Asian Journal of Psychiatry 21 (2016) 51–66

Contents lists available at ScienceDirect

Asian Journal of Psychiatry

journal homepage: www.elsevier.com/locate/ajp

Review

Is there a bi-directional relationship between depression and obesity among adult men and women? Systematic review and bias-adjusted meta analysis

Munim Mannan [a,*], Abdullah Mamun [b], Suhail Doi [b], Alexandra Clavarino [a]

[a] School of Pharmacy, The University of Queensland, 20 Cornwall Street, Woolloongabba 4102, QLD, Australia
[b] School of Public Health, The University of Queensland, Herston Road, Herston 4006, QLD, Australia

ARTICLE INFO

Article history:
Received 9 February 2015
Received in revised form 8 December 2015
Accepted 12 December 2015

Keywords:
Depression
Obesity
Relative risk (RR)
Risk difference (RD)
Meta-analysis

ABSTRACT

The rapidly increasing prevalence of both obesity and depression represent two major public health concerns worldwide. But the evidence regarding the direction and strength of the association between these two disorders, for both adult men and women, are remain inconclusive. We systematically reviewed publications from five different databases: Pubmed, Embase, BIOSIS, CINAHL and PsychINFO. A total of 21 articles were included for the systematic review and 19 of them for the meta-analysis using a bias-adjusted (quality effect) model. This resulted in the inclusion of approximately 226,063 (33.7% men) participants. Those who were depressed had a 37% (RR: 1.37, 95% CI: 1.17, 1.48) increased risk of being obese, and who were obese had an 18% increased risk of being depressed (RR: 1.18, 95% CI: 1.04, 1.35). Those who were depressed had a 2% (RD: 0.02, 95% CI: 0.01, 0.03) excess risk of obesity, however, the reciprocal associations were not significant. The association between overweight and depression was not found significant in either direction. Both men and women were at risk of obesity and depression bi-directionally. In sensitivity analyses bi-directional associations were more pronounced among young and middle aged adults and in studies with longer follow-up. The findings of this study suggest that the strength of the association is greater for the direction leading from depression to obesity and this link was more pronounced for young and middle aged women.

© 2016 Published by Elsevier B.V.

Contents

Abbreviations: RR, relative risk; RD, risk difference; BMI, Body mass index.

* Corresponding author. Tel.: +61 7 3346 1917; fax: +61 7 3346 1999.
E-mail addresses: mannan.munim@uq.net.au (M. Mannan), mamun@sph.uq.edu.au (A. Mamun), sardoi@gmax.net (S. Doi), a.clavarino@sph.uq.edu.au (A. Clavarino).

http://dx.doi.org/10.1016/j.ajp.2015.12.008
1876-2018/© 2016 Published by Elsevier B.V.

1. Introduction

Obesity and depression are two major disorders that have been rapidly increasing over the last few decades making these issues of major public health concern worldwide (WHO, 2012). There is evidence to suggest that both obesity and depression are associated and they may either co-occur or may occur in a temporal sequence, that is with one leading to the other (Barefoot et al., 1998; Carpenter et al., 2000; Faith et al., 2002). One suggested sequence is that obesity precedes depression since obese persons are at greater risk of depression for many reasons including physical inactivity (Heo et al., 2010), poorer quality of life (Fontaine and Barofsky, 2001) and social prejudice (Puhl and Brownell, 2001; Puhl and Brownell, 2006). The reverse temporal sequence has also been suggested based on observations that depressed people may gain weight through the effects of antidepressant medications (Stunkard et al., 2003), impaired sleep quality (Riemann et al., 2001) and a sedentary life style (Farmer et al., 1988). The co-occurrence is equally plausible because of shared genetic and lifestyle factors (Anton et al., 2006; Stunkard et al., 2003).

