ORIGINAL RESEARCH

Psychological Status During the Second Pregnancy and Its Influencing Factors

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Objective: To investigate the psychological status of women during their second pregnancy.

Methods: A total of 162 women who were pregnant for the second time were selected as the research subjects. The general demographic data and pregnancy-related conditions of the subjects were investigated by a questionnaire developed for this study. The anxiety and depression of the subjects were evaluated with a self-rating anxiety scale (SAS) and a self-rating depression scale (SDS).

Results: The subjects scored themselves on the SAS and on the SDS. There was a statistically significant difference when comparing the scores and total scores with the domestic norm. Statistical data analysis was conducted using SPSS 19.0 software. The results of a multi-factor logistics regression analysis showed that four factors, namely a low age, low education level, low monthly household income and foetal sex expectations, were the main influencing factors for the occurrence of anxiety among women during their second pregnancies ($p < 0.05$). Three factors, namely a low education level, low monthly household income and a poor relationship between the husband and wife, were the main influencing factors for the occurrence of depression among the subjects ($p < 0.05$).

Conclusion: During their second pregnancies, women have different degrees of anxiety and depression. Measures should be taken to intervene and guide women who develop these adverse emotions.

Keywords: second child, psychological condition, anxiety, depression, influencing factors

Introduction

Pregnancy is a special time in a woman's life when a foetus develops and grows inside her body. The internal environment of the pregnant woman's body changes significantly, and she also faces many external stimuli from her family and society. The combination of many internal and external factors makes pregnant women susceptible to severe and persistent psychological stress.[1] Although women in their second pregnancies already have relevant pregnancy and parenting experience, the incidence of anxiety, depression and panic during pregnancy and delivery may be higher than that of women during their first pregnancies.[2] Adverse emotions such as anxiety and depression during pregnancy directly affect both the mother and the foetus and likely lead to a variety of pregnancy complications and adverse delivery outcomes such as postpartum haemorrhage, prolonged labour, increased rates of caesarean delivery and neonatal monitoring, preterm delivery and low-birth-weight infants.[3] An analysis was performed of risk factors for increased maternal depression in second pregnancies compared to first pregnancies, with the following results: generally speaking, the prognosis of postpartum depression is good, and most mothers can recover within one year, but the recovery period in severe cases is more than two years, resulting in damage to the physical and mental health of mothers.[4] Since the implementation of the "two-child policy", the number of

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pregnant women has increased. The negative emotions women experience during their first pregnancies are very likely to lead to more negative emotions during their second pregnancies. According to research reports by Zhou Guilan and others,[5] the prevalence of postpartum depression symptoms under the two-child policy is as high as 43.92%. Factors such as neonatal gender satisfaction, weight gain during pregnancy, early contact and early sucking, and family monthly income affect the incidence of postpartum depression. These individual and family factors act on women during their second pregnancies, greatly increasing the risk of postpartum depression, so it is necessary to analyse the psychological status of pregnant women during their second pregnancies and other relevant influencing factors. The aim of this study is to understand the psychological status of women during their second pregnancies, to explore the factors influencing the psychological status of these pregnant women, and to provide theoretical support and guidance for clinical workers so they can help women improve their adverse emotions and health care during pregnancy.

Methods
Clinical Data
A total of 162 women pregnant with their second child who visited the Obstetrics Outpatient Department or were hospitalised in the ward of a tertiary care hospital in Changsha from January to August 2018 were selected as the survey subjects. Inclusion criteria included the following: ① Women in their second pregnancy who were confirmed to be pregnant; ② informed consent and voluntary participation in the study; ③ no abnormal mental status, normal expression and comprehension, no communication barriers and the ability to fill in simple questionnaires on their own. Exclusion criteria included the following: ① severe infection during pregnancy, foetal malformation, twins or multiple pregnancies; ② women with acute and critical illnesses or serious pregnancy complications; ③ a history of psychosis or cognitive dysfunction.

Methods
A general data questionnaire, a self-rating anxiety scale (SAS) and a self-rating depression scale (SDS) were used for the survey. SPSS software was used for data analysis, and the citation specifications of SAS and SDS scales were added.[6] The questionnaires were distributed and collected on site, with a recovery rate of 100.00%. The general data questionnaire included age, occupation, marital status, education level, place of residence, income, the couple's relationship, family support (parents), foetal sex expectations, whether the pregnancy was planned, the number of pregnancies, pregnancy comorbidities, gestational weeks and the history of miscarriage. The SAS contained 20 items and included psychogenic-emotional symptoms (anxiety, fear, panic, palpitations and dizziness), somatic disorders (trembling of hands and feet, body aches, weakness, tingling of hands and feet, stomach pain or indigestion, frequent urination, sweating, facial flushing and sleep disorders), psychomotor disorders (akathisia and dyspnoea) and depressive psychological disorder (feelings of madness, unfortunate anticipations, fainting and nightmares). A four-point scale was used: no or very little time (≤1 day/week) was one point, a small amount of time (1–2 days/week) was two points, a considerable amount of time (3–4 days/week) was three points, and most or all of the time (5–7 days/week) was four points. (NOTE: Reverse-score items noted with *.) The scores of the 20 items were added up and multiplied by 1.25, with a full score of 100 points. The categories included severe anxiety: >69, moderate anxiety: 60–69 and mild anxiety: 50–59. The SDS consisted of 20 items, including psychogenic-emotional symptoms (depressed mood and crying), somatic disorders (constipation, loss of libido, weight loss, tachycardia, loss of appetite, sleep disturbances and day/night differences in mood), psychomotor disorders (agitation and psychomotor depression) and depressive disorders (dissatisfaction, feelings of emptiness, self-depreciation, irritability, feelings of hopelessness, confused thinking, recurrent thoughts and indecisiveness). The scale was scored on four levels: no or very little time (≤1 day/week) was one point, a small amount of time (1–2 days/week) was two points, a considerable amount of time (3–4 days/week) was three points and most or all of the time (5–7 days/week) was four points. (NOTE: Reverse-score items noted with *.) The scores of the 20 items were summed and multiplied by 1.25, with the result being the standard score, with a full score of 100 points. According to the scale, mild depression was 53–62 points, moderate depression was 63–72 points and severe depression was >72 points. The subjects' SAS and SDS scores were compared with the SAS and SDS scores of the domestic norm (literature source required).

Statistical Methods

The data of this study were statistically analysed using SPSS 19.0 statistical software. The measurement data were expressed as (±s) with a *t*-test, the count data were expressed as percentages, a one-way ANOVA was performed for multiple comparisons (a chi-square test was not used; the *t*-test was used to compare the SAS and SDS scores of subjects in this study with the domestic norm) and a logistic regression analysis was used for a multi-factor analysis. Statistical significance was determined at $p < 0.05$.

Results

The data collected from the survey were analysed with SPSS, and the reliability coefficient was 0.9. The validity was analysed to ensure construct validity; KMO > 0.6, showing that the collected data were valid and reliable. Language communication difficulties and unable to communicate normally. The ages of the 162 women in this survey ranged from 23 to 42 years, with an average age of 31.92 ± 2.97 years; this was close to the norm ($p > 0.05$). The SAS score of the subjects was 39.42 ± 7.18, and anxiety was present in 31 cases (19.14%), including 22 cases (13.58%) of mild anxiety, eight cases (4.94%) of moderate anxiety and one case (0.62%) of severe anxiety. The SDS score was 38.59 ± 9.61, and depression was present in 16 cases (9.88%), including mild depression in 11 cases (13.58%) and moderate depression in five cases (4.94%). Details are shown in Table 1.

The SAS and SDS scores of the women in their second pregnancies were higher than those of the domestic norm, and the difference was statistically significant ($p < 0.001$). For details, see Table 2.

One-Way Analysis of Factors Influencing Anxiety

A one-way analysis of factors showed that seven factors (age, education level, monthly household income, the couple's relationship, family support [parents], foetal gender expectations and whether the pregnancy was planned) were influential factors in the occurrence of anxiety among women in their second pregnancies ($p < 0.05$). For details, see Table 3.

Table 1 SAS and SDS Scale Scores of Pregnant Women with Second Child

Extent	Total SAS Score	Incidence n (%)	Total SDS Score	Incidence n (%)
None	<50	131 (80.86)	<53	146 (90.12)
Mild	50–59	22 (13.58)	53–62	11 (6.79)
Moderate	60–69	8 (4.94)	63–72	5 (3.09)
Severe	>69	1 (0.62)	>72	0 (0)

Table 2 Comparison of SAS and SDS Scale Scores of Pregnant Women with Second Birth with the Domestic Norm

Degree	SAS Score	Incidence Rate [n (%)]	SDS Score	Incidence Rate [n (%)]
Normal	<50	131 (80.86)	<53	146 (90.12)
Mild anxiety	50–59	22 (13.59)	53–62	11 (6.79)
Moderate anxiety	60–69	8 (4.94)	63–72	5 (3.09)
Severe anxiety	>69	1 (0.62)	>72	0 (0)
Projects	**Pregnant women with second child (n=162)**	**Domestic norm (n=1158)**	**t**	**P**
SAS	39.42±7.18	29.78±10.07	11.771	0.000
SDS	38.59±9.61	33.46±8.55	7.040	0.000

Table 3 One-Way Analysis of Factors Influencing Anxiety Among Pregnant Women with Second Birth [n (%)]

Factors	Number of Cases	Have Anxiety	No Anxiety	Value	P-value
Age				5.228	0.022
<30 years	66	18	46		
≥30 years old	96	13	83		
Occupation				1.903	0.386
Civil servants and public sector employees	72	13	59		
Entrepreneurs and workers	58	14	44		
Self-determination	32	4	28		
Education level				19.308	0.000
Lower secondary and below	5	4	1		
High school or secondary school	39	12	27		
Tertiary or undergraduate	104	12	92		
Postgraduate and above	14	3	11		
Monthly household income				10.105	0.018
<3000	6	3	3		
3000–5000	25	9	16		
5000–10,000	55	8	47		
>10,000	76	11	65		
Medical payment methods				4.186	0.123
Rural cooperative medical care	44	10	34		
Provincial or municipal health insurance	78	10	68		
Self-financed	40	11	29		
Couple relationship				9.992	0.002
Satisfaction	143	22	121		
General	19	9	11		
Family support (parents)				23.004	0.000
Very concerned	134	18	116		
General	28	15	13		
Fetal Gender Expectations				7.234	0.007
Yes	84	24	60		
None	78	9	69		
Whether the pregnancy was planned				6.352	0.012
Unplanned	82	22	60		
Planned	80	9	71		
Number of pregnancies				1.323	0.516
2 times	92	15	77		
3 times	34	7	27		
>3 times	36	9	27		
Pregnancy Complications				0.395	0.530
Yes	16	4	12		
None	146	27	119		
History of miscarriage				1.036	0.309
Yes	86	19	67		
None	76	12	64		
Week of gestation				2.992	0.224
Early pregnancy (≤12 weeks)	11	2	7		
Mid-pregnancy (13–27 weeks)	46	5	41		
Late pregnancy (≥28 weeks)	105	24	81		

Logistic Regression Analysis of Factors Influencing Anxiety

A multi-factor logistic regression analysis showed that four factors, namely low age, low education level, low monthly household income and having foetal gender expectations, were the main factors influencing anxiety among women during their second pregnancies ($p < 0.05$), as detailed in Table 4.

Table 4 Logistic Regression Analysis of Factors Influencing Anxiety Among Second Pregnancy Women (n=162)

Variables	b	S_b	Wald χ^2	P	OR	95% CI
Education level	0.866	0.263	11.067	0.001	0.425	0.253–0.705
Age	0.562	0.234	5.864	0.012	0.574	0.364–0.894
Fetal gender expectancy	0.956	0.272	5.184	0.019	2.361	1.294–4.216
Monthly household income	0.608	0.289	4.390	0.037	1.842	1.063–3.167

One-Way Analysis of Factors Influencing Depression

A one-way analysis of factors influencing depression revealed that six factors, namely age, education level, monthly household income, the couple's relationship, whether the pregnancy was planned and a history of miscarriage, influenced the occurrence of depression among women during their second pregnancies ($p < 0.05$). For details, see Table 5.

Table 5 One-Way Analysis of Factors Influencing Depression Among Second Pregnancy Women [n (%)]

Factors	Number of Cases	Have Depression	No Depression	Value	P-value
Age				5.769	0.016
<30 years	66	11	55		
≥30 years old	96	5	91		
Occupation				1.944	0.378
Civil servants and public sector employees	72	6	64		
Entrepreneurs and workers	58	4	54		
Self-determination	32	5	27		
Education level				15.766	0.001
Lower secondary and below	5	3	2		
High school or secondary school	39	5	34		
Tertiary or undergraduate	104	7	97		
Postgraduate and above	14	1	13		
Monthly household income				8.266	0.041
<3000	6	2	4		
3000–5000	25	4	21		
5000–10,000	55	7	48		
>10,000	76	3	73		
Medical payment methods				0.837	0.658
Rural cooperative medical care	44	5	39		
Provincial or municipal health insurance	78	6	72		
Self-financed	40	5	35		
Couple relationship				11.390	0.001
Satisfaction	143	10	133		
General	19	6	13		
Family support (parents)				0.739	0.390
Very concerned	134	12	122		
General	28	4	24		
Fetal gender expectations				0.806	0.369
Yes	84	10	74		
None	78	6	72		
Whether the pregnancy was planned				4.223	0.040
Unplanned	82	12	70		

(*Continued*)

Table 5 (Continued).

Factors	Number of Cases	Have Depression	No Depression	Value	P-value
Planned	80	4	76		
Number of pregnancies				0.838	0.658
2 times	92	8	84		
3 times	34	3	31		
>3 times	36	5	31		
Pregnancy complications				1.570	0.210
Yes	16	3	13		
None	146	13	133		
History of miscarriage				5.654	0.017
Yes	86	13	73		
None	76	3	73		
Week of gestation				1.194	0.550
Early pregnancy (≤12 weeks)	11	1	10		
Mid-pregnancy (13–27 weeks)	46	3	43		
Late pregnancy (≥28 weeks)	105	13	92		

Table 6 Logistic Regression Analysis of Factors Influencing Depression in Pregnant Women with Second Birth (n=162)

Variables	b	S_b	Wald χ^2	P	OR	95% CI
Education level	−0.317	0.126	6.348	0.012	0.728	0.571–0.936
Monthly household income income	0.286	0.116	5.012	0.024	0.761	0.612–0.984
Couple relationship	0.162	0.078	4.776	0.028	1.176	1.018–1.365

Logistic Regression Analysis of Factors Influencing Depression

A multi-factor logistic regression analysis showed that three factors, namely low education level, low monthly household income and the couple having a poor relationship, were the main factors influencing depression among women during their second pregnancies ($p < 0.05$), as detailed in Table 6.

Discussion
Analysis of the Psychological Profile of Women During Their Second Pregnancies

The results of this study showed that the SAS score of women pregnant with their second child was 39.42 ± 7.18, which was statistically significant ($p < 0.001$) when compared with the domestic norm. Among these pregnant women, 31 (19.14%) experienced anxiety, of which 22 (13.58%) were mild, eight (4.94%) were moderate and one (0.62%) was severe. The SDS score (38.59 ± 9.61) for the subjects was statistically significant ($p < 0.001$) when compared with the domestic norm. Among these pregnant women, 16 (9.88%) experienced depression, of which 11 cases (13.58%) were mild and five cases (4.94%) were moderate. In this study, the incidence of anxiety and depression among women pregnant with their second child was higher than that of the domestic norm, and the detection rate was at a high level.

With the implementation of China's two-child policy in 2016, the number of women having a second pregnancy has rapidly increased. Because the implementation of the one-child policy for many years led to increased costs and changes in the concept of child rearing, women pregnant with their second child face more pressure, including financial, psychological, familial and social, leading to varying degrees of psychological problems, such as anxiety and depression, and the quality of their sleep can be affected as well. Poor psychological status during pregnancy can lead to adverse outcomes such as preterm births, dystocia, low-birth-weight babies, gestational diabetes and hypertension, prolonged

labour, antenatal and postpartum haemorrhage and postpartum depression.[7,8] Therefore, the study of mental health in pregnant women has very important clinical implications.

