



Health Behaviors in Pregnant Women with Psychological Problems and Disorders: Scoping Review

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ABSTRACT

Background: The negative impact of anxiety on the mother is changes in the behavior of pregnant women such as diet, lifestyle or physical activity, resulting in labor complications, anxiety problems in the puerperium period. While the impact on the baby such as stunted fetal growth, preterm birth, asphyxia, Low Birth Weight (LBW) and can even cause death in the baby.

Objective: To review scientific evidence based on published articles related to the health behavior of pregnant women with psychological problems and disorders.

Methods: This research method was a scoping review, using PEO framework. Literature search used PubMed, ScienceDirect, Wiley Online Library, and grey literature using Google Scholar and Research Rabbit. Articles were critically appraised by using JBI and MMAT critical appraisal tools.

Results: There were 7 articles out of 7,796 that were relevant to the research objectives. The articles come from 4 developed countries and 3 developing countries. Three themes were found namely health behavior, the impact of anxiety, and stress reduction strategy.

Conclusion: Based on the 7 articles obtained, the health behavior of pregnant women is in accordance with the objective are knowing compliance with ANC visits in pregnant women, knowing health behavior related to consumption of nutritious food in pregnant women, knowing the physical activity of pregnant women with psychological problems and disorders.

Keywords: *Health behaviors of pregnant women; psychological problems and disorders*

INTRODUCTION

In the evolving landscape of maternal health research, the intersection of pregnancy with psychological well-being has emerged as a pivotal area of study. Pregnancy heralds a transformative period marked by significant physiological, hormonal, and emotional adjustments. While these changes are inherent to the gestational process, they bear the potential to exacerbate existing mental health issues or precipitate new ones, thereby influencing health behaviors critical to both maternal and fetal outcomes. This backdrop frames the urgency and relevance of investigating health behaviors among pregnant women grappling with psychological problems and disorders.

A substantial body of literature underscores the impact of stress, sourced from a diverse array of psychological, physiological, social, and socio-demographic factors, on adopting behaviors that could detrimentally affect the health trajectory of the offspring (Hanifah & Utami, 2019). Notably, the adherence to positive health behaviors—such as abstaining from drug use, avoiding smoking, and engaging in regular, moderate physical activity—has been highlighted as a cornerstone for mitigating adverse pregnancy outcomes, including preterm births, low birth weight (LBW), and labor complications (Utami, 2019).

The advent of the COVID-19 pandemic has further complicated the landscape, introducing heightened levels of anxiety related to antenatal care visits and concerns over the health of both mother and fetus amidst the pandemic (Nurhasanah, 2020). This scenario has accentuated the necessity to delve deeper into how psychological stressors, particularly anxiety, influence health behaviors during pregnancy. Existing research delineates a disparity in the prevalence of pregnancy-related anxiety across socio-economic spectra, suggesting a global challenge in managing pregnant women's mental health and its subsequent impact on health behaviors (Hanifah & Utami, 2019).

OBJECTIVE

Given these considerations, this scoping review is poised to systematically explore and critically assess the scientific evidence on health behaviors among pregnant women facing psychological challenges. By utilizing the Prenatal Health Behaviors Scale (PHBS) to categorize behaviors into 'good' or 'bad' based on adherence to health-promoting practices, this review aims to illuminate the pathways through which psychological well-being shapes maternal health behaviors (Harmel & Höfelmann, 2022b). Through this lens, the review seeks to contribute to a nuanced understanding of the interplay between psychological disorders and health behaviors during pregnancy, underpinning the development of holistic care strategies that address the multifaceted needs of pregnant women.

METHOD

This scoping review adopts an exploratory approach, guided by the PEO (Population, Exposure, Outcome) Framework, to meticulously investigate the interplay between psychological distress (including depression, anxiety disorders, mental disorders, stress) and health behaviors (such as antenatal visits, eating behaviors, and exercise) in pregnant women. Articles were systematically identified and selected

through the application of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart, ensuring a transparent and reproducible review process. The critical appraisal of the included studies was conducted utilizing two robust tools: the Joanna Briggs Institute (JBI) guidelines and the Mixed Methods Appraisal Tool (MMAT), chosen for their capacity to thoroughly assess the quality across diverse research designs.

