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Does twin pregnancy influence maternal mental wellbeing? – a cross sectional study

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Abstract

Our aim was to investigate the prevalence of self-reported prenatal anxiety and depressive symptoms among women pregnant with twins. Results: Depressive symptoms lasting for more than 14 days were reported by around 50% of women in multiple pregnancies (n=136) compared to 31% of women in single pregnancy with the same symptoms (n=943 p=<0.01 PHQ-9 score 5 or higher). More than 50% of women carrying twins who presented depressive symptoms have had uncomplicated pregnancy. Above mentioned data proves that twin gestation, even uncomplicated, can be more overwhelming than single pregnancy which affects mental wellbeing. Conclusions: The overall level of depressive symptoms among women pregnant with twins remains high. This situation may be attributed to not enough psychological monitoring during twin pregnancy and poor access to mental health specialists. The psychological condition of women in twin pregnancies needs attention.

Key message

Twin pregnancies may be associated with poor psychological consequences even uncomplicated. We should pay special attention to the psychological care of pregnant women.

Introduction

Pregnant women expecting twins are more likely to experience stress, which can lead to anxiety and depression. Depression is a mental disorder that affects approximately 3.8% of the world's population [1]. Perinatal depression can occur either during pregnancy or within the first 12 months after delivery [2].

Multiple pregnancies are associated with a greater risk of postpartum complications for both the mother and the fetus [3]. Major depression occurs in one-third of pregnant women expecting twins and is associated with higher levels of stress and need of social support [4, 5].

The aim was to investigate the prevalence of self-reported prenatal anxiety and depressive symptoms among women pregnant with twins and the associated factors.

Material and methodology

A cross-sectional study was conducted. A self-composed questionnaire in Polish language was distributed via the internet between March and July 2024. The questionnaire was dedicated to pregnant Polish speaking women. We distributed it by web pages and Facebook groups designed for pregnant women. The survey was voluntary and anonymous, did not contain any questions regarding personal data that would enable the identification of participants and only the authors of the study had access to the collected information.

The questionnaire consisted of 40 single or multiple-choice questions. There were 13 open questions and 27 closed questions. All answers were manually approved and checked for duplicates. Around 23

surveys were rejected due to incorrectly completed forms.

The survey was divided into two sections. The first part consisted of sociodemographic and lifestyle data. In the second part, women were asked about their mental condition before and during pregnancy period. Depression symptoms were asked with the Patient Health Questionnarie-9 consisting of 9 questions on perinatal depression lasting more than 14 days (PHQ-9) [6]. The PHQ-9 is a widely used tool for screening, diagnosing, and monitoring depression in both clinical and non-clinical settings [7]. To score the instrument, tally the numbers of all the checked responses under each heading (not at all = 0, several days = 1, more than half the days = 2, and nearly every day = 3). We denied perinatal depression if the patient received 0–4 points, rest of them were suspected depression.

Women were asked about occurrence of depressive episodes and gestational age at this time. Questionnaire included data on mental health treatment, including psychiatric consultation, psychopharmacotherapy, and psychotherapy.

The last part consisted of the Edinburgh Perinatal/Postnatal Depression Screening assessing mental condition during the last 2 weeks [8]. This 10-item self-report measure is designed to screen women for symptoms of emotional distress during pregnancy and the postnatal period

We aimed to identify women who may present depressive symptoms. Each answer is given a score of 0 to 3. The maximum score is 30.

The inclusion criteria for the study were as follows: age > 18 years old, Polish speaking, gestational age 14–37 weeks of gestation, both live fetuses, or 1 alive if singletons. Only completely filled out questionnaires were considered. All the answers were checked for duplicates and no identical records were found. The study protocol obtained the approval of the Ethics Committee of the Medical University of Warsaw AKBE/106/2025.

Data were expressed as absolute numbers and percentages or means and standard deviations. Statistical analyses were performed with the use of R software version 3.2.5 (R Foundation for Statistical Computing, Vienna, Austria). The $\chi 2$ or Fisher exact tests were used to compare categorical variables and Mann–Whitney U-test for continuous variables. All tests were two tailed and $p < 0.05$ was considered significant. To compare statistics with normal distribution in distinct characteristic groups, a paired t-test, and one-way ANOVA were utilized. Binary logistic step regression was used to analyse the associated factors of antenatal anxiety and depressive symptoms.

