) and subsequent metabolic events (Norman et al., 2012) in large cross-sectional (Fuller-Thomson et al., 2013), longitudinal (Mamun et al., 2007; Power et al., 2015) and meta-analytic (Danese & Tan, 2014; Irish et al., 2009; Norman et al., 2012) studies. Obesity in maltreated persons may be considered as a “double” risk factor because it may mediate most of the long-term health problems including metabolic disorders (Matthews, Chang, Thurston, & Bromberger, 2014; Rich-Edwards et al., 2010; Thomas, Hyppönen, & Power, 2008). However, the association between childhood maltreatment and high dietary fat intake behavior in young adulthood has not been studied.

In the few available cross-sectional studies, a retrospective recall of a history of sexual abuse (Hulme, 2000; Smolak & Murnen, 2002), physical abuse, emotional abuse and neglect (Norman et al., 2012) was associated with a range of eating disorders including anorexia nervosa and anorexia bulimia (Hulme, 2000; Norman et al., 2012; Smolak & Murnen, 2002). Other socio-demographic factors including age, lower education (Fuller-Thomson et al., 2013), lower qualification, unemployment (Power et al., 2015), lower income (Fuller-Thomson et al., 2013) and posttraumatic stress symptoms (Vilija & Romualdas, 2014) have been associated with eating disorders and/or obesity (Fuller-Thomson et al., 2013; Power et al., 2015; Vilija & Romualdas, 2014). However, cross-sectional studies cannot determine which of these factors may be causes, consequences or confounders in the association between childhood maltreatment and food related behaviors. In contrast, in clinical patients, sexual abuse was not found to be associated with anorexia nervosa and anorexia bulimia (Maynes, 2009). Furthermore, neither physical inactivity nor cigarette smoking affected the eating behavior of adolescents with adverse early life experiences (Vilija & Romualdas, 2014). These inconsistencies might be due to differences in the research designs and/or characteristics of clinical and community-based participants.

Currently little is known about the effect of childhood maltreatment on high dietary fat intake-related behaviors. Knowing more about the mechanism that may link childhood maltreatment and obesity could lead to targeted interventions (Mason et al., 2016). However, there have been few such studies (Mason et al., 2016), especially using a prospective design (Power et al., 2015). Available studies have relied on retrospective self-reported childhood maltreatment rather than prospective agency-substantiated maltreatment (Bentley & Widom, 2009), and it is likely that the former may be subject to recall and social desirability bias. The present study addresses the extent to which co-occurring and specific forms of substantiated childhood maltreatment are associated with high fat intake-related behaviors in adulthood and whether there is an interaction with gender. This study also examines the association between age and number of childhood maltreatment substantiations and subsequent high dietary fat intake.

2. Methods

2.1. Study design and participants

For this study, data from a pre-birth cohort of Australian expectant mothers and their children, in the Mater Hospital-University of Queensland Study of Pregnancy (MUSP), were used. Mothers were enrolled in the study during their first antenatal clinic visit from 1981 through to 1983 at Brisbane’s Mater Hospital. Initially, a total of 8556 pregnant women were approached. A total of 7223 mothers gave birth to a live, singleton baby at the study hospital, who neither died nor were adopted out prior to discharge. The study has followed mother-child pairs until the children attained the age of 21. Mothers were assessed at 3–5 days and 6 months postpartum, as well as at 5, 14 and 21 years of the index child’s age (Najman et al., 2015). The MUSP survey data has been linked to substantiated cases of childhood maltreatment reported to the appropriate government agency up to the age of 14 years. The linkage has subsequently been extended to the 21-year follow-up, which includes details of offspring fat intake behaviors. The current study is based upon of 3766 young adults on whom there were complete data on fat intake at the 21-year follow-up. The project was approved by the Human Ethics Review Committee of the Mater hospital and University of Queensland. Parents provided consent until the 14-year follow-up. Adolescents and parents provided consent at the 14 and 21-year follow-ups. Ethical approval was extended for the linked data from the Human Ethics Review Committee of the University of Queensland.

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