The methodology was structured around five pivotal steps: (1) Identification of relevant articles was achieved through a comprehensive search strategy across multiple databases, utilizing specific keywords aligned with the PEO criteria; (2) Initial selection was based on the screening of titles and abstracts, adhering to predefined inclusion and exclusion criteria; (3) Eligibility assessment involved a detailed full-text review to ensure studies met all the research requirements; (4) Critical appraisal was systematically applied to each study using JBI and MMAT, evaluating methodological integrity and relevance; (5) Data synthesis followed a structured approach, aiming to integrate findings from the selected studies cohesively, culminating in a thorough summarization and presentation of the outcomes. This methodical approach was designed to encapsulate the breadth of evidence regarding the impact of psychological distress on health behaviors among pregnant women, contributing to a nuanced understanding of this complex relationship. The PEO framework can be seen in table 1.

Table 1 PEO Framework

P (Population)	E (Exposure)	O (Outcomes)
Pregnant Women	Psychological distress	Health Behavior
Pregnancy	Depression	Antenatal visit
Antenatal	Anxiety disorders	Eating behavior
	Mental disorders	Exercise
	Stress	

The inclusion and exclusion criteria used to define the article's eligibility criteria include the following:

Table 2 Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
1. Published from 2013 to 2023 (last 10 years)	1. Opinion Articles
2. Published in English and Indonesian	2. Review/commentary articles
3. Original Article	3. Reports/draft policies/specific organizations
4. Articles that discuss the compliance of ANC visits to pregnant women with psychological problems and disorders	4. Articles with postpartum maternal population
5. Articles that discuss the compliance of pregnant women with psychological problems and disorders in taking multivitamins	5. Book
6. Articles that discuss health behaviors related to consumption of nutritious food in pregnant women with psychological problems and disorders	

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7. Articles that discuss the physical activity of pregnant women with psychological problems and disorders
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Three databases and 2 sources of grey literature were used to search the articles. The databases are Pubmed, ScienceDirect, and Wiley Online Library while grey literature is Google Scholar and Research Rabbit.

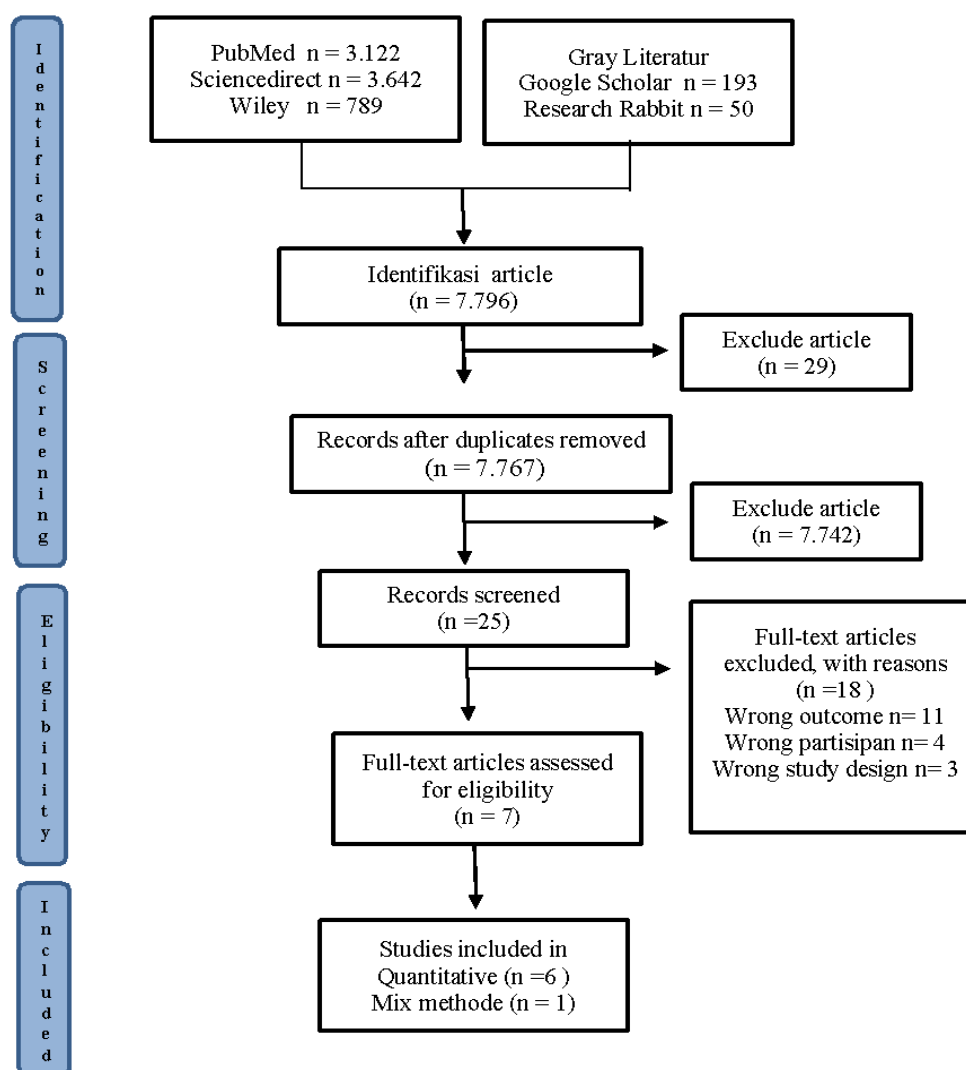
In determining keywords using the PEO framework, it is expanded by determining synonyms using Medical Subject Hedings (MeSH) and Boolean phrase. The article search keywords can be seen in table 3.

