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ORIGINAL ARTICLE

Participation of pregnant women in pregnancy exercise: The role of knowledge, attitudes, and husband's support

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Abstract

Pregnancy exercise offers numerous benefits for both mother and child. However, many pregnant women do not participate in this activity. This study aims to identify factors influencing pregnant women's participation in pregnancy exercise at Darussalam Health Center, Medan City. A cross-sectional study was conducted on 60 pregnant women visiting the Darussalam Health Center. Data were collected using a structured questionnaire and analyzed using Chi-square tests and logistic regression. The findings indicate that most pregnant women did not participate in pregnancy exercise. Knowledge of the benefits of prenatal exercise, positive attitudes toward exercise, and partner support were significant predictors of participation. Multivariate analysis confirmed that these three factors were independently associated with exercise participation. This study highlights the importance of knowledge, attitudes, and partner support in promoting prenatal exercise among pregnant women. Health education programs focusing on these factors could encourage more women to engage in regular physical activity during pregnancy.

Keywords: pregnancy exercise, husband's support, knowledge, attitudes, pregnant women

Introduction

Pregnancy is a life-changing event that brings new responsibilities, joys, and concerns for women.[1] The mother's health during pregnancy can directly affect the baby's health.[2] Pregnancy alters the mother's physical and mental balance, as well as her health and lifestyle behaviors. Lifestyle during pregnancy can have a long-term impact on the health of the mother and baby.[3] The concept of lifestyle, first described by Alfred Adler, often reflects an individual's values, beliefs, and social activities, all of which influence health. Other aspects of lifestyle include nutrition control, physical activity, self-care, smoking cessation, avoiding alcohol and drugs, social relationships, and stress management.[4]

A healthy lifestyle prevents pregnancy complications and helps maintain the well-being of both mother and child. During this life phase, especially for expectant parents, there is often a strong motivation to optimize lifestyle and adopt appropriate recommendations. However, women and couples desiring to have children may be unaware that their lifestyle affects fertility, pregnancy progression, and future child health.[5] Lifestyle encompasses all an individual's actions and behaviors, interactions with others, nature, and broader social environment, which are typically observable, describable, and measurable.[6]

Social, medical, and environmental conditions (such as physical and mental health, genetic disorders, and teratogenic agents) can significantly impact pregnancy. Research on lifestyle during pregnancy has mainly focused on specific lifestyle aspects and their influence on the fetus and baby. For instance, a meta-analysis shows a reduction in smoking, alcohol consumption, and obesity during preconception and pregnancy care.[7] Other studies have suggested that pregnancy is an ideal time to begin exercising, as it is

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associated with increased motivation for maintaining or adopting a healthy lifestyle and increased doctor visits, facilitating physical activity monitoring.[8]

Exercise, defined as planned, structured, and repetitive body movements designed to improve one or more components of physical fitness, is a key element of a healthy lifestyle. Obstetricians and midwives should encourage their patients to continue or start exercising as an essential component of optimal health.[9,10] Pregnant women may feel anxious about the adverse effects of exercise on pregnancy due to a lack of knowledge about specific health risks during pregnancy. Educating women to acquire accurate knowledge will help them develop positive attitudes toward health during pregnancy.[11]

Most pregnant women can exercise. Only a few maternal medical conditions are genuinely contraindicated for aerobic exercise. If there are concerns about the safety of aerobic exercise during pregnancy, consultation with relevant specialists (e.g., obstetrics and gynecology, maternal-fetal medicine, cardiology, pulmonology) is recommended, as needed. Women with obstetric or medical comorbidities should have their exercise regimen tailored individually. Obstetricians and midwives should carefully evaluate women with medical or obstetric complications before making recommendations about physical activity during pregnancy.[12]

To promote physical activity, it must be understood that social and cultural beliefs influence it and the health outcomes it produces.[13] Physical activity during pregnancy is affected by time limitation or lack of time, lack of child care or feeling unwell during pregnancy, while the factor that promotes physical activity is family support for refreshment and preventing future health problems.[11,14] According to a literature review, the most common activities pregnant women perform are walking, swimming, and pregnancy exercises.[15] According to the National Institute for Health and Care Excellence (NICE) and the American College of Obstetricians and Gynecologists (ACOG) guidelines, modifications to exercise are necessary depending on the needs of the mother and fetus. For example, ACOG recommends that women engage in low- to moderate-intensity exercise for 30 minutes to prevent excessive weight gain and improve mental health.[16] Studies show that regular prenatal exercise can prevent gestational diabetes, control blood pressure, and improve maternal mental health.[17]

Knowledge is considered a key precursor to behavior change. Pregnant women often demonstrate a lack of knowledge about physical activity during pregnancy.[18,19] Based on previous research reports, women who were given guidelines for physical exercise during pregnancy reported that they did physical exercise by following the guidelines.[20] A relatively low proportion of pregnant women reported adherence to exercise interventions from healthcare providers during pregnancy.[21] One study showed that one in five (39.5%) women had less than optimal knowledge of physical exercise during pregnancy.[18]

Attitudes toward physical activity influence pregnant women's practices. Common misconceptions and concerns among pregnant women, families, and some obstetricians include the belief that exercise during pregnancy can lead to miscarriage, poor fetal growth, musculoskeletal pain, musculoskeletal damage, and premature birth.[18,22] Previous research has shown that pregnant women often hold negative attitudes toward exercise during pregnancy.[18,19] For instance, some women decide to continue exercising during pregnancy because it is widely believed to be safe for the developing fetus and beneficial for overall health and fitness.