Results

General characteristics

A total of 3235 respondents filled out the questionnaire, among which 259 (8%) were carrying twins. Maternal characteristics of the study group are presented in Table 1.

Most women were 25–29 years old (38%), 78% of them were highly educated, 43% lived in cottages or cities > 100.000 citizens (25%), most of them declared good material status 62.6%.

It is known that physical activity is correlated with mental wellbeing. During pregnancy most, women resign with regular physical activity (56%), among them 66% were carrying twins ($p < 0.01$). Only about 6% of women in twin pregnancy exercise more than 300 min weekly, with frequency of 1 or 2–3 times weekly (48%, 43%).

Before pregnancy respondents were sexually active mostly 2 or 3 times weekly (singletons 80%, twins 54% $p = 0.07$). After confirming the pregnancy almost 21% of all women resign with sexual intercourse. Among women carrying twins 34% reported to refrain from sexual intercourse, another 50% undertook activity less frequent than before conception ($p < 0.01$). Among women who were sexually active almost 70% reported good sexual satisfaction during the pregnancy period (single 68% vs multiple 61% $p = 0.023$). Only 5% of pregnant women reported their sexual self-satisfaction to be less satisfying during gestation.

Psychological wellbeing before pregnancy

Mental disabilities diagnosed by a doctor were described by respondents, including depression (5.7% n = 185), anxiety (5.7% n = 185), neurosis (3% n = 98), sleeping problems (2.2% n = 71), bipolar affective disorder (0.4% n = 13), obsessive compulsive disorders (0.7% n = 24). Among women carrying twins, pre-pregnancy depression, anxiety and sleeping problems were commonly reported (3% n = 8; 1.5% n = 4; 2.3% n = 6). (depression $p = 0.078$, anxiety $p = 0.004$).

Women were asked about daily dealing with stressful life situations before pregnancy. They mostly answered to deal properly with accidental stressors (82%). Despite a good pre-pregnancy mental status almost 40% of women reported deterioration of psychological well-being and dealing with stress during gestation.

Psychological wellbeing during pregnancy

Among 3235 study participants 260 women visited psychologists regularly during pregnancy (8%). Almost 28 out of 259 in multiple pregnancies did it as well (10.8% $p = 0.11$). Among all participants, 98 women (2.5%) were under psychiatric care during pregnancy, with 3.8% of them being twins (n = 10 $p = 0.531$).

Women in multiple pregnancies statistically more often complained about depressive symptoms compared with singletons, including chronic fatigue (68.7% vs 60.9% $p = 0.01$) feeling sadness for more than 14 days (32% vs 22.6% $p = 0.001$), suicidal thoughts (1.9% vs 0.7% $p < 0.01$), anhedonia (10.4% vs 14% $p = 0.1$), constant difficulties with falling asleep (43.6% vs 34.4% $p = 0.003$). Depressive symptoms lasting for more than 14 days were reported by around 50% of women in multiple pregnancies (n = 136)

compared to 31% of women in single pregnancy with the same symptoms (n = 943 p = < 0.01 PHQ-9 score 5 or higher).

Women presenting depressive symptoms were mostly dichorionic diamniotic twins (n = 94) followed by monochorionic diamniotic (n = 39) and monochorionic monoamniotic (n = 3). Women in twin pregnancy suffering depressive symptoms were mostly young (26–29 yo; 62%), primiparas (48% n = 65), at mean 25 weeks of gestation (SD 8.6), with normal BMI 25 (SD 5.7). Only 5 of them have had depression or anxiety before pregnancy. Moreover, pregnancy diseases affected only 16% of them with GDM, 18% hypothyroidism, 2.9% transfusion syndromes. More than 50% of women carrying twins who presented depressive symptoms have had uncomplicated pregnancy.

Above mentioned data proves that twin gestation, even uncomplicated, can be more overwhelming than single pregnancy which affects mental wellbeing.

Surprisingly, most of the respondents with twins felt good family support (n = 102 76%) as well as help from the medical care system (n = 120 88%). Only 20 women out of 136 with depressive symptoms visited a psychologist during gestation, another 8 had a psychiatrist consultation. Surprisingly they mostly lived in big cities (78% n = 107) and had good material status (98% n = 133).

