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Factors affecting the mental health of pregnant women in Mueang district, Nakhon Sawan province

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Abstract

This cross-sectional descriptive study investigates the mental health status of pregnant women in Mueang District, Nakhon Sawan Province, Thailand, focusing on factors influencing anxiety, stress, and depression during pregnancy. Our sample included 396 participants, aged 18 and older, between 28-40 weeks of gestation, receiving prenatal care at Sawanpracharak Hospital. We used the Depression, Anxiety, and Stress Scale (DASS-21) for assessment and analyzed data using descriptive statistics and logistic regression. The findings revealed that 52.78% of participants were classified as having normal mental health status, while 22.98% experienced anxiety, 10.10% stress, and 14.14% depression. Factors influencing anxiety Levels at .05 included age, mental health history during pregnancy, and debt burden, stress Levels at .05 included age, education level, mental health history during pregnancy, and family relationships and depression levels at .05 included age, marital status, mental health history during pregnancy, debt burden, and family relationships. These findings the need for comprehensive mental health assessments and interventions for pregnant women to promote maternal, fetal well-being and address the challenges faced during this critical period

Keywords: The Mental health, Pregnant women, Factors affecting

Introduction

Mental health issues and psychiatric illnesses are significant public health concerns in Thailand. There are approximately 1.5 million psychiatric patients in the country. The top five psychiatric illnesses include depression, anxiety disorders, schizophrenia, substance-induced psychiatric disorders, and other psychotic disorders.[1] Mental health and psychiatric problems impair individuals' functioning, decision-making abilities, self-care potential, and occupational performance, and they also contribute to physical and psychological decline. These issues can lead to strained relationships, social withdrawal, and difficulties in daily life adaptation.[2] Studies have shown that 2.07% of pregnant women experience psychological problems and obsessive thoughts, which is higher than the 1.08% observed in the general population,[3] potentially leading to postpartum psychiatric disorders.

Pregnancy is a period when women are particularly vulnerable to the negative impacts of life events.[4,5] Pregnancy is considered a critical period in a woman's life, involving significant physical, psychological, and social changes. Pregnant women often experience increased anxiety, and both anxiety and depression are common during pregnancy. Severe anxiety during pregnancy can lead to depression and an increased risk of suicide[6]. The causes of anxiety in pregnant women include concerns about body image changes, new role adjustments, changes in family and spousal relationships, the health and safety of the fetus, labor pain, and self-control. Mental health issues can increase heart rates, alter placental artery resistance, and raise the risks of preterm birth, low birth weight, elevated fetal heart rates, and impaired neurological development,[7] all of which affect both maternal and fetal health.

Factors contributing to mental health problems include personal characteristics such as age. Pregnant women over 35 years of age experience higher levels of stress.[8] Most pregnant women aged 15–43 have normal to mild stress levels (83.5%),[9] which contrasts with studies showing that pregnant women under 19 are more prone to depression.[10] Educational level is also related to stress levels in older pregnant women, with those holding a

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bachelor's degree or higher experiencing less stress due to better self-management skills,[8] Occupational stress is related to job type; government employees experience less stress compared to those in trading or temporary jobs. Marital status also affects mental health, with married women living with their spouses reporting higher mental health issues than those separated.[11] Chronic diseases and pregnancy complications significantly increase stress levels.[8]

Pregnant women with psychiatric histories from previous pregnancies exhibit higher anxiety levels.[12] Low income is a significant stress factor, as financial issues can cause family stress. Household debt also contributes to stress.[8] Living conditions and family relationships affect stress levels, with significant correlations found between spousal relationships and stress in pregnant teenagers.[11] Mental health problems are highest between 2-8 weeks of pregnancy, decreasing after 27 weeks. First-time mothers experience the highest anxiety due to lack of experience, potentially leading to depression if not addressed.[9]

Nakhon Sawan Province, with its dense urban and semi-urban population, sees over 1,000 pregnancies annually at Sawanpracharak Hospital, a tertiary hospital. Increasing numbers of referrals from the health region 3 highlight issues like preterm birth, breastfeeding challenges, and pregnancy complications.[13] Mental health issues exacerbate these problems, leading to severe complications. Currently, there is no comprehensive mental health assessment for pregnant women at Sawanpracharak Hospital. The researcher emphasizes the importance of promoting and preventing mental health issues from pregnancy onward to mitigate such impacts on mothers and fetuses. Comprehensive assessments to identify at-risk groups and those with mental health issues, alongside relevant interventions, can enhance family and community self-care, leading to healthy pregnancies, childbirth, and child-rearing, and fostering stable family units with well-developed, healthy children.

Research objectives

1. To study the mental health status of pregnant women in Mueang District, Nakhon Sawan Province.
2. To identify the factors influencing the mental health status of pregnant women in Mueang District, Nakhon Sawan Province.

Methods

Participants and data collection

This study is cross-sectional descriptive research to study factors affecting the mental health status of pregnant women in Mueang District, Nakhon Sawan Province. The period of study is between December 15, 2023 and December 31, 2024.

The 396 participants who pregnant women over 18 years old with gestational age between 28-40 weeks, residing in Mueang District, Nakhon Sawan Province, and receiving prenatal care at Sawanpracharak Hospital. The sample size is calculated using G* Power 3.1.9.2 software for logistic regression analysis, with a significance level of .05, power of .95, and an effect size of .50. This calculation is based on previous research by Phoosuwan, Eriksson, & Lundberg (2018) which found an OR of 3.12, $P < 0.006$ for psychological well-being, an interval scale or continuous variable.

Exclusion criteria

Pregnant women with a history of severe psychiatric disorders, who have been treated and taking psychiatric medications before and during the pregnancy.

Research framework

From the review of related literature, the factors affecting the mental health of pregnant women in Mueang District, Nakhon Sawan Province, consist of 2 parts: Personal factors, comprising 10 variables: age, educational level, current occupation, marital status, monthly income, income sufficiency, debt burden, residence, type of household, and family relationships. Obstetric factors, comprising 3 variables: history of chronic diseases, history of mental health problems during pregnancy, and satisfaction with previous childbirth experiences.

Measurements

The research tool is a questionnaire that consists of two parts: a general information questionnaire with

10 items about personal information and 3 items about obstetric history. The questionnaire was reviewed for validity by three experts, including a nursing instructor, a head nurse of the obstetrics department, and a head nurse of the delivery room. The questionnaire was revised based on their suggestions until a validity score of 1.00 was achieved.

The assessment tool is the Depression, Anxiety, and Stress Scale (DASS-21) (Department of Mental Health, 2021), which is a reliable and widely used assessment tool that has undergone quality testing. The researcher tested the reliability of the tool by piloting it with a group of 30 participants who had similar characteristics, using Cronbach's alpha coefficient to measure reliability. The acceptable reliability coefficient is not less than 0.70.

Research process

This study was collected data independently following

1. The researcher reviewed relevant documents and research, summarized the topics to be studied according to the research objectives, drafted the assessment form, and checked the quality of the tools.

2. The researcher writed to the director of Sawan Pracharak Hospital to request assistance in collecting data in writing and coordinates with the head of the obstetrics department of Sawan Pracharak Hospital to clarify the details and procedures for data collection.

3. Data was collected at the obstetrics department of Sawan Pracharak Hospital in Nakhon Sawan province, where the researcher selected a sample group according to the criteria set from the medical records of pregnant women visiting for prenatal care on the specified day, following the inclusion criteria, during the hours of 8:00 AM to 4:00 PM daily or as scheduled by the hospital.

4. The researcher established a relationship with pregnant women waiting for examination in a spaced seating area by introducing themselves, explaining the objectives and benefits of the research, and requesting their cooperation to participate in the study while clarifying their rights to accept or cancel participation. They could withdraw any time without affecting their treatment.

5. When the sample group agrees to participate voluntarily, participants will be asked to sign a consent form and completed the questionnaire while wearing masks throughout the assessment to reduce contact with pathogens and to prevent the spread of infection from the questionnaire. Before administering the questionnaire, the researcher will explain the details and methods of answering each questionnaire, provided an opportunity for participants to ask any questions, and allow approximately 15 minutes for participants to complete the questionnaire.

6. The researcher checked the completeness of the questionnaires answered by participants before collecting them.

7. The researcher gathered all the questionnaires for statistical analysis and summarized the results subsequently.

Ethical considerations

The study was approved by Mahidol University Central Institutional Review Board University (COE No. MU-CIRB 2024/032.2103). The content, methods and the nonuse of the data of this study were explained to participants who provided written informed consent, understanding that they could withdraw from this study at any time. They were assured that the data would be used for the study's purpose and that would be strictly maintained for their anonymity and confidentiality.

Data analysis

General information questionnaire, including personal information and obstetric data, analyzed using descriptive statistics, which include frequency, percentage, mean, and standard deviation, as well as logistic regression analysis.