According to the results of a survey, the financial cost of raising a child in an average family can be as high as 50% of the total household expenditure,[9] which may be acceptable for families with only one child, but the financial burden of a second child may be too great. Women pregnant with their second child may also suffer from heavy career pressure and family responsibilities. Another major concern may be their children's education, especially finding an apartment that is located near key schools or having a choice of elite schools; this gives families an even greater burden. The above-mentioned social problems plague many families with two children, causing a serious mental burden for women pregnant with their second child.[10]

Analysis of the Factors Influencing the Psychological Status of Women During Their Second Pregnancies

The results of this study indicated that four factors, namely low age, low education level, having foetal sex expectations and low monthly household income, were the main factors leading to anxiety among women pregnant with a second child. Of these, three factors, namely low education level, having a poor relationship with a partner and low monthly family income, were the main factors for depression.

Women pregnant with a second child at a young age may be more likely to suffer from anxiety due to their immature emotional development and their lack of mental capacity, as well as the fear that pregnancy will affect their work or even force them to give up their job. Older women are more likely to have stable financial resources and a certain social status and are more experienced in life and better prepared for pregnancy, which may result in a lower incidence of anxiety during their second pregnancies.[11,12]

The lower prevalence of anxiety and depression among more educated women pregnant with their second child compared to less educated ones may be attributed to the fact that more educated women are more knowledgeable about pregnancy and childbirth and are better prepared for the birth of their second child.[13,14] It is also possible that more educated pregnant women are more aware of self-care, have more access to relevant information and ways of accessing it, are able to attend health check-ups regularly during pregnancy, are aware of and familiar with delivery and its potential complications through a variety of means and proactively seek multiple sources of social support.[15]

Monthly household income was also an influential factor. As monthly income per capita increases, anxiety and depression scores for women pregnant with a second child gradually decrease.[16] In the current economic and educational environment, the financial burden of raising children is greater, especially for urban residents, who need to think more about education, medical care and the particularly high financial costs. This is even more of a concern when a woman has two children. A higher monthly household income and good economic conditions can provide good material support for women during their second pregnancies and provide a greater sense of security in the face of future uncertainties.[17]

The relationship between the couple is another influencing factor for depression during second pregnancy. Women pregnant with a second child are relatively older, as is the father, so the physical stress and risks of having a second child are higher, as is the financial and emotional burden of raising two children. Having a good relationship, with good moral and material support from the husband, can effectively stabilise the mood of a woman pregnant with a second child and reduce the development of negative emotions such as depression. Some studies have shown that positive words and actions from close family members can improve the mindset of pregnant women in stressful situations and help them maintain good moods.[18] Therefore, informing the husband of the risks of another pregnancy to help him understand the stress caused by a second pregnancy, encouraging him to pay more attention to his wife's emotional changes and creating a good family atmosphere will help to keep the pregnant woman in a good frame of mind.

With the implementation of the two-child policy, pregnant women and their family members have begun to expect to have a second child, and, due to traditional Chinese beliefs, some families expect to have both a son and a daughter. However, the emotional and material costs of raising two boys are higher than the costs of having one boy and one girl, and expectations about the sex of the foetus can cause psychological stress and anxiety in women pregnant with a second

child.[19] Therefore, health education for women during their second pregnancies should encourage the woman's family members to take the initiative to help the women adjust and welcome the arrival of a new baby with a positive and relaxed attitude.[20]

Our study found that low age, low education level, having foetal sex expectations and low monthly household income were the main factors causing anxiety among women during their second pregnancy, which is of great value in guiding clinical practice. There were also some limitations. Firstly, the number of participants was small. Secondly, we have not developed systematic measures that can guide pregnant women with second pregnancies to improve pregnancy care.

Conclusion

In summary, with the implementation of the two-child policy, it is necessary to pay more attention to the psychological conditions of mothers before childbirth. Contacting mothers and babies as soon as possible after childbirth can relieve the physical and mental stress of mothers and effectively prevent the occurrence of postpartum depression. Women pregnant with their second child have varying degrees of anxiety and depression, and low age, low education level, having foetal sex expectations and a low monthly household income were the main factors leading to anxiety among the participants in this study. We suggest that effective targeted interventions are needed in clinical practice to alleviate women's anxiety and depression and promote healthy delivery and healthy foetal growth.

Ethics Approval

This study was conducted in accordance with the Declaration of Helsinki and approved by the ethics committee of Hunan Provincial People's Hospital. Written informed consent was obtained from all participants.

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Disclosure

All of the authors had no any personal, financial, commercial, or academic conflicts of interest separately.

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