According to studies, most pregnant women do not exercise at all and tend to engage in less physical activity overall, including household chores and work-related tasks.[23] Regarding actual exercise practices among women during pregnancy, nearly 40% of women in Brazil and 35.8% in Saudi Arabia engaged in physical activity during pregnancy.[16,22] In Ethiopia, nearly half (48.5%) of pregnant women reported doing physical exercise in Tigray.[24] Husband's support also had a profound effect on a first pregnant woman's decision to attend a prenatal yoga class.[25] This study explores the knowledge, attitude, and support of husbands in the mother's awareness to do pregnancy exercises. So, the purpose of this study is to assess the prevalence of knowledge, attitudes, and support of husbands with the participation of mothers in pregnancy exercises at the Darussalam Health Center, Medan City.

Method

This study used a descriptive-analytic research design with a cross-sectional approach. Data on the dependent and independent variables are collected only once simultaneously, without follow-up. The

research was conducted at the Puskesmas Darussalam located in the City of Medan. This study was conducted for 1 (one) month, from July 2024 to August 2024. The population in this study consists of all pregnant women who visited the Puskesmas Darussalam, totaling 179 individuals. Based on calculations using the Lemeshow formula, the initial sample size was 55 respondents. After accounting for an additional 10% as a backup, the final sample size determined was 60 respondents. The sample was selected using simple random sampling.

The primary data in this study was obtained from interviews with pregnant women during the data collection period. The instrument used in this study is a questionnaire read aloud by the researcher to the pregnant women. The structured questionnaire on knowledge, attitudes, and husband's support is used for data collection. The questionnaire asks for information on sociodemographic characteristics, maternal characteristics, knowledge and attitudes of the mother, and the support of their husbands. The questionnaire consists of four domains: the first domain collects sociodemographic information and maternal characteristics (such as age, education, occupation, and gestational age), while the other three domains inquire about the level of knowledge, attitudes, and husband's support regarding pregnancy exercise. Maternal participation in pregnancy exercise is determined by asking, "Have you ever participated in pregnancy exercise?"

The knowledge domain consists of 12 questions (benefits and contraindications) about the exercise, with three possible answers: yes, no, and don't know. Each correct answer (yes) is scored "1," and each incorrect answer (no) or don't know answer is scored "0". For the knowledge scale, the scores range from 0 to 12. Participants who answer all 12 knowledge questions correctly, with a score greater than or equal to the average value, are considered to have adequate knowledge. The attitude domain consists of 8 questions (thoughts or feelings about pregnancy exercise), with two possible answers: yes or no, each scored 1 or 0. Women who answer 8 or more questions correctly or with a score greater than or equal to the average score are categorized as having a good attitude. The subsequent questionnaire measures the level of husband's support using a Likert scale. There are 14 statements measuring the positive and negative aspects of husband's support. Respondents are asked to rate each statement by choosing one of four options: always, often, sometimes, or never. These responses are scored 4, 3, 2, and 1 for positive statements. Conversely, for negative statements, the scores are reversed. The participation questionnaire for pregnancy exercise contains 5 closed-ended questions filled out by the respondents about the participation of pregnant women in pregnancy exercise, using a discontinuous scale where the answer "yes" is scored 1 and "no" is scored 0.

The data analysis in this study is performed step by step, starting with univariate, bivariate, and then multivariate analysis. Univariate analysis is used to describe the frequency distribution of each research variable. Subsequently, bivariate analysis examines the relationship between independent and dependent variables in pairs. The statistical test used is the Chi-square or Fisher's Exact Test, depending on the data distribution. The significance criterion used is a p-value < 0.05. Multivariate analysis is conducted to identify the relationship between more than one independent variable and the dependent variable. Since the dependent variable is categorical, logistic regression analysis is chosen as the analysis method. The multivariate analysis process begins by selecting the variables to be included in the model based on the bivariate analysis results. Variables with a p-value ≤ 0.25 in the bivariate analysis are considered potential candidates for inclusion in the logistic regression model.

Results

The analysis of 60 pregnant women respondents showed diverse demographic characteristics. The average age of mothers during pregnancy is 29.45 years, with a standard deviation of 4.597 years. Based on the pregnancy trimester, the respondents' distribution was quite even, with each trimester having about one-third of the total respondents. The education level of respondents is generally at the high school level (61.7%), followed by higher education (36.7%); only a tiny part of them have a junior high school education. Regarding work, the majority of respondents worked as housewives (45%), followed by civil servants (28.3%) and private employees (20.3%).