Table 3 Article Search Keyword

Database	Keyword Search
PubMed	(Pregnan*) OR ("pregnant wom*n") OR ("Antenatal*") AND ("psychological distress") OR ("depression") OR ("anxiety disorders") OR ("stress") AND ("health behavior")
ScienceDirect	("Pregnan*") AND ("pregnant wom*n") AND ("psychological distress") OR ("depression") OR ("depression") OR ("anxiety disorders") AND ("health behavior")
Wiley Online Library	(Pregnan*) OR ("pregnant wom*n") OR ("Antenatal*") AND ("psychological distress") OR ("depression") OR ("anxiety disorders") OR ("stress") AND ("health behavior") OR ("antenatal visit") OR ("eating behavior") OR ("antenatal visit") OR exercise
Research Rabbit	("Health behavior") ("pregnant women") ("with mental disorder")
Google Scholar	("Pregnant Women") AND ("Psychological Problems and Disorders") AND ("Behavioral Health")

1. Article selection/selection

The database search yielded 7,796 articles from Pubmed, ScienceDirect, and Wiley Online Library, as well as grey literature from Google Scholar and Research Rabbit, with keywords such as pregnant women OR antenatal OR pregnancy AND psychological distress OR anxiety disorder OR mental disorder OR stress AND health behavior OR antenatal visit OR eating behavior OR exercise. The initial search used 3 databases, but during the search process only a few articles were found, so additional searches were carried out on grey literature. Following that, 29 articles were duplicated using the Zotero application, and the article was excluded. The articles were then selected using Rayyan based on their titles and abstracts. The author assigned eligibility and ineligibility marks to each article, so data was obtained after screening 25 articles. The article was then chosen according to the results of the article, population, and research studies. Then, seven articles were obtained. Co-authors (CSPs) have a role to play in improving the quality of scoping review during the screening and data charting processes. Themes and subthemes were developed based on the discussion of the two authors. The PRISMA flowchart, can be seen in figure 1.

Figure 1 PRISMA Flowchart

2. Data charting

Based on the 7 relevant articles, data diagrams or charting data were then made to include some of the article's main points or key points, such as the author, location, purpose, method, sample or participant, and study findings. Charting data is created in Microsoft Excel. Table 4 shows the charting data which was adapted from The Joanna Briggs Institute (JBI) 2015.