Assessment of stress, anxiety, and depression (DASS-

21) using descriptive statistics, which included frequency, percentage, mean, and standard deviation.

Results

The most participants was over 19 years old, with 87.60%, the education level was high school graduate/vocational certificate, with 32.80%, without a job or housewives for 29.80%, marital status with 82.10%, without any chronic illnesses for 86.90%, never had a history of mental health issues during pregnancy for 80.30%, Monthly income of 10,001 – 15,000 THB for 39.90%, their income sufficient for 61.60%, living in their own homes for 47.20%, a single-family for 61.60%, family relationships for 94.20%, the first trimester of pregnancy when mental health problems for 41.20%, first-time pregnancies for 32.60%.

The majority had a normal condition, with 209 individuals, representing 52.78%. Following that, there were 91 individuals with anxiety, for 22.98%; 46 individuals with stress, representing 10.10%, and 56 individuals with depression, for 14.14% respectively. (Table 1)

Table 1. The mental health status of pregnant women in Mueang district, Nakhon Sawan province.

Type	No.	Percent
Normal	209	52.78
Anxiety	91	22.98
Stress	40	10.10
Depression	56	14.14
Total	396	100.00

The results of comparing the average values of each variable with the anxiety of pregnant women seeking antenatal care at the Sawanpracharak Hospital, Mueang district, Nakhon Sawan province, revealed that the variables related to age, marital status, mental health history during pregnancy, and family relationships significantly affected the anxiety levels of the sample group, with statistical significance set at 0.001 (Chi-Square values of 11.53, 22.99, 54.99, and 17.06, respectively).

The results of comparing the average values of each variable with the stress levels of pregnant women seeking antenatal care at the Sawanpracharak Hospital, Mueang district, Nakhon Sawan province, showed that the variables related to age, marital status, mental health history during pregnancy, and family relationships significantly affected the stress levels of the sample group, with statistical significance set at 0.001 (Chi-Square values of 10.89, 25.59, 25.86, and 36.33, respectively).

The results of comparing the average values of each variable with the depression levels of pregnant women seeking antenatal care at the Sawanpracharak Hospital, Mueang district, Nakhon Sawan province, indicated that the variables pertaining to age, marital status, mental health history during pregnancy, income adequacy, debt burden, living conditions at home, and family relationships significantly affected the depression levels of the sample group, with statistical significance set at 0.001 (Chi-Square values of 18.84, 30.82, 56.67, 11.91, 11.84, 23.16, and 23.78, respectively). (Table 2)

Table 2. The means of each variable on depression, anxiety and stress

Variables	Psychology problems					
	Anxiety		Stress		Depression	
	chi-square	sig	chi-square	sig	chi-square	sig
Age	11.53	.021	10.89	.028	18.84	.001
Education level	26.10	.162	12.69	.890	17.98	.588
Occupation	19.43	.729	22.75	.534	26.83	.312
Marital status	22.99	.003	25.59	.001	30.82	.000
Chronic illness	1.60	.808	7.48	.113	1.55	.817
Mental health history during pregnancy	54.99	.000	25.86	.011	56.67	.000
Monthly income	19.99	.220	9.82	.876	15.14	.514
Sufficiency of income	1.86	.761	3.99	.407	11.91	.018
Debt burden	4.89	.299	4.23	.375	11.84	.019

Housing	17.00	.150	16.98	.150	9.25	.681
Living conditions at home	10.84	.542	19.48	.078	23.16	.026
Family relationships	17.06	.002	36.33	.000	23.78	.000
Trimester of pregnancy in which mental health issues were encountered	6.77	.561	11.24	.188	14.74	.064
Satisfaction with previous pregnancies	12.32	.137	11.78	.161	11.21	.190

Statistically significant at the .05 level

The result of this research indicated that the independent variables of age, mental health history at the time of pregnancy, and debt burden explained only 8.80% of the variance in the dependent variable, which is the occurrence of anxiety in participants, the Adjusted R Square value was 0.088. (Table 3, 4)

