Depressive symptoms and comorbid problems in pregnancy - results from a population based study

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ABSTRACT

Objective: To estimate the prevalence of antenatal depressive symptoms, identify relevant risk factors, and assess comorbid mental health problems, among pregnant women enrolled in a population based study.
Methods: This was a secondary analysis of data collected from 1916 pregnant women who participated in the TRansgenerational Assessment of Children's Environmental Risk (TRACER) study in Kuwait, and had answered the Baseline Questionnaire and completed the Edinburgh Depression Scale (EDS). Logistic regression models were used to examine the association of depressive symptoms with baseline socio-demographic characteristics and psychosocial indicators.
Results: The prevalence of antenatal depressive symptoms, using a cut-off of EDS score ≥ 10, was 20.1%. Depressive symptoms were reported more by women of lower family income and had self-reported history of depression prior to pregnancy, with women in the third trimester having higher odds of antenatal depressive symptoms compared to those in the second trimester. Pregnancy-related anxiety, higher perceived stress levels, and post-traumatic stress disorder symptoms were comorbid with the presence of depressive symptoms.
Conclusion: The findings showed that one in five pregnant women in Kuwait experiences antenatal depressive symptoms and that these symptoms are comorbid with other mental health problems. Screening for antenatal depression and providing support to pregnant women should be considered.

1. Introduction

Depression in pregnancy, or antenatal depression, is a common mental health problem with rates varying from 5 to 30% in developed countries [27]. However, despite the effects that antenatal depression may have on the health of the mother and the baby, it is usually overlooked [14, 29].

Women with antenatal depression are more likely to engage in unhealthy activities during pregnancy, such as smoking, using alcohol and drugs, and having a poor nutrition [39], and less likely to attend antenatal care [2] or initiate breastfeeding [14]. Depression in pregnancy has been linked with several adverse pregnancy and perinatal outcomes, such as preeclampsia and delivery with obstetric forceps or cesarean section [14, 16]. In addition, some studies have shown that

antenatal depression is linked to preterm delivery, low birth weight, and small for gestational age babies, although these data have been inconsistent [3, 4, 11, 14, 15, 28, 34]. Antenatal depression is also a risk factor for postnatal depression, which has adverse consequences on the mother-child bonding, on the mother's health, and on the development of the child [20].

Socioeconomic and environmental factors, as well as a woman's general health status, are the main determinants of depression in pregnancy. Women who experience an adverse stressful life event or do not have a supportive social environment during pregnancy are at a greater risk of developing depressive symptoms [18, 29]. Furthermore, depression in pregnancy is greater among certain ethnic minorities, those with lower educational and socioeconomic status, and the unemployed [8, 21, 31, 37]. Adverse events in previous pregnancies,

history of depression, lower health status, and a higher pre-conception body mass index (BMI) have also been shown to be strong risk factors of antenatal depression [21, 24].

Depression is not the only type of maternal distress in pregnancy; anxiety and stress are also prevalent during this period, with anxiety being more common than depression in some cases [40, 41]. Pregnant women worry about the experience of childbirth and the health of the baby [42]. Panic disorders and post-traumatic stress symptoms have also been reported in women with antenatal depression [43, 44]. Moreover, these problems are correlated and can be comorbid with depression, making women even more vulnerable to the consequences of distress [45, 46, 18, 22].

Kuwait is an Arab country which is located in the Gulf region. It is one of the wealthiest countries in the world and the second wealthiest in the Middle East region, after Qatar [13]. The population of Kuwait, as reported by the Kuwaiti Public Authority for Civil Information, is approximately 4.4 million, out of whom only 1.3 million are Kuwaitis [35]. Mental and behavioral disorders are on the rise in several high income countries of the Arab World, including Kuwait, and are a major cause of reduced disability-adjusted life-years (DALYs) [23]. However, despite the importance of mental health, there is still limited evidence about antenatal depression in this geographic area, which experienced dramatic economic development in the last decades. Identifying the potential determinants for developing antenatal depression in Kuwait, and examining other comorbid problems in the antepartum period, is important in understanding the problem and in designing successful interventions, not only for Kuwait but also for other countries characterized by rapid economic growth. The aim of this study is to broaden the knowledge about antenatal depression in the region, by providing an estimate of the prevalence of antenatal depressive symptoms, identifying the associated risk factors, and assessing comorbid mental health problems in a sample of pregnant women enrolled in the TRansgenerational Assessment of Children's Environmental Risk (TRACER) study in Kuwait.