The survey results of 60 respondents showed a fascinating picture of the knowledge, attitudes, support of husbands, and participation of pregnant women in pregnancy exercises. As many as 66.7% of respondents have good knowledge about pregnancy gymnastics, but only 46.7% have a positive attitude towards this activity. Husband's support is also relatively low, with 56.7% of respondents stating that they do not receive support from their husbands. This condition impacted the level of participation of pregnant women in pregnancy exercises, where 63.3% of respondents did not participate in pregnancy exercises.

The analysis of variables affecting mothers' participation in pregnancy exercise used the Chi-square test (Table 3). About 28.3% of mothers with inadequate knowledge about the benefits of pregnancy exercise chose not to participate. This percentage is relatively high, indicating that adequate knowledge about the benefits of pregnancy exercise can motivate mothers to participate. On the other hand, 31.7% of mothers with good understanding of pregnancy exercise actively participated. This figure is higher than the group of mothers with inadequate knowledge, suggesting that the greater the knowledge a mother has about the benefits of pregnancy exercise, the more likely she is to engage in the activity. The Chi-square test yielded a p-value = 0.014. With a significance level of α = 0.05, this p-value is less than α, so it can be concluded that there is a significant relationship between knowledge of pregnancy exercise and mothers' participation. The Odds Ratio (OR) for the knowledge variable is 5.127. An OR greater than 1 indicates that mothers with good knowledge of pregnancy exercise are 5.127 times more likely to participate in pregnancy exercise compared to mothers with inadequate knowledge.

Table 1. Sociodemographic characteristics of subjects (n=60)

Characteristic	n	%	Mean	SD
Mother's age			29.45	4.597
Gestational age				
Trimester 1 (0-12 weeks)	18	30.0		
Trimester 2 (13-27 weeks)	20	33.3		
Trimester 3 (28-40 weeks)	22	36.7		
Education				
SMP	1	1.7		
SMA	37	61.7		
College	22	36.7		
Work				
Housewives	27	45.0		
PNS	17	28.3		
Private employees	12	20.3		
Self-employed	4	6.7		

Table 2. Level of knowledge, attitude, support, and participation of mothers in pregnancy exercises (n=60)

Characteristic	n	%
Knowledge		
Less	20	33.3
Good	40	66.7
Attitude		
Negative	32	53.3
Positive	28	46.7
Husband's support		
Does not support	34	56.7
Supports	26	43.3
Mother's participation in pregnancy exercises		
Does not participate	38	63.3
Participates	22	36.7

Table 3 *Chi-square* results

Variable	Mother's participation in pregnancy exercises				*p*	OR	95% CI	
	Does not Participate		Participate				*Lower*	*Upper*
	n	%	n	%				
Knowledge								
Inadequate	17	28,3	3	5,0	0,014	5,127	1,296	20,285
Adequate	21	35,0	19	31,7				
Attitude								
Negative	24	40,0	8	13,3	0,045	3,000	1,008	8,927
Positive	14	23,3	14	23,3				
Husband's Support								
Does not support	27	45,0	7	11,7	0,003	5,260	1,685	16,423
Supports	11	18,3	15	25,0				

Forty percent of mothers with a negative attitude towards pregnancy exercise choose not to participate in it. This figure indicates that maternal attitudes significantly influence the decision to engage in pregnancy exercise. A positive attitude encourages mothers to be more active in maintaining their health during pregnancy. Among mothers with a positive attitude, 23.3% participate in pregnancy exercise. This percentage suggests that a positive attitude can motivate mothers to engage in pregnancy exercise. The Chi-square test results show a p-value of 0.045. With a significance level of α = 0.05, this p-value is less than

α, indicating a significant relationship between attitudes towards pregnancy exercise and maternal participation. The Odds Ratio (OR) for the attitude variable is 3.000. An OR greater than 1 suggests that mothers with a positive attitude towards pregnancy exercise are 3 times more likely to participate in pregnancy exercise than those with a negative attitude.

Forty-five percent of mothers who do not receive support from their husbands choose not to engage in pregnancy exercise. This figure highlights the importance of husband support in encouraging pregnant women to engage in physical activities during pregnancy. Among mothers who receive support from their husbands, 25% actively participate in pregnancy exercises. This percentage is higher than that of mothers without husband support, indicating that husband support can increase the motivation for mothers to engage in pregnancy exercise. The Chi-square test results show a p-value of 0.003. With a significance level of α = 0.05, this p-value is less than α, indicating a significant relationship between husband support and maternal participation in pregnancy exercise. The Odds Ratio (OR) for the husband support variable is 5.260. An OR greater than 1 suggests that mothers receiving support from their husbands are 5.260 times more likely to participate in pregnancy exercise than those without husband support.

Table 4. