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Review

Obesity and suicide risk in adults—A systematic review

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ABSTRACT

Background: There is evidence from prospective studies that obesity is positively associated with depression. In contradiction to this, however, a number of studies have revealed that the number of completed suicides decreases with increasing BMI. The objective of this systematic review is to elucidate this ambiguous research field, providing an overview of literature examining the relationship between obesity and risk of suicide in adults (> 18 years).

Methods: Literature searches of the databases PubMed/Medline, PsychInfo, and Web of Sciences were conducted. Fifteen studies concerning completed suicide, suicide attempts and suicidal ideation met the inclusion criteria (seven prospective and eight cross-sectional studies).

Results: Eight studies evaluating completed suicide reported an inverse relationship between BMI and suicide, meaning that obese people are less likely to commit suicide than people of low or normal weight, whereas one study showed no association and one showed a positive association. Studies about suicide attempts and ideation, on the other hand, found results that differed depending on gender. While obese woman reported more suicide attempts and suicidal ideation, obese men reported less attempts and thoughts.

Discussion: The role of confounding variables such as age or psychiatric illness on suicide risk are discussed and remaining research questions are outlined, especially regarding the role of different underlying biological pathways and consideration of different classes of obesity.

Contents

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1. Introduction

The number of people who are overweight or obese has increased since the 1980s (WHO, 2011) leading to the emergence of a public health problem of epidemic proportions, especially in developed countries. Obesity is defined as abnormal or excessive fat accumulation that presents a risk to general health (WHO, 2000). Obesity is classified by the body mass index (BMI). According to categories set by the World Health Organization (WHO) class I obese adults have a BMI ≥ 30, class II ≥ 35, and class III ≥ 40. Obesity often occurs together with comorbid disorders such as diabetes, coronary artery disease, stroke, osteoarthritis or respiratory disease (Kopelman, 2007). Obesity has also been associated with mental health disorders (Roberts et al., 2003; Scott et al., 2008; Simon et al., 2006) but studies on the association between obesity and depression have yielded inconsistent conclusions (Faith et al., 2011). Cross-sectional studies have suggested both no association (Wadden et al., 1989) or a positive (Ohayon, 2007; Simon et al., 2008) or negative (Crisp and McGuiness, 1976) relationship between obesity and depression. The suggestion of a negative association between obesity and depression sparked scientific debate (Jasienska et al., 2005; Palinkas et al., 1996) and this phenomenon was named the "jolly fat" hypothesis (Crisp and McGuiness, 1976). Despite this, more recent research focusing on prospective studies has found a consistent positive association between obesity and increased symptoms of depression in both community-based (de Wit et al., 2010; Faith et al., 2011) and longitudinal studies (Faith et al., 2011; Luppino et al., 2010). Obese women in particular have a higher risk of developing a depression than non-obese females (de Wit et al., 2010; Faith et al., 2011; Heo et al., 2006; Luppino et al., 2010). Setting aside, for a moment, the findings mentioned above demonstrating a negative association between obesity and depression, it could be hypothesized that obese people, and especially obese females, might have higher suicide risk, as patients with major depression disorder have a higher risk of committing suicide compared to the normal population (Barlow, 2005). In a recently published review from the United States, the authors concluded that obese individuals are at an increased risk of suicide (Heneghan et al., 2011). However, they made no distinction between children, adolescents and adults, a fact that is viewed critically by the authors of this review because of recognized differences in psychology and behavior at different stages of development. Furthermore, they made no differentiation between completed and attempted suicides or suicide thoughts. However, there is a gender specific effect: completed suicides are more often seen in men, whereas women attempt it more often (Mann, 2003; Tsirigotis et al., 2011). And that is why we believe that these methodological approaches may have influenced the results by Heneghan et al. Additionally, other studies have shown that BMI and completed suicide are inversely associated (Bjerkeset et al., 2008; Magnusson et al., 2006). As obesity is an increasing public health problem, there is an urgent need for clarity on this ambiguous topic, especially to support the development of suitable programs for suicide prevention. The aim of this review is therefore to provide a systematic overview of literature investigating the association between obesity and risk of suicide including completed and attempted suicide, and suicide ideations in adults.

2. Methods

For this review, the main author and one co-author performed independent searches of the electronic databases PubMed, Web of Sciences, and PsychInfo for English language research articles published between January 2000 and October 2011. To find articles dealing with the relationship between obesity and suicide risk, including completed suicides, suicidal ideation/thoughts and attempts, the authors used the following word combination for the literature search: [obes * OR adipos * OR overweight OR BMI AND suicid*]. All study designs were included with the exception of case studies and case series. Studies were included if they contained information about obesity and suicide risk including completed suicide, suicidal ideation/thoughts and attempts in study participants older than 18 years of age. To ensure comparability, studies were only included if they defined obesity by a BMI ≥ 30. According to these criteria, articles were excluded if they reported data from children and adolescents (< 18-years), or if only suicide risk or only obesity were reported. Studies examining suicide risk following medical treatments such as bariatric surgery or pharmacotherapy were also excluded from this review (Fig. 1). Titles and abstracts of all reports identified through the search were read. The full text of studies that appeared to meet the inclusion criteria were then independently reviewed, as were studies with insufficient information in the title and abstract. Due to the heterogeneity of the reviewed material, a qualitative analysis was completed to examine the methodology and outcomes of the included articles. They are therefore described here in terms of sample characteristics, designs and methods, comparison groups and outcomes (Table 1). The results are reported according to the type of suicide risk: completed suicides, suicide attempts or suicidal ideations. Based on the extracted data, a comparative narrative summary of the included studies is provided.

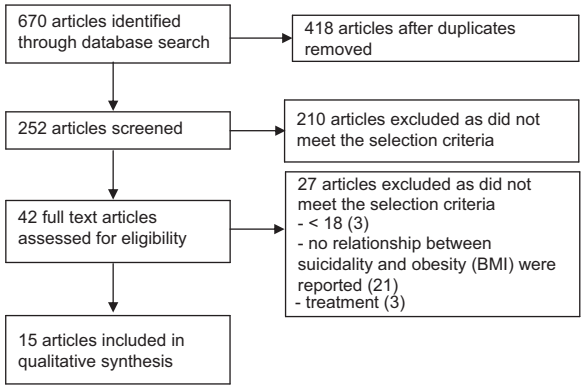

Fig. 1. Identifying studies for inclusion in systematic review.

3. Results

3.1. Description of included studies

The initial literature search recovered 670 citations of which 655 were considered not to be relevant for this review. A description of the search process and reasons for excluding studies are shown in the flowchart (Fig. 1). A total of 15 studies met the inclusion criteria. Most of the studies were conducted in the United States but other countries where data were collected include Brazil, Norway, Sweden, Australia, Canada, Italy and the United Kingdom (Table 1). Most studies were epidemiological or cohort studies that utilized population-based representative samples (Batty et al., 2010; Bjerkeset et al., 2008; Carpenter et al., 2000; Dong et al., 2006; Elovainio et al., 2009; Kaplan et al., 2007; Magnusson et al., 2006; Mukamal et al., 2007; Mukamal and Miller, 2008; Mukamal et al., 2010, 2009; Stack and Lester, 2007) or cross-national data (Shah, 2010). Three clinical studies, reporting suicidality in patients with bipolar disorder (Gomes et al., 2010) or major depression (Bjerkeset et al.,