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Review

A systematic review of obstetric complications as risk factors for eating disorder and a meta-analysis of delivery method and prematurity

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HIGHLIGHTS

- The literature on obstetric complications and eating disorders is contradictory.
- Vaginal instrumental delivery and prematurity were not related to anorexia nervosa.
- Upcoming studies should pool datasets together to obtain sufficient power.

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ABSTRACT

Objective: The aim of this study was to systematically review the literature on obstetric factors at birth and their role as risk factors for a subsequent eating disorder (ED) and where possible to perform a meta-analysis of case–control studies of EDs and obstetric complications (OCs).
Method: Studies were ascertained by computer searches of electronic databases (Medline, PsycINFO, Web of Science and CINAHL), searches of reference lists and from raw data obtained upon request from the authors. A total of 14 studies were identified for the systematic review, of which 6 were eligible for the subsequent meta-analysis. Of the selected 6 studies, 5 reported on the same OCs, namely vaginal instrumental delivery and prematurity. Accordingly, meta-analyses were run on these two variables. Both analyses were conducted on anorexia nervosa (AN) patients.
Results: Findings from the systematic review were conflicting, with some studies reporting a significant relationship between OCs and ED diagnoses and/or ED symptomatology and others refuting it. A non-significant association of instrumental delivery [pooled odds ratio (OR) 1.06, 95%CI: 0.69, 1.65] and prematurity [pooled OR 1.17, 95%CI: 0.91, 1.52] with AN was revealed in our meta-analysis.
Conclusion: The current literature on OCs as risk factors for a later ED is contradictory. The range of different occurrences considered as OCs and methodological limitations hinder ultimate conclusions. Upcoming studies should pool datasets together to obtain sufficient power to assess OCs and EDs in combination.

Contents

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1. Introduction

The aetiology of eating disorders (EDs) appears to be due to a combination of multiple genetic and environmental factors [1,2]. While genetic factors play a major role, most risk factors are thought to be non-shared environmental risk factors [3]. Obstetric complications (OCs) are possible non-shared causes [4–6], which have been included into developmental etiological models [7,8] of EDs.

Even though there is epidemiological evidence that OCs may be implicated in the aetiology of other psychiatric conditions such as ADHD [9] and autism [10], most research in this field has been conducted on schizophrenia [11]. Currently, there are four published meta-analyses on the association between OCs and schizophrenia [11–14], which indicate that premature rupture of membranes, being born preterm, and resuscitation or incubator utilization are significantly associated with a subsequent schizophrenia diagnosis.

Numerous studies [15] have shown that OCs can translate into lasting alterations in the nervous system and the brain, which in turn can increase the risk for schizophrenia: this is what has become known as the 'neurodevelopmental theory of schizophrenia' [16,17]. Within the field of EDs, several researchers [8,18] have also advocated for such a neurodevelopmental model. In EDs such a model emphasizes alterations of the hypothalamic–pituitary–adrenal (HPA) axis [19,20] and appetite control [21] as well as poor stress response regulations [22] and possibly also few social interactions [23,24].

Even though, the number of studies on OCs as risk factors for EDs has recently increased in the literature, to our knowledge, no quantitative assessment has been made of the pooled data from the existing studies on OCs as risk factors for EDs. Such a synthesis might help to disentangle the mechanisms for the association between OCs and EDs.

1.1. Aims of the review

The aim of this systematic review was therefore to collate, summarize and perform a meta-analysis, where possible, on the literature related to OCs as risk factors for EDs. We aimed to gather more conclusive evidence regarding the size and direction of the association between OCs and EDs by [1] undertaking a systematic review on the relationship between OCs and ED diagnoses and/or ED symptomatology and by [2] assessing the strength of the association between OCs and EDs through a meta-analysis across all suitable studies. We hypothesized that there would be a significant relationship between a variety of OCs and the development of a later ED.

2. Materials and method

2.1. Literature search

We undertook a systematic literature search by using four international databases: Medline, PsycINFO, Web of Science (Science Citation Index Expanded, Social Sciences Citation Index, and Arts & Humanities Citation Index) and CINAHL. Two researchers (IK, ET) searched all the papers written in English, German, Spanish or Italian, which were published in peer-reviewed journals until June 2012 inclusive. The list of search terms included: "*ED, eating problems, unhealthy eating, anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), binge eating, purging, dieting, dietary restraint, dietary restrictions, weight concerns, body image, and eating attitudes*". These were linked to search terms for OCs comprising: "*hypertensive disease and diabetes in pregnancy, previous OCs, maternal anaemia, placenta previa, pregnancy bleeding, breech delivery, induced labour, inertia uteri, premature rupture of the membrane, cephalopelvic disruption, forceps, caesarean section, vaginal instrumental delivery, vacuum extraction, cephalhaematoma, umbilical cord wrapped around the neck, placental infarction, meconium staining of the amniotic fluid, cyanosis, jaundice, respiratory and cardiac problems, need for resuscitation, need for oxygen, need for intubation, birth weight, dysmaturity, prematurity, tremors, hypothermia, hypotonia and neuromuscular disturbances.*" We combined each word from the '*eating*' set with each word from the '*OCs*' set separately, and all these combinations of words were used combined and not combined with the term '*risk factor*'. We also corresponded with researchers in the field and requested help in identifying draft papers or papers, which were under review. In addition, we performed manual searches of the references cited in the selected papers. Once the abstracts were read, we then obtained the copies of the relevant papers. A total of 21 papers were retrieved [4–6,25–42].

3. Systematic review

3.1. Selection of studies for systematic review

Of the 21 studies retrieved for the present review, four studies by Favaro and colleagues [25–28] and two studies by Foley and colleagues [5,30] assessed the same dataset though with somewhat distinct sampling frames. The same occurred for the following three studies Cnattingius and colleagues [4], Lindberg and Hjern [34] and Nosarti and colleagues [36]. Consequently, when two or more studies examined the same dataset, the study containing more information about OCs was included. In our case these studies were: Favaro and colleagues [26],