Several longitudinal studies (Barefoot et al., 1998; Roberts et al., 2000) have been undertaken to determine what the primary temporal sequence may be and studies remain discordant since there is evidence for co-occurrence (Faith et al., 2002), depression preceding obesity (Bardone et al., 1998), obesity preceding depression (Kasen et al., 2008) and for no association (Chiriboga et al., 2008). Two systematic reviews based on longitudinal data have reported associations between obesity and depression but the results were inconsistent (Atlantis and Baker, 2008; Faith et al., 2011). One of the review studies had reported a strong reciprocal association, but the result was not clear for adults because the relationship was derived by combining both adult and adolescence data (Faith et al., 2011).

Along with the systematic reviews, a meta-analysis of longitudinal investigations has quantified the reciprocal association between obesity and depression (Luppino et al., 2010). However, the result was compiled from the combination of both adult and adolescent subjects. This is problematic because the intensity and direction of the relationship between depression and obesity differs across age-groups (Goodman and Whitaker, 2002; Roberts et al., 2000). The meta-analysis considered only the modifying effects of age and sex but other related moderators or confounding effects i.e. socio-economic status, diet and physical activity were not considered. So the result reported in the meta-analysis was not fully adjusted. In addition, there are also the methodological concerns that the previous meta-analyses have used the random effects (RE) model which has well-documented limitations (Brockwell and Gordon, 2001; Noma, 2011; Overton, 1998). However, the pooled results presented in the previous studies were reported in terms of odds ratios (OR) rather than relative risks (RR) which may also have exaggerated the associations (Furuya-Kanamori and Doi, 2014). None of the previous studies have measured the impact or excess risk of these associations.

There is evidence to suggest that the link between obesity and depression is modified by *sex* (Heo et al., 2006). This may be because women experience a different range of life events, patterns of risk and disease exposure during their life course than men (Farr et al., 2011). This issue has been examined in many observational and longitudinal studies which have reported varying effect sizes.

Given that accumulated deficiencies of the existing evidence, this systematic review and meta-analysis quantitatively examined the evidence from longitudinal studies to determine the exact nature of the associations between obesity and depression in adult men and women using more robust methods (Doi et al., 2011, 2013; Doi and Thalib, 2008) to handle the methodological heterogeneity and to quantify the risk using both relative and absolute measures of risk.

2. Methods

This study was carried out following MOOSE guideline to ensure the quality and completeness for both systematic review and meta-analysis (Stroup et al., 2000).

2.1. Search strategy

Pertinent articles were searched using comprehensive, systematic, computerized literature searches of Pubmed (including Medline), PsycINFO, Embase, CINAHL and BIOSIS Preview databases. The search includes the period 1961 to January, 2015. We searched for articles specifically examined the association between depression and obesity for adults. To search the articles, references from the relevant literature were hand searched and used to identify additional relevant studies. We got 7760 articles and based on the information related to topic, abstract and full-text articles, a total of 7739 studies were rejected, as they clearly did not meet the inclusion criteria (see below). A total of 21 studies were finally included for this study. The search strategy is described in detail in the online appendix.

2.2. Inclusion and exclusion criteria

Using the PICOS criteria (Table S1), studies were included if they (1) were published in the English language; (2) examined the prospective association between obesity and depression or vice versa; (3) contained extractable effect estimates (for depression or obesity) overall or separately by gender; (4) had a follow-up period of at least 1 year; (5) used a community or population based sample and; (6) used a standardized cut-off for BMI (overweight BMI $\geq$ 25 and $<$30 kg/m^2 and Obesity $\geq$ 30 kg/m^2) (WHO, 2014) and assessed depression either clinical or using rating scales based on symptoms. Clinically diagnosed studies were identified based on depressive disorder of the participants defined by the authors including depressive mood, specific syndromes or use of anti-depressant medication being assessed by an expert interviewer. We excluded studies that (1) were published in languages other than English; (2) were case reports, qualitative reports, comments, letters and reviews; (3) did not report information pertinent to the key clinical questions; (4) defined weight gain or loss/change using criteria other than BMI categories or where the assessment of depression was unspecified.

2.3. Data abstraction and quality appraisal

To extract the data, a standard data extraction form summarizing the study design and other relevant raw data was completed

Download English Version:

https://daneshyari.com/en/article/317291

Download Persian Version:

https://daneshyari.com/article/317291

Daneshyari.com