2. Methods

2.1. Study design

This study is a secondary analysis of data collected from the TRACER study. Briefly, TRACER is a population based study conducted in Kuwait with the main goal of examining prenatal risk factors for early childhood obesity. Ethical approval was obtained from the institutional review boards of both the Harvard T.H. Chan School of Public Health and the Dasman Diabetes Institute, and permission to recruit participants was provided by the participating health centers. These centers included public hospitals in the six governorates of Kuwait and three private clinics. Women were recruited primarily during their second trimester, but pregnant women in their first and third trimester were also eligible to participate in the study. Pregnant women who attended public and private hospitals were eligible to participate in the study if they were 18 to 45 years old and fluent in Arabic or English. Women were excluded from the study if they were found to have a multiple pregnancy. A woman had to provide a signed informed consent from both herself and her husband before recruitment. The data collection process included a series of interviewer-administered questionnaires and the collection of biological samples. A Baseline questionnaire was administered at enrollment while a Stress questionnaire was administered typically at a visit subsequent to enrollment or by a phone interview. If a woman was recruited during the third trimester of her pregnancy, the Baseline and Stress Questionnaires were both administered at enrolment. The TRACER study started in May 2012 and ended in August 2015. Details of the TRACER study have been published elsewhere [47].

2.2. Participants

A total of 2478 women were enrolled in the study and completed the Baseline Questionnaire. Of these, 2038 women (82%) completed the Stress Questionnaire with usable data. We excluded women who did not have a score for the antenatal depressive symptoms (n = 92), women who took anxiety or depression medication during the current pregnancy (n = 6), and we further restricted the sample to women who had answered the Stress Questionnaire during their second or third trimester of pregnancy (n = 24 women who completed the questionnaire in the first semester were excluded). Thus, 1916 women were included in this analysis.

2.3. Measures

2.3.1. Antenatal depressive symptoms

Since diagnosis of depression requires clinical examination, the prevalence of depressive symptoms which is a widely used indicator of depression is examined instead. Depressive symptoms during pregnancy were assessed once antenatally, using the Edinburgh Depression Scale (EDS) which was part of the Stress Questionnaire. This is the same tool as the Edinburgh Postnatal Depression Scale (EPDS) which was originally used to assess postnatal depression but it has been since then validated in different languages for use in women who are not in the post-natal period [7]. EDS is used for screening for depression and not for diagnosis, which requires a psychiatric examination. There are 10 items in the EDS and each can get a score of 0 to 3, with a total score of 0–30. Higher EDS scores indicate higher levels of depressive symptoms. Different cut-off points for defining the presence of depressive symptoms have been recommended in the literature. Since the questionnaire was not validated in the study population, we selected the cut-off point of EDS $\geq$ 10, which was used in studies conducted in multi-ethnic populations [25, 31], and was also the recommended cut-off for the Arabic version of the EPDS for the antenatal period by the State Perinatal Mental Health Reference Group of Western Australia [10]. When the Arabic EPDS with a score $\geq$ 10 was compared with the Diagnostic Interview Schedule (DIS) for DSM-III-R for major depression and anxiety, the sensitivity was 77.8% and the specificity 80.2% [10].

2.3.2. Mental health indicators

The Stress Questionnaire included sections examining psychosocial risks before pregnancy, such as childhood emotional neglect and lifetime traumatic events, and during pregnancy, such as pregnancy-related anxiety, perceived stress, post-traumatic stress disorder (PTSD) symptoms, and support from the social network. Information about these psychosocial constructs used and their corresponding scales are provided in the supplementary material.

2.3.3. Other variables

Other variables collected at enrollment that may be associated with depressive symptoms in pregnancy included age, nationality, employment status, educational level, household income, parity, pre-pregnancy BMI, smoking, alcohol consumption, and type of clinic. We also considered the role of complications in previous pregnancies, such as miscarriages, preterm labor, bleeding not related to miscarriage, gestational diabetes or gestational hypertension, as well as history of depression prior to the current pregnancy. History of depression was self-reported and was defined as a physician's diagnosis of depression or use of anti-depressive medication. The self-reported date of last menstrual period and the date at the Stress Questionnaire were used to calculate the gestational age at the time of the evaluation of depressive symptoms and the other psychosocial risk factors.

2.4. Statistical analysis

We calculated the prevalence of antenatal depressive symptoms and