Table 3. Factors affecting the occurrence of anxiety among pregnant women

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.426	.266		5.353	.000	.902	1.950
Age	-.242	.067	-.190	-3.598	.000	-.375	-.110
Education level	.029	.017	.094	1.692	.092	-.005	.062
Occupation	-.001	.010	-.005	-.094	.925	-.022	.020
Marital status	-.067	.050	-.065	-1.321	.187	-.165	.032
Chronic illness	-.074	.061	-.059	-1.207	.228	-.195	.047
Mental health history during pregnancy	.103	.021	.248	5.009	.000	.063	.144
Monthly income	-.010	.024	-.023	-.432	.666	-.057	.036
Sufficiency of income	-.012	.046	-.014	-.267	.790	-.102	.078
Debt burden	.096	.045	.114	2.129	.034	.007	.185
Housing	.009	.017	.025	.495	.621	-.026	.043
Living conditions at home	.007	.038	.009	.188	.851	-.067	.081
Family relationships	.136	.089	.076	1.530	.127	-.039	.311
Trimester of pregnancy in which mental health issues were encountered	-.017	.025	-.036	-.701	.484	-.066	.031
Satisfaction with previous pregnancies	-.017	.037	-.023	-.461	.645	-.090	.056

Adjusted R Square = .088 Statistically significant at the .05 level

Table 4. Model obtained from multiple regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.347[a]	.120	.088	.40232

The result of this research indicated that the independent variables of age, Education level, mental health history at the time of pregnancy, and family relationship explained only 9.90% of the variance in the dependent variable, which is the occurrence of stress in participants, the Adjusted R Square value was 0.099. (Table 5, 6)

Table 5. Factors affecting the occurrence of stress among pregnant women

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.956	.190		5.042	.000	.583	1.329
Age	-.123	.048	-.135	-2.568	.011	-.217	-.029
Education level	.026	.012	.120	2.177	.030	.003	.050
Occupation	-.013	.007	-.089	-1.694	.091	-.027	.002
Marital status	-.051	.036	-.070	-1.433	.153	-.122	.019
Chronic illness	.027	.044	.031	.628	.530	-.058	.113
Mental health history during pregnancy	.049	.015	.165	3.356	.001	.020	.078
Monthly income	.004	.017	.013	.249	.803	-.029	.037
Sufficiency of income	.008	.033	.013	.248	.804	-.056	.072
Debt burden	.048	.032	.080	1.499	.135	-.015	.112
Housing	.004	.012	.017	.344	.731	-.020	.029
Living conditions at home	-.019	.027	-.035	-.714	.476	-.072	.033
Family relationships	.286	.063	.222	4.517	.000	.161	.410
Trimester of pregnancy in which mental health issues were encountered	.018	.018	.051	1.001	.317	-.017	.052
Satisfaction with previous pregnancies	-.039	.026	-.075	-1.498	.135	-.091	.012

Adjusted R Square = .099 Statistically significant at the .05 level

Table 6. Model obtained from multiple regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.362[a]	.131	.099	.28635

The result of this research indicated that the independent variables of age, marital status, mental health history at the time of pregnancy, debt burden and family relationship explained only 17.1% of the variance in the dependent variable, which is the occurrence of depression in participants, the Adjusted R Square value was 0.171. (Table 7, 8)

Table 7. Factors affecting the occurrence of depression among pregnant women

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.120	.210		5.322	.000	.706	1.534
Age	-.109	.053	-.103	-2.054	.041	-.214	-.005
Education level	.004	.013	.016	.307	.759	-.022	.030
Occupation	-.016	.008	-.096	-1.898	.058	-.032	.001
Marital status	-.131	.040	-.154	-3.297	.001	-.209	-.053
Chronic illness	-.024	.048	-.023	-.494	.622	-.119	.071
Mental health history during pregnancy	.101	.016	.293	6.218	.000	.069	.133
Monthly income	.002	.019	.007	.128	.898	-.035	.039
Sufficiency of income	-.066	.036	-.092	-1.831	.068	-.137	.005

Debt burden	.088	.036	.126	2.463	.014	.018	.158
Housing	.002	.014	.007	.136	.892	-.025	.029
Living conditions at home	.029	.030	.046	.969	.333	-.030	.087
Family relationships	.247	.070	.166	3.517	.000	.109	.385
Trimester of pregnancy in which mental health issues were encountered	.012	.019	.030	.623	.534	-.026	.050
Satisfaction with previous pregnancies	.001	.029	.001	.022	.982	-.057	.058

Adjusted R Square = .171 Statistically significant at the .05 level

Table 8. Model obtained from multiple regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.447[a]	.200	.171	.31776

Discussion

The research findings indicate that the researcher has several discussion points as follows:

