



ELSEVIER

Contents lists available at ScienceDirect

European Psychiatry

journal homepage: <http://www.europsy-journal.com>

EURPSY3685S0924-9338(18)30134-210.1016/j.

eurpsy.2018.06.010Elsevier Masson SAS

Original article

Meteorological parameters and air pollen count in association with self-reported peripartum depressive symptoms



Hanna E. Henriksson^{a,*}, Richard A. White^b, Sara M. Sylvén^{a,c}, Fotios C. Papadopoulos^{c,1}, Alkistis Skalkidou^{a,1}

^a Department of Women's and Children's Health, Uppsala University, Uppsala University Hospital, 75185, Uppsala, Sweden

^b Norwegian Institute of Public Health, Oslo, Norway

^c Department of Neuroscience, Psychiatry, Uppsala University, Uppsala, Sweden

ARTICLE INFO

Article history:

Received 22 April 2018

Received in revised form 25 June 2018

Accepted 30 June 2018

Available online xxx

Keywords:

Meteorological parameters

Pollen

Postpartum

Antenatal

Peripartum

Depressive symptoms

ABSTRACT

Background: Meteorological parameters and air pollen count have been associated with affective disorders and suicide. Regarding peripartum depression, the literature is restricted and inconclusive.

Methods: This cross-sectional study included women (pregnant, $n = 3843$; postpartum, $n = 3757$) who participated in the BASIC (*Biology, Affect, Stress, Imaging, and Cognition*) study 2010–2015 and the UPPSAT (*Uppsala-Athens*) study (postpartum, $n = 1565$) in 2006–2007. Cases were defined according to presence of depressive symptoms during pregnancy (gestational week 32) and 6 weeks postpartum, using the Edinburgh Postnatal Depression Scale (EPDS). Exposure of sunshine, temperature, precipitation, snow coverage, and air pollen counts of durations of 1, 7, and 42 days prior to the outcome were studied for associations with depressive symptoms, using negative binomial regression.

Results: Prior to Bonferroni correction, the concentration of mugwort pollen, both one week and six weeks before the EPDS assessment at gestational week 32, was inversely associated with depressive symptoms in pregnancy, both before and after adjustment for season. No associations were found between the exposure to meteorological parameters and pollen and depressive symptoms, at the same day of depressive symptoms' assessment, the previous week, or the six weeks prior to assessment, either during pregnancy or postpartum after Bonferroni correction.

Conclusions: There was no evidence that neither short-term nor long-term exposure to meteorological parameters or air pollen counts were associated with self-reported peripartum depressive symptoms in Uppsala, Sweden.

© 2018 Elsevier Masson SAS. All rights reserved.

1. Introduction

Meteorological parameters, especially sunshine, have been thought to influence the human mood since ancient times. A treatment option for melancholy in Aretaeus's time was to stare directly into the sun [1]. In 1984, Rosenthal et al. [2] defined Seasonal Affective Disorder (SAD), which has been seen as a disorder associated with less light during the winter months, and reported on the antidepressant effect of light therapy.

Although meteorological parameters have been extensively studied for their association with suicide [3–15], the literature is

more limited and inconclusive on the association between those parameters and mood or other psychiatric outcomes [16–24]. Radua et al. [16] reported a negative one-month delayed association between a climatic factor primarily composed of temperature and sunlight, and depression with melancholic features. The same association was reported between a climatic factor mostly composed of barometric pressure and depression with psychotic features [16]. Increase in daylight [19,23] and temperature [19,22] has been associated with a reduced risk of depression and mental health distress. Nevertheless, the reversed pattern has also been reported [24]. Humidity has similarly been associated with depression and psychiatric admissions [21,22]. While the above-mentioned studies have reported on associations for some parameters, their findings are negative for others [17,19,21]. For example, while humidity was associated with admissions of affective disorders in the study by

* Corresponding author.

E-mail address: hanna.henriksson@kbh.uu.se (H.E. Henriksson).

¹ Equal contribution.

Salib et al. [21], the findings for sunshine hours, temperature, and rainfall were negative. Moreover, a Danish study reported negative findings on the association between several meteorological parameters and onset of bipolar disorder [20]. Similarly, a large study from Ireland found no associations between hospital admissions of depression and hours of sunshine, sunlight radiation, temperature, rainfall, wind speed and direction, and barometric pressure [18].

Apart from meteorological parameters as a possible explanation to the seasonality of suicide and mood symptoms, aeroallergens have been discussed as a possible triggering factor [25,26]. Qin et al. [26], reported a 13% increase in weekly numbers of suicides when the pollen count increased from 0 to '30–100' grains/m³ air, also finding risks with even smaller changes. Similarly, among younger women, a two-fold increase in suicide in the peak-pollen period compared with the pre-pollen period has been reported [25]. Moreover, higher rates of allergy in patients with depression have been described, as well as greater rates of depression in patients with allergic rhinitis than in the general population [27].

