Prevalence of women's worries, anxiety, and depression during pregnancy in a public hospital setting in Greece

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Summary

Many studies have examined the prevalence and risk factors of postnatal depression. However, only a few studies have explored the prevalence of anxiety and depressive symptoms in pregnancy. The aim of this study was to investigate the prevalence of worries, antenatal anxiety (AA), and antenatal depression (AD). The sample of this study consisted of 163 pregnant women with gestational age from 11 to 26 weeks. Worries were measured with Cambridge Worry Scale (CWS), anxiety was measured with State-Trait Anxiety Inventory (STAI), and depression was measured with Center for Epidemiologic Studies-Depression scale (CES-D). Depressive symptoms were found in 32.7% of the participants and 44.4% had STAI scores indicating anxiety symptoms of clinical significance. The mean score for total CWS was 26 (SD = 12.3). It is noteworthy that the most important worries in the study sample were "the possibility of something going wrong with the baby", "giving birth", and "financial problems". The prevalence of antenatal anxiety and depression identified in this study is of concern. Screening for antenatal anxiety and depressive symptoms with validated instruments is crucial.

Key words: Anxiety; Depression; Worries; Pregnancy; Prevalence.

Introduction

Pregnancy and the transition to parenthood involve major biological and psychosocial changes [1]. These changes have been linked to an increase in anxiety symptoms (AS), depression symptoms (DS), worry, and stress [2]. World Health Organization (WHO) estimates that depressive disorders will be the second leading cause of global disease burden by 2020 [3]. Postnatal depression shares similar prevalence ratings to those of depression in the general population, ranging from 12%-20%, with a commonly-reported estimate of 13% [4]. Although many studies have examined the prevalence and risk factors of postnatal depression, only a few studies have explored the prevalence of DS, and even fewer studies have addressed the prevalence of AS in pregnancy. A meta-analysis of 21 studies on depression during pregnancy indicated that the prevalence of antenatal depression (AD) was approximately 10.7%, ranging from 7.4% in the first trimester to 12.8% in the second trimester [5]. However, the rate of AD in individual studies ranges from 4.8% up to 40% [4, 6-12]. Moreover, the incidence rate of anxiety during pregnancy has been reported to range between 6.8% and 59.5% [4, 6, 9, 12, 13]. It is noteworthy that the estimation of the incidence of stress and worries during pregnancy has been a relatively neglected area of research.

Anxiety, depression, and other stressful feelings during prenatal period can easily lead to more severe diseases, which may be harmful to the mother, fetus, and the expectant newborn's health [6]. Anxiety and depression during pregnancy have been associated with prematurity, low birth weight, and fetal growth retardation [14-16], obstetric complications, increased nausea and vomiting, planned cesarean delivery [17], postpartum depression [4], and may

have a negative impact on child development [18]. Therefore, it is essential to investigate the prevalence of anxiety, stress, and depression of the pregnant women in order to implement interventions to reduce adverse pregnancy outcomes. The current literature suggests that low income and unemployment are major risk factors of antenatal anxiety and depression [4, 9, 10]. Therefore, the prevalence of antenatal anxiety, stress, and depression in a country with a major financial crisis and high unemployment rates as in Greece would be worthy of attention.

Materials and Methods

Sample and data collection

The study was conducted in one of the largest hospitals in Athens, Greece to achieve a representative database. The questionnaire was administered to a sample of 163 pregnant women with a gestational age of between 11 and 26 weeks, who were booked for antenatal screening in the antenatal clinic of a public hospital of Athens. Following ultrasound scanning, a midwife of this research team contacted the eligible women. The pregnant women were informed of the study aim and protocol, and once they voluntarily agreed to participate, they were given an envelope containing the questionnaires and an informed consent form. The completed questionnaires and the signed consent form were returned directly or by mail to the researcher (within two to three weeks).

Study instruments

Worries during pregnancy were measured with the Cambridge Worry Scale (CWS) developed by Green *et al.*, in 2003 [19]. The CWS contains items concerning worries during pregnancy, such as the baby's health, financial issues, and giving birth. Each item is scored on a six-point Likert-type scale ranging from *not a worry* (0) to *major worry* (5). The CWS scale can be used throughout pregnancy. Depending on the pregnancy week, additional context-specific items can be added or removed as appro-

priate. The CWS used in this study comprised of 16 items, which allowed a total sum score that ranged from 0 to 80 to be calculated. According to the instrument developers and the Greek validation outcome, the CWS has a four-factor structure: (1) sociomedical aspects of having a baby: giving birth, going to hospital, internal examinations, and coping with the new baby, (2) socioeconomic issues: money, employment problems, housing, and the law, (3) health of mother and baby: miscarriage, something going wrong with the baby, and own health, and (4) relationships with partner, family, and friends. A higher score reflects higher worries. The CWS was adapted to the Greek language and has been found to have satisfactory psychometric properties (e.g., construct validity).

State and trait anxiety was measured with the State Trait Anxiety Inventory (STAI) [20]. *State anxiety* is defined as an unpleasant emotional condition that emerges in case of threatening demands or dangers. Therefore, it should be low in non-stressful situations and high if circumstances are perceived to be threatening or dangerous. The state scale consists of 20 items that ask people to describe how they feel at a particular moment in time, rated on a four-point scale ranging from not at all (1) to very much so (4). The trait scale consists of 20 items and asks people to describe how they generally feel (e.g., confident), rated on a four-point frequency scale ranging from (1) *almost never* to (4) *almost always.* Total scores for state and trait anxiety range from 20 to 80. The STAI was adapted to the Greek language and has been found to have satisfactory psychometric properties [21]. A cut-off score of 43 or was used in this study as a point indicating high-state anxiety [22]. Cronbach's alpha of 0.84 (state) and 0.87 (trait) were obtained in the present study.