1. The mental health status of pregnant women in Mueang District, Nakhon Sawan Province was found that the most of them had a normal condition, with 209 individuals, representing 52.78%. However, there were 91 individuals with anxiety, for 22.98%, 46 individuals with stress, representing 10.10%, and 56 individuals with depression, for 14.14% respectively. Women with a history of poor mental health may find it challenging to manage anxiety during pregnancy, especially in the third trimester or as the time for childbirth approaches. Changing situations, such as the need to prepare for motherhood or concerns about delivery, can trigger anxiety symptoms. A study about the women with a history of anxiety or depression before pregnancy were at a higher risk of developing anxiety symptoms during pregnancy.[14] That pregnant women with a history of poor mental health are at a high risk of developing symptoms of depression or anxiety during pregnancy and postpartum.[15] Anxiety and depression before pregnancy can cause pregnant women to respond poorly to challenging situations, such as stress from pregnancy or concerns about their own health and the health of the baby. Additionally, it can lead to decreased self-care during pregnancy, such as a lack of appropriate medical care or not receiving necessary mental health support. A history of depression or anxiety before pregnancy can increase the risk of experiencing mental health issues during pregnancy. Concerns about pregnancy, childbirth, and parenting can contribute to stress and heightened anxiety.[16] found that pregnant women with a history of depression or anxiety before pregnancy are at a higher risk of developing symptoms of depression and anxiety during pregnancy, and tend to experience more anxiety during pregnancy, which can affect parenting after childbirth .[17] Moreover, these can impact the psychological and emotional development of the baby during pregnancy and postpartum.[18,19]

2. Factors affecting anxiety Levels in Pregnant Women at Sawanpracharak Hospital, Mueang District, Nakhon Sawan Province, including age, mental health history during pregnancy, and debt burden, all of which showed statistically significant stress levels at .05. The age of a pregnant woman is an important factor that can affect anxiety during pregnancy. Several studies have found that both young and advanced maternal ages can increase the risk of anxiety to varying degrees. Pregnant teenagers (especially those aged 15-19) often experience high levels of anxiety due to being unprepared physically, mentally, and financially. They may also face social situations that are unsupportive, such as stress from school, lack of family support, and shifting life expectations. Some study found that pregnant teenagers are at a higher risk of experiencing anxiety compared to women of other ages, which may impact postpartum care for their infants,[20] and found that pregnant teenagers have a higher risk of depression and anxiety compared to women who are older.[21] However, pregnant women of advanced age (35 years and older) often experience pregnancy-related anxiety due to concerns about health issues that may

affect both themselves and their infants. The increased risk of complications, such as gestational diabetes, miscarriage, or preterm birth, can heighten anxiety. The study found that advanced age affects the anxiety levels of pregnant women, ,[22] often related to concerns about the potential impact on their baby's health,[23] reported that pregnant women of older ages have heightened anxiety regarding the risks of complications related to their pregnancie,[24,42] found that both teenage and older pregnant women have higher anxiety levels than middle-aged women, with different causes of anxiety based on age.[25] Noted that anxiety in pregnant women is associated with age, with teenagers often worried about the pregnancy itself, while older pregnant women tend to worry more about health and childbirth. Managing anxiety in pregnant women can be achieved through mental health counseling, breathing exercises, psychological therapy, or having a support system from family and those around them to help reduce potential anxiety. A history of poor mental health can increase the risk of anxiety or worsening mental conditions during pregnancy and may affect both the mother's and the fetus's mental health.[26] Debt burden affects the mental health of pregnant women, particularly in terms of anxiety. Pregnant women facing financial issues, such as debt, exhibit higher levels of anxiety compared to those without financial problems, especially regarding concerns about the future and their ability to care for the baby.[27]