In the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), peripartum depression is defined as a major depressive episode with onset during pregnancy (antenatal depression) or within four weeks after childbirth (postpartum depression) [28]. Nevertheless, in both research and clinical practice, the postpartum period is often extended to include the first year after birth [29]. A recent systematic review estimated the pooled prevalence of peripartum depression to be 11.9% [30]. Previous mental illness is the most prominent risk factor for developing peripartum depression, but lack of social support, unplanned or unwanted pregnancy, adverse life events, pregnancy complications, and low income can also increase the risk [31–33]. Premature birth, low birth weight, and negative effects on the social behavior and cognitive development have been reported increased in children of mothers with peripartum depression [34–36].

Seasonal patterns in peripartum depressive symptoms have been studied, although there is no clear consensus [37–46]. We have previously reported a seasonal pattern in postpartum depressive symptoms, with an increased risk in women giving birth in October–December, compared with those giving birth in April–June [44], which could not be replicated in a later study from the same catchment area [46]. In the latter study however, the same seasonal pattern was observed in postpartum depressive symptoms only during 2011, which raised the hypothesis if extreme climatic conditions are associated with peripartum depressive symptoms. Furthermore, few studies have investigated the possible contribution of meteorological parameters to these symptoms. Postpartum depression has been suggested to decrease in season of intermediate daylight and increase during season with the least daylight [38]. Similarly, seasonally longer nights have been suggested to increase antenatal depressive symptoms in depressed women [40]. However, in a large study by Jewell et al. [39], no associations between daylight at the time of childbirth and postpartum depression were found. Moreover, to the best of our knowledge, there are no studies on the possible role of aeroallergens and peripartum depression.

The aim of this study was to examine if meteorological parameters and air pollen count are associated with self-reported peripartum depressive symptoms in Uppsala, Sweden. Two study populations were used.

2. Methods

The current study was undertaken as part of both the BASIC (*Biology, Affect, Stress, Imaging, and Cognition*) and UPPSAT (*Uppsala-Athens*) studies conducted in Uppsala, Sweden. Uppsala is located in central Sweden, a country with a temperate climate. Winters are usually mildly cold with frequent snow or rainfalls, and summers are warm and sunny. Of note, in Uppsala, the climate can vary greatly between the years.

BASIC is an on-going longitudinal population-based study with multiple assessments during pregnancy and after childbirth. The study was initiated in 2009 and the primary aim is to study several aspects of affective disorders during the peripartum period [47]. Women from Uppsala County Council, who register for routine ultrasound around gestational week 17 at Uppsala University Hospital are asked about participation. Exclusion criteria are being under the age of 18 years, not being able to communicate adequately in Swedish, protected identity, blood borne infectious diseases, or a non-viable pregnancy.

The UPPSAT study was a population-based cohort study conducted between May 2006 and June 2007 [48]. The primary aim of the study was to investigate maternal, paternal, and infant well-being after childbirth [48,49]. Women from Uppsala County Council, who gave birth at Uppsala University Hospital were contacted by their midwife or midwife's assistant after childbirth and asked to participate. Exclusion criteria included: inability to adequately communicate in Swedish, protected identity, intra-uterine demise or infant being immediately admitted to the neonatal intensive care unit.

Both studies were conducted at the Department of Obstetrics and Gynecology at Uppsala University Hospital, which is responsible for all women giving birth within Uppsala county, as well as high-risk pregnancies from nearby counties. Written informed consent was obtained from all participating women.

2.1. Study population

The current study included women participating in the BASIC (January 2010 to December 2015) and UPPSAT (May 2006 to June 2007) studies.

2.2. Outcome variables

The main outcome was presence of depressive symptoms, as measured by the Edinburgh Postnatal Depression Scale (EPDS), at (i) gestational week 32 (BASIC) and (ii) 6 weeks postpartum (BASIC and UPPSAT). The main outcome was analyzed using continuous EPDS scores. Response at both time points was not mandatory for inclusion, answering one questionnaire was sufficient. The EPDS is a self-administered instrument aimed to screen for depressive symptoms during pregnancy and the postpartum period [50]. The questionnaire contains ten statements with four alternative answers, and gives a total score from 0–30. A higher score signals an increased likelihood of the woman being depressed.

2.3. Outcome variables for sensitivity analyses

As a secondary outcome, the EPDS was also dichotomized and the presence of self-reported depressive symptoms was investigated. The cut-off ≥ 13 has been validated in a Swedish pregnant population, with a sensitivity of 77% and specificity of 94% [51], and was used for depressive symptoms at gestational week 32. At 6 weeks postpartum, women were screened positive for self-reported depressive symptoms when having a total score of ≥ 12 [52]. A validation of this cut-off in a Swedish population yielded a sensitivity of 96% and a specificity of 49% [52]. In order to decrease

Download English Version:

<https://daneshyari.com/en/article/8814736>

Download Persian Version:

<https://daneshyari.com/article/8814736>

[Daneshyari.com](https://daneshyari.com)