Table 4 Data Charting

No.	Title/author/year	Country	Objectives of the Study	Methods	Result
A1	The relationship between anxiety level and compliance in conducting	Indonesia	This study aims to determine the relationship	Quantitative, correlational design with cross-	Result This study shows that there is a

	antenatal care (ANC) to pregnant women in the Rembang Community Health Center's working area during the Covid-19 pandemic . Titin Rokhanah, et al (2022)		between anxiety levels and compliance of pregnant women in doing antenatal visits during the Covid-19 pandemic in the working area of the Rembang Health Center.	sectional approach, there were 46 respondents using the targeted sampling technique. An observation sheet and the Perinatal Anxiety Screening Scale (PASS) questionnaire were used as research instruments. The spearman-rank test was used to analyze the data.	relationship between level of anxiety and compliance of pregnant women in performing antenatal visits during the Covid-19 pandemic in the working area of the Rembang Health Center.
A2	Level of anxiety of pregnant women towards antenatal care visits during the Covid-19 pandemic, Nining Sulistyowati, Yeti Trisnawati, (2021)	Indonesia	To analyze the anxiety of pregnant women towards antenatal care visits during the Covid-19 pandemic	Quantitative, Analytical research with cross-sectional design. The number of samples was 32 respondents and selected with purposive sampling technique. The data collection tool makes use of a Google form-based questionnaire. Anxiety is measured by the HARS (Hamilton Anxiety Rating Scale). The data were analyzed using the chi-square test.	The results of the study showed that when pregnant women performing antenatal care visit to health care facilities during the Covid-19 pandemic, most women make regular ANC visits, where 22 pregnant women (68.8%) experience anxiety and 9 (28.1%) pregnant women do not experience anxiety. There were 12 pregnant women (37.5%) who reported anxiety and irregular ANC visits. 9 respondents, or all the pregnant women who did not experience anxiety went to the ANC regularly.

A3	Factors that affect antenatal anxiety. Dewi Hanifah, Shinta Utami, (2022)	Indonesia	The objective of this study is to identify antenatal anxiety and analyze the factors associated with the occurrence of antenatal anxiety.	Quantitative, with a cross-sectional approach. The sample size in this study was 160 people, and the sampling technique used was accidental sampling. Data were collected using Pregnancy-Related Anxiety Questionnaire-Revised2 (PRAQ-r2). Data were analyzed using Chi-square	Factors related to antenatal anxiety include parity (p=0.003), obstetric status (p=0.000), gestational age (p=0.001), family support (p=0.000) and health behavior (p=0.000).
A4	Differences in levels of stress, social support, health behaviors, and stress-reduction strategies for women pregnant before and during the COVID-19 pandemic, and based on phases of pandemic restrictions, in Ireland. Matvienko-Sikar, et all 2020)	Ireland	To test antenatal stress and stress reduction strategies, social support, and health behaviors among pregnant women before and during the pandemic in Ireland.	Quantitative, cross-sectional survey design, A sample of 210 pregnant women was recruited online and in the antenatal department of tertiary maternity hospitals during the pandemic, and 235 women were recruited online during the pandemic. This antenatal stress was measured using the (NuPDQ). Perceptions of support were measured using (MSPSS). Behavior is assessed using (PHBS), The independent sample test and the Chi-square independence tests were used to analyze the data.	Women who were pregnant during the pandemic received less social support, including from close friends and family, than women who became pregnant before the pandemic. There were no significant differences in stress-related health behaviors between men and women during the pandemic, but women reported higher stress and less physical activity. Women reported a variety of stress-reduction techniques that were comparable before and after the pandemic. There were no differences in any outcome between the pandemic-

					related restriction phases.
A5	Association between dietary patterns and mental disorders in pregnant women in Southern Brazil. Je ´ssica T.A. et all (2017)	Brazil	To examine the connection between pregnant women's eating habits and mental disorders	Quantitative, Cross-sectional studies, final sample of 712 women. To screen for mental disorders, the Primary Care Evaluation of Mental Disorders (PRIME-MD) data collection tool was used. Pearson's chi-square method was used to test the association between categorical variables	There was a high prevalence of the major depressive disorder among women with low fruit intake (43%, PR 1.43, 95%CI 1.04-1.95) and high sweets and sugar intake (91%, PR 1.91, 95%CI 1.19-3.07). Women with a general Brazilian dietary pattern had a higher prevalence of major depressive disorder compared to women with a variable consumption pattern (PR1.43, 95% CI 1.01-2.02). Low nut consumption is associated with generalized anxiety disorder (PR 1.40, 95% CI 1.01-1.93).
A6	The impact of COVID-19 on pregnant Women's experiences and perceptions of antenatal maternity care, social support, and stress-reduction strategies. Sarah Meaney, et al. (2021)	England	To assess maternal satisfaction with antenatal care and social support, as well as to test stress-reduction strategies used by women during the pandemic.	Mix method, a sample of 573 pregnant women, General satisfaction items from the WHO Antenatal Care Assessment questionnaire of Perceived Quality of Care, Social support using (MSPSS) Descriptive statistics and multivariate analysis were used for quantitative analysis;	Women reported lower levels of social support as estimated by women's mental health and demographic factors and related to restrictions on community health and maternity services. Women reported that maternity service restrictions limited their face-to-face interactions with health

				Qualitative content analysis was used for open questions.	professionals. It also meant their partners were unable to attend an antenatal appointment or supporting them in the postpartum period in the maternity setting.
A7	Mental distress and demographic, behavioral, obstetric characteristics, and health condition in pregnant women. Betina Harmel, Doroteia Aparecida Höfelmann (2022)	Sri Lanka	To estimate the prevalence of mental distress and determine its relationship to socioeconomic, demographic, health-related behavior, midwifery, and health status in pregnant women.	Quantitative, cross-sectional study, a sample of 605 pregnant women. The mental stress data collection tool was investigated using the Self-Reporting Questionnaire multivariable analysis of the relationship between mental and variable factors in pregnant women during treatment	Among pregnant women (n=605), the prevalence of mental distress was 47.9.% After the adjusted analysis, the following factors were associated with the results: living alone, attending school for up to 7 years, engaging in moderate or intense physical activity, consuming alcohol in the previous 12 months, being pregnant with a third child, being in the third trimester of pregnancy, and having general pregnancy symptoms.

Data Charting (The Joanna Briggs Institute 2015).

3. Critical Appraisal

Critical appraisal is used to carefully, methodically, and relevantly evaluate the article. The author evaluated the article using the tools of The Joanna Briggs Institute (JBI) Critical Appraisal Checklist and Mixed Method Appraisal Tool (MMAT). Articles 4,5,6,7 have the advantage of being more dominant from developed countries than developing countries, with articles in developed countries having more samples than articles in developing countries. Articles 4 & 6 have the advantage of including ethical procedures which are useful as a reference for researchers to uphold the values of

integrity, honesty, and fairness in conducting research. While the limitations of Articles 1, 2, 3, 4, 5, and 7 are more dominant in quantitative research, so little is known about the health behavior of pregnant women with psychological disorders and problems. Articles 1, 2, 3, 4, 5, 6, and 7 have limitations in that anxiety measurement instruments differ between developed and developing countries, and no one tests validity and reliability.

RESULTS

Article Characteristics

The database search yielded 7,796 articles from Pubmed, ScienceDirect, and Wiley Online Library, as well as Grey Literature from Research Rabbit dan Google Scholar, with keywords such as pregnant women OR antenatal OR pregnancy AND psychological distress OR anxiety disorder OR mental disorder OR stress AND health behavior OR antenatal visit OR eating behavior OR exercise. Following that, 29 articles were duplicated using the Zotero application, and the article was excluded. The articles were then selected using Rayyan based on their titles and abstracts. The author assigned eligibility and ineligibility marks to each article, so data was obtained after screening 25 articles. The article was then selected according to the results of the article, population, and research studies. Then, seven articles were obtained. The research article consists of 6 Quantitative articles (6 cross-sectional) and 1 mixed-method study. Articles 4,5,6,7 are from developed countries (Ireland, Brazil, England, Sri Lanka) and articles 1,2,3 are from developing countries (Indonesia).