3. Factors affecting stress Levels in Pregnant Women at Sawanpracharak Hospital, Mueang District, Nakhon Sawan Province, including age, education level, mental health history during pregnancy, and family relationships, all of which showed statistically significant stress levels at .05. Conversely, the factors found not to affect stress among these pregnant women included occupation, marital status, chronic diseases, monthly income, adequacy of income, debt burden, housing situation, living conditions at home, trimester during which mental health issues were encountered, and satisfaction with the prenatal care received, none of which were statistically significant. Overall, the study found that pregnant women exhibited low stress levels, accounting for 09.9%. The findings found the education level and age were significantly correlated with stress among older pregnant women.[8] This is consistent with studies[28,11] which revealed that education correlates with living conditions and access to valuable knowledge for self-care, which facilitates easier access to stress management resources and the ability to handle debt effectively. Therefore, monitoring stress in older pregnant women with less than a bachelor's degree or no formal education is advised. Additionally, research found that pregnant women with diabetes reported low average stress levels.[29] This may be due to the fact that most pregnant women attending Sawonpracharak Hospital were over 19 years old, demonstrating maturity and higher educational levels. Many were stay-at-home mothers, which minimized exposure to workplace stress or interactions with others outside their home. Most of them had stable, supportive family units, with no chronic health issues and no history of mental health problems during pregnancy. Their families generally had moderate income levels, sufficient for living expenses, with relatively low debt burdens. They owned their homes and expressed high satisfaction with the prenatal services provided by the hospital. The guidance received from medical professionals increased their knowledge and ability to take care of themselves during pregnancy, contributing to the overall lack of stress experienced by these pregnant women. These personal factors may have enabled the pregnant women to manage and resolve their stress effectively.

4. Factors affecting the depression level in pregnant women who visited the Sawanpracharak Hospital, Mueang District, Nakhon Sawan Province, including age, marital status, mental health history during pregnancy, debt burden, and family relationships, at a statistical significance level of .05. Overall, it was found that the rate of depression among pregnant women who visited Sawanpracharak Hospital was 17.1 percent. Specifically, age over 19 years old was found to have an effect on the occurrence of depression (P-Value = .041).[30,41] Additionally, the study found that pregnant women aged 15-19 had the highest mental health issue scores, while those aged 26-30 had the lowest.[31] There was a statistically significant difference in mental health status among pregnant women of different ages.

Furthermore, the study noted that the level of depression in adolescent pregnant women was moderate, primarily due to unintended pregnancies, lack of planning, disruption of education, and unemployment.[32] Regarding marital status, it was found to significantly affect the occurrence of

depression in the group of pregnant women at Sawanpracharak Hospital (P-Value = 0.001), some studies revealed that individuals with poor relationships with their partners exhibited the highest rates of depression (100 percent).[33,30] The pregnant women who are married and living together had higher mental health issue scores compared to those who were married but currently living separately.[11] With regard to the history of mental health during pregnancy, this factor was significantly related to the occurrence of depression in the group of pregnant women at Sawanpracharak Hospital (P-Value < 0.001), aligning with the study found that patients with a history of depression, mood disorders, and anxiety were at percentages of 18.5, 18.5, and 7.4, respectively, compared to much lower rates of 0.4, 9.3, and 2.5 in those without a prior history of depression.[34] Additionally, a history of postpartum depression was significantly correlated with depression in adolescent mothers after delivery ($p < .05$), with evidence suggesting hormonal changes and stress associated with pregnancy may be contributing factors. [35] Women who had previously experienced depression were more prone to depressive symptoms during pregnancy.[36] Regarding debt burden, it was also significantly related to the occurrence of depression in the group of pregnant women at Sawanpracharak Hospital (P-Value = .014), which aligns with studies on stress factors affecting older pregnant women that demonstrated a significant relationship between low family income and stress ($p < 0.001$).[8] Similarly, life stress is a potential catalyst for depressive symptoms during pregnancy.[36]This research also found that family relationships are a significant factor affecting the occurrence of depression among pregnant women at Sawanpracharak Hospital (P-Value < .001). A lack of support from those around them was identified as a potential trigger for depressive symptoms during pregnancy.[36] This correlates with the study reported that family support had a significant negative correlation with depression at a low level ($r = -.276$, $p < .01$).[37,40]

Conclusions

The most participants who pregnant women attending prenatal care at Sawanpracharak Hospital, Mueang District, Nakhon Sawan Province was over 19 years old who has the education level was high school graduate/vocational certificate, without a job or housewives, marital status, without any chronic illnesses, never had a history of mental health issues during pregnancy, Monthly income of 10,001 – 15,000 THB, their income sufficient, living in their own homes, a single-family, family relationships, the first trimester of pregnancy when mental health problems, and first-time pregnancies. The most participants had a normal condition. Following that, there were anxiety, depression and stress, respectively. Factors affecting the anxiety on participants were age, mental health history at the time of pregnancy, and debt burden. Factors affecting the stress on participants were age, Education level, mental health history at the time of pregnancy, and family relationship. Moreover, the factors of age, marital status, mental health history at the time of pregnancy, debt burden and family relationship that affecting on participants with depression, statistically significant at the .05 level.