The Center for Epidemiologic Studies-Depression scale (CES-D) was used to assess depression symptoms of the study population [23]. CES-D is a self-reporting 20-item scale that covers affective, behavioural, and somatic symptoms experienced during the past week. Responses to item statements are graded from 0 (rarely or none of the time) to 3 (most or all of the time). Four items are reverse-scored items. Scores for each item in the CES-D scale are summed to obtain an overall score. The overall score ranges from 0 to 60, where the higher the score, the more frequent the depressive symptoms. A cut-off score of 16 or higher was used in this study as that point indicative of significant or mild depressive symptomatology in many studies addressing depression during pregnancy [24, 25]. The CES-D was adapted to the Greek language and has been found to have satisfactory psychometric properties [26]. A Cronbach's alpha of 0.86 was obtained in this study.

Basic demographic and medical information included: age, gestational age, parity, previous miscarriages, previous deliveries, complications during previous pregnancy and labour, previous infertility problems, marital status, educational level, economic level, and employment status. The educational level was categorized as low (up through elementary school), medium (high school certificate) or high (university degree). The annual income level was categorized as low (€ 9,600-17,999 or USD 13.300-25.000), medium (€ 18,000-35,999 or USD 25.001-50.170) or high (> € 36,000 or > USD 50.171) [27].

Statistical analysis

Statistical analysis was performed using SPSS version 17.0. Descriptive statistics, such as means, standard deviations, and frequencies, were used to represent the demographic characteristics of the participants. Mean values and standard deviations of the total sum scores of the CWS, STAI, and CES-D, were also calculated; *p* values less than 0.05 were considered significant.

Ethics

The Research and Ethics Committee of the Elena Benizelou hospital, approved this study protocol. All participants in this study were informed about the scope and the purpose of the study. Eligible women were also assured that the collected data would be used only for the purpose of the study, and that their decision to withdraw would not compromise the standard of the received care. A signed informed consent was obtained from all study participants.

Results

Characteristics of participants

The mean age of participants was 31.2 years (SD 4.2 and range 22-44). Sixty-two percent had education beyond high school and 37% had high school, and one percent had less than a high school education. Eighty percent of women participated in the work-force and 96% were married. For 46% of the sample, this was their first pregnancy, 36% had already a child, 22% of the women had experienced previous miscarriages, and 12% of the participants had experienced a complication during previous pregnancy or previous labour.

Prevalence of antepartum anxiety and depressive symptoms

The means for STAI-state and trait scores were 41.5 (SD = 8.4) and 39.7 (SD = 8.3), respectively. The mean score for CES-D was 13.4 (SD = 9.2). Of the 163 participants assessed at the first and second trimesters of the pregnancy, 32.7% had CES-D scores $\geq$ 16, indicating depressive symptoms, and 44.4% had state anxiety scores $\geq$ 43, indicating anxiety symptoms. Specifically, 34.4% of participants with gestational age between 11 and 14 weeks had a CES-D score $\geq$ 16 and 46.9% of participants with gestational age between 11 and 14 weeks had STAI-state score $\geq$ 43. Moreover, 32.3% of participants with gestational age between 15 and 26 weeks had a CES-D score $\geq$ 16 and 43.8% of participants with gestational age between 15 and 26 weeks had STAI-state score $\geq$ 43.

Prevalence of antepartum worries

The mean score for total CWS was 26 (SD = 12.3). It is noteworthy that the most important worries in the sample were the "possibility of something going wrong with the baby", "giving birth", and "financial problems".

Discussion

According to the authors' knowledge, this is the first study that reports on the incidence of anxiety, depression, and worries in a sample of pregnant women admitted to a Greek public hospital. The main findings of this study suggest that AD occurs in one-third of pregnant women and AA in almost half of pregnant women. The rate of anxiety is in agreement with previous reports from both high-income [4, 12] and low-income countries [13]. Nevertheless, the rate of depression in this study was higher than those reported in countries such as USA [28], Sweden [27], Australia [4], Hungary [9], and China [6]. The high prevalence of depressive symptomatology in this study could be attributed to special socio-economic circum-

stances, such as financial crisis and high rates of unemployment. In addition to that, the direct association between poverty and depression is well-documented in high-income countries [4, 9]. Moreover, the worries related to the financial problems, ranked third in this study, whereas in previous relevant studies it did not rank top [29-31]. Therefore, financial issues may have caused significant worries among Greek pregnant women.

Conclusion

According to the findings of this study, about 50% of pregnant women experience anxiety symptoms and 30% experience antenatal depression, that not only had deleterious effects on the woman but also on her baby. The prevalence of antenatal anxiety and depression identified in this study is of concern. Midwives and healthcare professionals, who recognise the signs and symptoms of antenatal depression and anxiety, and the risk factors associated with these disorders, can help to identify and prevent them. The signs and symptoms of depression in pregnancy do not differ from depression at any other time. However, antenatal depression may go undiagnosed because the depressive symptoms could be considered complaints of pregnancy and could be attributed to the physical and hormonal changes associated with pregnancy [32]. Therefore, screening for antenatal anxiety and depressive symptoms with validated instruments is crucial.

Acknowledgment

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