Thematic Analysis

The results of the scoping review revealed three main themes based on a review of seven articles: health behavior, the impact of anxiety, and stress reduction strategies. The three major themes are segmented into several sub-themes. The themes are processed with thematic analysis by reading the article several times. The two authors then discuss themes and sub-themes. The results of these findings can be seen in table 5 below:

Table 5 Thematic Analysis

Themes	Sub-Themes	References
Health Behavior of pregnant women with psychological problems and disorders	1. ANC Visit 2. Consuming nutritious food 3. Taking vitamins 4. Physical activity/exercise	Articles 1, 2, 3, 4, 5, 6, 7
Impact of anxiety	1. For Mother 2. Infants	Articles 1, 2, 3, 4
Stress Reduction Strategies	1. Exercise 2. Social Support	Articles 4, 6

Theme 1: Health behavior in pregnant women with psychological problems and disorders

Behavior was measured using the Prenatal Health Behaviors Scale (PHBS), which assesses the frequency of women's involvement in nutrition-related behaviors, physical activity, sleep, vitamins, smoking, and alcohol in the past two weeks. According to research, three important aspects of health behavior are not using drugs, not smoking, and engaging in minimal physical activity every week. Based on this category, it is grouped into good behavior if all the indicators are met, while if there is one that deviates, it is categorized into bad behavior (Harmel & Höfelmann, 2022a).

ANC Visit

Non-compliance with the ANC examination results in the unknown various pregnancy risks, which can affect the continuation of pregnancy and, if not quickly resolved, can result in an increase in maternal mortality. Anxiety affects the behavior of pregnant women in making ANC visits to health facilities. In the United States, 25.8%, or approximately 706 pregnant women, have discontinued ANC visits due to increased anxiety during Covid-19. This is because pregnant women are concerned about the effects of Covid-19, which causes anxiety during delivery (Rokhanah et al., 2022).

Consuming nutritious food

During the pandemic, Irish women reported good health behaviors, with the majority of women regularly eating healthy, exercising, and taking vitamins. Furthermore, very few women reported consuming alcohol or smoking. Because certain health behaviors, such as diet, exercise, smoking, and alcohol consumption, are linked to obstetric and child health outcomes (Nutley et al., 2021).

Maintaining healthy eating habits, such as eating fruits, vegetables, and nuts, may be linked to a lower prevalence of common mental disorders during pregnancy. If not identified and treated, this disorder can cause psychiatric problems in the postpartum period, interfering with the mother's quality of life and breastfeeding. Pregnancy is an important time to identify high-risk groups and ideal periods for nutritional counseling, as dietary changes, eating habits, and lifestyle changes are becoming more acceptable. The promotion of healthier living habits among pregnant women can be passed down to the child, with positive consequences that have the potential to last into adulthood (Paskulin et al., 2017).

Taking Multivitamins

Behavior of pregnant women with psychological problems and disorders in taking multivitamins is non-compliance with taking blood supplement tablets is a risk factor for anemia in pregnant women. Increase in iron needs during pregnancy that cannot be met solely through the consumption of nutritious foods, necessitating the use of blood-added tablets as recommended (Anggraeni, 2019).

Physical activity/exercise

Pregnant women with psychological problems and disorders as contributing factors to decreased exercise behavior. Inactivity during pregnancy have a negative impact on both the woman and the fetus, in prenatal phase. Women who don't do sports ignore many health benefits. health behavior pregnant women in the form of exercise. Sports activities are one of the forms of behavior carried out by pregnant women in maintain and improve the health of her pregnancy as well prevention of disease or childbirth complications (Ayuningtyas, 2019).

Theme 2: The impact of anxiety on pregnant women with psychological problems and disorders

Untreated pregnancy anxiety can have negative effects on the mother and fetus, such as disrupted labor, stunted fetal growth, weakening of uterine muscles, and premature delivery until miscarriage (Nurhasanah, 2020). Anxiety adversely affects pregnancy, but not every pregnant woman experiences negative effects because everyone's immunity is different (Sulistiyowati & Trisnawati, 2021).