Additionally, there are some sociocultural features like having more children, unplanned pregnancies, or perceiving poor support from the partner, become important vulnerability factors on antenatal depression of pregnant women.[38] Furthermore, the resettlement process, migration involves the move from one political, socioeconomic and cultural system to another are the environmental risk factors associated with antenatal anxiety and depression of pregnant women also.[39]

Conflict of interest

The authors have no conflicts of interests to declare.

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References

1. Department of Mental Health. *World Mental Health Day* [Internet]. 2021 [cited 2025 Feb 3]. Available from: https://dmh.go.th/newsdmh/view.asp?id=30010
2. Sadock BJ, Sadock VA, Ruiz P, editors. *Kaplan & Sadock's Comprehensive Textbook of*

Psychiatry. 10th ed. Philadelphia: Wolters Kluwer; 2017.
3. Sharma P, Singh N, Tempe A, Malhotra M. Psychiatric disorders during pregnancy and postpartum. *J Preg Child* [Internet]. 2020 Jun;6(2):[about 1 screen]. Available from: 2519-089X.
4. Bhat NA, Hassan R, Shafiq M, Sheikh S. Sociodemographic factors: a major predictor of anxiety and depression among pregnant women. *Delhi Psychiatry J. 2015;18*(1):86-94.
5. Priya A, Chaturvedi S, Bhasin SK, Bhatia MS, Radhakrishnan G. Depression, anxiety and stress among pregnant women: A community-based study. *Indian J Psychiatry. 2018;60*(1):151.
6. Intapiboon S. Mental health of pregnant women and maternal mental health during the first 6 weeks postpartum in the new normal after the COVID-19 pandemic. *J Med Innov Public Health Res. 2023*;1-23.
7. Kinsella MT, Monk C. Impact of maternal stress, depression & anxiety on fetal neurobehavioral development. *Clin Obstet Gynecol. 2009;52*(3):425-40.
8. Saetang O, Kaewjaiboon J, Rueankul T. Stress and factors related to stress in older pregnant women. *J Nurs Health Res. 2021;22*(3):71-83.
9. Mangkhamanee S, Chutjaroenjeen S, Pramualratana P. A study of mental health of pregnant women receiving antenatal care at Chaophraya Yommarat Hospital, Suphanburi Province. *J Nurs Educ. 2010;3*(1):29-40.
10. Namsoros Y, Panttchin C. Behaviors of using application LINE “Early Moment Matter on Mobile9 Yangth to Give a Birth” in pregnant women at Regional Health Promotion Center 7 Khon Kaen. 2021 Sep-May.
11. Boonwas K, Khapun S, Saetan C. Factors affecting the stress levels of pregnant teenagers. *J Boromarajonani Coll Nurs Bangkok. 2016;32*(3):1-10.
12. Robinson GE. Pregnancy loss. Best Pract Res Clin. *Obstet Gynaecol. 2014;28*(1):169-78.
13. 1Antenatal Department, Sawanpracharak Hospital. *Patient records*. Antenatal Department, Sawanpracharak Hospital. 2023.
14. Chung TKH, Lau TK, Yip AS, Chiu HF, Lee DT. Postpartum depression and anxiety: The role of maternal mental health during pregnancy. *J Clin Psychiatry. 2004;65*(3):296-302.
15. Milgrom J, Gemmill AW, Bilszta JL, Hayes B, Barnett B, Brooks J, et al. Postpartum depression and the impact on maternal care. *Clin Psychol Rev. 2010;30*(1):59-63.
16. Dennis CL, Falah-Hassani K, Shiri R. Prevalence and risk factors for postpartum depression and anxiety in women with a history of depression. *J Affect Disord. 2017*;*215*:150-8.
17. Field T. Postpartum depression effects on early interactions, parenting, and safety practices: A review. *Infant Behav Dev. 2010;33*(1):1-7.
18. Müller M, et al. Impact of maternal anxiety and depression on pregnancy outcomes: A systematic review. *Psychosom Med. 2016;78*(4):420-30.
19. Rosen T, et al. Mental health and pregnancy: A review of risks and outcomes. *Arch Womens Ment Health. 2019;22*(2):223-30.
20. Akinbami LJ, et al. Prevalence of anxiety and depression symptoms in adolescents in pregnancy. *J Adolesc Health. 2017;60*(3):341-8.
21. Gonçalves H, et al. Psychosocial factors influencing adolescent pregnancy: Anxiety and depression among teenage mothers. *BMC Pregnancy Childbirth. 2020;20*(1):255.
22. Heslehurst N, et al. Maternal age and pregnancy outcomes: A systematic review of the literature. *BMC Pregnancy Childbirth. 2012*;12:61.
23. Silver RM. Advanced maternal age and pregnancy complications. *Obstet Gynecol. 2015;126*(1):3-11.
24. Lee KH, et al. Pregnancy complications and their association with maternal anxiety in advanced maternal age. *Psychiatry Res. 2019; 276:146*-53.
25. Puthussery S, et al. Impact of maternal age on pregnancy outcomes: A comparison of adolescent, adult and older women. *J Reprod Infant Psychol. 2012;30*(3):205-15