Respondents with depressive symptoms reported the fear of children disorders being the most overwhelming (twins 58% vs singletons 53% p < 0.01), as well as fear of losing the pregnancy (57% vs 53% p < 0.01), decrease physical condition (42% vs 33% p = 0.004), gaining excessive weight (35% vs 21% p < 0.01), lack of time for themselves (31% vs 30% p = 0.7).

5 women in our study had recurrent suicidal thoughts during pregnancy (1.9%). They were in dichorionic pregnancy, 25–29 years old, after 30 weeks of gestation at the moment of survey. Only one of women with suicidal thoughts has had pre-pregnancy mental disorders including depression and anxiety attacks. 4 out of 5 women noticed deterioration of mental condition during the first and third trimester of pregnancy. Surprisingly 3 out of 5 women smoke regularly during pregnancy and were drinking alcohol occasionally. Women with suicidal thoughts have had an uncomplicated pregnancy. All women answered to not visit a psychologist during pregnancy, only one visited a psychiatrist. They were satisfied with the medical health system, but highlighted the lack of gynecologist interest in women's mental status. 81% of women in single pregnancy and 75% of women carrying twins received emotional and financial support from their families.

Table 2. The Edinburgh scale was correctly completed by 3112 patients, including 248 women with multiple pregnancies and 2864 in single pregnancies. A score of 12 or higher, a possibility of a depressive episode, was given to 98 patients (39.5%) with multiple pregnancies and 896 patients (31.3%) with single pregnancies during the last 14 days (p=0.01). A score of 10 or 11 points, a subdepressive state, was given to 36 patients (14.5%) with multiple pregnancies and 486 patients (17%) with single pregnancies (0.33). The remaining patients had a score below 10. Patients who may have a depressive

episode or patients with a subdepressive state should be encouraged to consult a doctor, psychologist or psychiatrist.

Discussion

Mental stress is a global issue that affects individuals across all cultures, ages, and socioeconomic backgrounds. There is growing research in the field of prenatal mental health win pregnancy is challenging for women pregnant with twins, especially managing mental stress [9, 10]. The unique aspects of carrying twins, from the physical demands to the potential complications, can contribute to increased levels of anxiety. One in seven women is expected to experience peripartum depression at some point during their pregnancy or in the first few weeks following childbirth, according to estimates [5].

The prevalence for self-reported anxiety and depressive symptoms during gestation vary among literature [11]. Sakowicz et al. presented 71.4% rate of mild or severe depressive symptoms (PHQ-9 score 5 or higher) during single pregnancy. Antenatal depression symptoms improved in 35.0% women and was stable in 59.7% [12].

The issue of depressive symptoms during twin gestation is rarely reported in literature [13]. Zhou et al. reported that among women carrying twins, almost 34.8% presented symptoms of chronic anxiety, 37.1% had symptoms of possible depression [14]. The same data was reported by Benute et al, with 33% rate of depressive symptoms among women carrying twins with fatigue, loss of energy (100%), sleeping problems (82.4%), changes in appetite (82.4%), decreased interest in daily activities (82.4%), and psychomotor problems (82.4%) [4]. In the present study depressive symptoms were reported by around 50% of women in multiple pregnancy (n = 136) and 31% of women in single gestation as well (n = 943 p = < 0.01). In most cases the pregnancy was uncomplicated. The commonest symptoms included decreased temper for more than 14 days, feeling constant fatigue, loss of interests, difficulty concentrating and remembering, thoughts of death suicide self-harm, sleeping problems.

Literature highlights women with pre-pregnancy anxiety disorders are at increased risk of depression during pregnancy [13, 14]. However, only 5 women pregnant with twins have had depression or anxiety disorders before pregnancy. We cannot assume that prepregnancy mental disorders are only risk factors for depression and anxiety during twin gestation.

In the present study women carrying twins who presented depressive symptoms were mostly young (26–29 62%), primiparas (48% n = 65), at mean 25 weeks of gestation (SD 8.6), with normal BMI 25 (SD 5.7) and uncomplicated pregnancy. Zhou et al reported that previous health status and sleep disturbance are factors related with prenatal anxiety ($p < 0.05$), whereas age, negative life events, and physical activity during pregnancy were the risk factors for depression ($p < 0.05$) [14].