Impact on Mother

Because antenatal care focuses on the mother's physical health rather than her mental health, it is more likely that the mother's psychological problems will go unnoticed and untreated. According to the findings of interviews with midwives at health centers, many cases during childbirth experience psychosocial problems, such as patients being moody, shouting, and uncooperative during labor, as well as postpartum blues symptoms. However, the data is unreliable, making it difficult to determine the number of complications caused by pregnant women's anxiety. As a result, prenatal detection with a thorough assessment during pregnancy using the appropriate instruments is required.

Impact on Infants

Anxiety during pregnancy is detrimental to childbirth, fetal health, postpartum maternal mental health, and child health. Complications of an untreated pregnancy increase the risk of depression developing after pregnancy, which can harm the health and well-being of the mother and child as well as the child's development. Other authors assert that antenatal complications such as preterm birth, Low Birth Weight (LBW), asphyxia, and or even infant mortality result from antenatal anxiety (Sari & Rokhanawati, 2018).

Theme 3: Stress reduction strategies for pregnant women with psychological problems and disorders

There are many stress-reduction strategies, such as connecting with others, exercise, entertainment, relaxation, relating to nature, hobbies, and food or drink, but the article only mentions social support or connecting with others and exercise (Matvienko-Sikar et al., 2021; Meaney et al., 2022).

Exercise

The most common activities respondents did to reduce women's stress were connecting with others (45.5%; n = 242) and exercising (41.0%; n = 218). This was also reflected in the responses of women when asked what support they used and/or thought would help them reduce stress.

Social Support

The support of family, friends, and closest people is a supporting factor in overcoming anxiety. Pregnant women report that interacting and relating with others is a stress reduction strategy during covid-19. So, if pregnant women do not receive social support during covid-19, it may be harmful to both the mother and child's health.

DISCUSSION

The main findings of this scoping review are that the articles obtained are consistent with the scoping review's specific objectives, which are ANC visits, multivitamin consumption, nutritious food consumption, and physical activity in pregnant women with psychological problems and disorders. In addition to the various factors mentioned above, additional factors such as stress management and eating a healthy diet should be considered when determining how important it is to maintain health. Other factors to consider include exercise, a healthy lifestyle, avoiding smoking, drugs, and alcohol, and being able to control stress. The connection between balanced nutrition and food preparation is one particular aspect of this issue that needs to be addressed. When viewed from a nutritional perspective, a healthy diet must include a variety of foods, such as carbohydrates, proteins, fats, and vitamins, as well as additional milk to meet calcium requirements (Rofi'ah et al., 2017).

Poon et al. in 2020 stated that physical activity was also associated with pregnant women's anxiety levels. To help reduce strain on the back and joints, pregnant women should perform daily activities, and improve sleep quality while reducing the risk of hypertension and diabetes. When pregnant women engage in free and open activity during Covid-19, they may feel happy and optimistic, which will help them lessen any anxiety they may already be feeling.

Psychological evaluation of pregnant women is necessary and can be done effectively in order to address problems connected to anxiety and ensure that antenatal visits to evaluate the health of mother and baby are not hampered by worry among pregnant women during the Covid 19 epidemic. Pregnant women's anxiety can affect the mother's and fetus's health. Due to the Covid-19 epidemic, anxiety in pregnant women may increase, necessitating extra therapy to prevent detrimental effects on the mother's and fetus' health (Silvian & Ekasari, 2021).

Antenatal care, which tries to identify the mother's health status early on, is one of several factors that affect pregnancy health. In order to provide appropriate and prompt treatment, Kumar et al. claim that midwives can assess fetal development, maternal health, and potential dangers during prenatal care. Understanding a pregnant woman's health status from antenatal care services is intended to improve the mother's physiological preparedness for childbirth (Gusmadewi et al., 2022).

The role of midwives, according to academics, is to support, encourage, and help pregnant women comply with their nutritional needs. By offering support, you can substantially alter how pregnant women react, thereby lowering stress. So, pregnant women's decision-making may be positively impacted by nutritional contentment (Amelia & Darmadja, 2017).