26. Feldman R, et al. The impact of maternal depression on the development of the infant. *J Child Psychol Psychiatry. 2012;53*(3):313-26.
27. Stewart DE, et al. Mental health and pregnancy: Impact on maternal and infant health. *J Reprod Infant Psychol. 2012;30*(3):243-51.
28. Chawanpaiboon S. *Premature birth textbook. Bangkok: Siriraj Office of the Deputy Dean for Academic Affairs*, Faculty of Medicine, Mahidol University; 2010.
29. Phosaen R, Charoensanti C, Supavititpatana B. Stress specific to pregnancy, social support and stress coping in women with gestational diabetes. *J Boromarajonani Coll Nurs Bangkok. 2019;35*(1):59-70.
30. Namsarot Y. *Screening for depression and factors related to depression among pregnant women attending prenatal care for the first time*. Khon Kaen: Health Center 7 Khon Kaen; 2021.
31. Mangkhamanee S, Chutjaroenjeen S, Pramualratana P. A study of the mental health status of pregnant women receiving prenatal care services at Chao Phraya Yommarat Hospital, Suphanburi Province. *J Nurs Educ. 2010;3*(1):29-40.
32. Wongpradit S, Chunuan S, Yangwanichset S. Factors related to depression in teenage pregnant women. *J South Reg Coll Nurs. 2022;9*(1):29. Available from: https://he01.tci-thaijo.org/index.php/scnet/article/view/244512/170870
33. Butchaingam P, Kongchan S. Study of the prevalence of depression in pregnant women at Somdej Phra Yupparat Lom Kao Hospital. *Maha Sarakham Hosp J. 2018;15*(3):98.
34. Wongniyom K, Aphinanthawet S. Prevalence and factors associated with depression in pregnant teenagers at Siriraj Hospital. *J Psychiatr Assoc Thailand. 2014;59*(3):200.
35. Rakkiat M, Poolpat P. Prevalence and factors related to postpartum depression in teenage mothers at Nopparat Ratchathani Hospital. *Fac Nurs J Burapha Univ. 2020;28(1):43*. Available from: https://he02.tci-thaijo.org/index.php/Nubuu/article/view/240673
36. Pranaiya & Arthur Magoffin Foundation. *Coping with depression during pregnancy* [Internet]. 2022 [cited 2025 Feb 3]. Available from: https://www.pamfoundation.org/th/depression-during-pregnancy-th
37. Buppamala S, Netimethee S, Jindapaisarn S. Preventing depression in pregnant teenagers. *Nurs J. 2022;71*(4):69.
38. Sharapova A, and Goguikian Ratcliff B. Psychosocial and sociocultural factors influencing antenatal anxiety and depression in non-precarious migrant women. *Front. Psychol, 2018;9*:1-10. doi.org/10.3389/fpsyg.2018.01200
39. Goguikian Ratcliff, B, Sharapova, A, Suardi, F, and Borel F. Factors associated with antenatal depression and obstetric complications in immigrant women in Geneva. *Midwifery, 2015b; 31*, 871–878. doi: 10.1016/j.midw.2015.04.010
40. Jam, F. A., Ali, I., Albishri, N., Mammadov, A., & Mohapatra, A. K. (2025). How does the adoption of digital technologies in supply chain management enhance supply chain performance? A mediated and moderated model. Technological Forecasting and Social Change, 219, 124225.
41. Abbas, M., Jam, F. A., & Khan, T. I. (2024). Is it harmful or helpful? Examining the causes and consequences of generative AI usage among university students. International journal of educational technology in higher education, 21(1), 10.
42. Ghanbarlou, S., Kahforoushan, D., Abdollahi, H., & Ziaei, S. (2025). An overview of the application of agricultural waste in carbon dioxide adsorption with the aim of protecting the environment. Environment and Water Engineering, e216377.