Most women in our study with symptoms of depression have had uncomplicated pregnancy (50%), only 16% of them have had GDM, 18% hypothyroidism, 2.9% transfusion syndromes, 15% incompetent cervix.

Above mentioned data proves that women pregnant with twins are at risk of prenatal depression even without pregnancy complications. It is another example that multiple pregnancies carry a risk of mental distress itself. We did not describe special risk factor for prenatal depression, all women should be screened for depression during pregnancy [15].

Only 20 out of 136 women with depressive symptoms visited a psychologist during twin pregnancy, another 8 had a psychiatrist consultation. Surprisingly they mostly lived in big cities (78% n = 107) and had good material status (98% n = 133). Women mostly found the healthcare system as good but noted a lack of interest in mental health during pregnancy visits. Linfield et al. studied provider attitude to EPDS screening at 24–28 weeks of gestation and 6–8 weeks postpartum. Unfortunately, only 55% of patients received a properly scored perinatal EPDS and only 60% of patients received a properly scored postpartal EPDS [16]. This study emphasizes the need for increased physician education and targeted changes to workflow with respect to prioritizing depression screens for patients. In present study analyzing EPDS almost 40% of women in multiple pregnancy and 31.3% with single pregnancy had possible depression during the last 14 days.

Cognitive behavioural therapy (CBT) is be a tool designed for treating and preventing depression especially among perinatal populations. There is growing evidence that CBT therapy is effective for depression during the perinatal period, especially in early stage of the disease [17–19].

5 women in our study had recurrent suicidal thoughts during twin pregnancy. Only 1 has had the genetic disorder of the fetus, rest have had an uncomplicated pregnancy. All women answered to not plan to visit a psychologist during pregnancy, only one was under psychiatric care. Literature reports suicidal thoughts among pregnant women between 5 and 14% [20–21]. Unfortunately screening for suicidal ideation during gestation is uncommon. Gavin et al. created a cross-sectional analysis of 2.159 women receiving standard perinatal care. 2.7% of respondents reported suicidal thoughts during pregnancy, the same was presented by Legazpi et al [21]. It is equal with our data on suicidal ideation with the occurrence of 2% among respondents pregnant with twins. Gavin et al reported that this special group of women had a low education level, was a drug smoker or had chronic diseases [2]. In present study 3 out of 5 women with suicidal thoughts smoke regularly during pregnancy, and were drinking alcohol occasionally, which proves that stimulants play an important role.

Physical activity is correlated with mental wellbeing [22]. Physical activity before pregnancy for more than 300 min weekly was done only by 3% of study participants. During pregnancy most, women resign with physical activity 56% (twins 66% $p > 0.05$). In present study more than 80% of women with depressive symptoms resign with physical activity during pregnancy (n = 151). Physical activity could reduce the rate of perinatal depression among women [23, 24]. Shuai et al proved low and moderate-intensity activity were beneficial to decreasing the severity of postpartum depression [23].

Conclusion

The overall level of depressive symptoms among women pregnant with twins remains high. This situation may be attributed to not enough psychological monitoring during twin pregnancy and poor access to mental health specialists. The psychological condition of women in twin pregnancies needs attention.

Strength of this study is the representative sample size. Electronic questionnaires provided a high response rate for this study and accuracy of the information. Future prospective studies are needed to investigate the issue of perinatal depression during twin gestation.

Limitation of the study

Limitations of the study is the issue of patient self-reported symptoms of possible depression. All responses should be verified by the clinicians to definitive a diagnosis.

Abbreviations

PHQ-9: Patient Health Questionnarie-9; EPDS: Edinburgh Perinatal/Postnatal Depression Screening; GDM: Gestational Diabetes Mellitus;, CBT: Cognitive behavioral therapy.

Declarations

Authors contributions: I.WS. conceptualization, investigation, methodology, writing original draft; W.K. conceptualization, data curation, formal analysis; N.SW. methodology, supervision; M.L. investigation, supervision. E.LK. M.L. investigation, supervision. A.B. investigation, methodology, writing original draft; J.S. investigation, methodology, writing original draft; I.K. investigation, methodology, writing original draft; J.J methodolody, statistics; Z.JZ. investigation, supervision ; M. S-S. investigation, methodology, supervision. All authors have read and agreed to the published version of the manuscript

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Tables

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