Due to the potential impact on baby growth, pregnant women are among the population groups most susceptible to nutritional issues. According to certain study, Indonesia understands the critical function a mother plays in developing good human resources. Good maternal health and nutritional status throughout pregnancy is a fantastic opportunity for the fetus conceived to be healthy and the mother's safety during childbirth to be ensured (Dewi et al., 2021).

Because motivation is a human condition similar to the desire that propels people to act in a certain way to achieve their goals, it makes sense that someone who is more motivated is less likely to refuse to take Fe tablets. This is not in line with Budiarni's findings, which indicate a connection between motivation and pregnant women's use of Fe tablets (Anggraeni, 2019). Predisposing factors, risk factors, and causal factors are all factors that influence how pregnant women behave in terms of their health. Predisposing factors include age, level of education, occupation, parity, knowledge, and individual attitudes (Lilliecreutz et al., 2021).

Possible factors such as distance of residence, family income, and available news sources. Strengthening factors such as family, social, and personal attitudes as well as access to health care providers are also considered supporting factors. Antenatal care, also referred to as antenatal services, is provided by educated and experienced health professionals who can identify complications in mothers and children early on to prevent unfavorable outcomes from developing later in life (Rahmawati et al., 2019). Leaving these conditions untreated will have long-term effects that will worsen both the patient's and the fetus's health. Therefore, it is necessary to implement preventive strategies by conducting health promotion as a potential measure of security and prevention.

Exercise has greatly contributed to addressing depression-related problems and can reduce the negative effects of pharmacology, reduce excess weight and reduce pain. Exercise can increase the BDNF-Serotonin system, provide positive responses and adaptations, affect circulating levels of two neurotransmitters (serotonin and dopamine), and reduce anxiety and depression. Intense physical activity such as brisk walking is recommended by doctors to be done for 30 minutes every day.

The additional benefit of this scoping review is that it uses articles from developed countries rather than developing countries, and articles from developed countries have

more samples than articles from developing countries. Then, articles focusing on developed countries include useful ethical procedures as a reference for researchers to uphold the values of integrity, honesty, and fairness when conducting research.

The limitation of this scoping review is that most research articles are cross-sectional, so the health behavior of pregnant women with psychological disorders and problems is not well understood. Thus, it is expected that in the future, qualitative research designs will be used to investigate in-depth health behaviors in pregnant women with psychological problems and disorders.

Another limitation is that anxiety measurement instruments differ between developed and developing countries, and testing validity and reliability are still uncommon. To emphasize the importance of providing antenatal care that reflects best practices in serving pregnant women with anxiety problems and concerns, standard national and international guidelines are required. It is also critical to conduct validity and reliability tests on each instrument.

CONCLUSION AND RECOMMENDATIONS

The scoping review critically examines the relationship between psychological issues and health behaviors during pregnancy, presenting strong evidence that mental health challenges are closely linked to prenatal practices. It underscores the importance of maintaining a healthy lifestyle, including proper nutrition and physical activity, while avoiding detrimental habits such as smoking and excessive alcohol consumption, for the health of both the mother and the developing fetus.

This review's methodological strength is anchored in its systematic approach, utilizing the PEO Framework and PRISMA guidelines, which lends credibility to the breadth of evidence presented. The application of rigorous appraisal tools like the JBI and MMAT further reinforces the reliability of the findings, ensuring a high standard of evidence synthesis.

However, the review's focus on quantitative data presents a limitation, as it may not capture the full spectrum of experiences and behaviors of pregnant women with psychological concerns. The inconsistency in the methods used to measure anxiety and their varying levels of validation poses challenges to the universality of the conclusions drawn. Future research could benefit from incorporating qualitative studies to provide deeper insight into the subjective experiences of these women. Additionally, standardized and validated tools for measuring prenatal anxiety are necessary to strengthen research outcomes. Clinically, these insights call for a more integrated healthcare approach that encompasses both the psychological and physiological aspects of prenatal care, aimed at enhancing maternal and fetal health outcomes.

FUNDING

The scoping review was conducted without external funding, reflecting an unbiased exploration of the literature. This independence affirms the integrity of the

findings and the researchers' dedication to advancing knowledge in the vital area of maternal health.

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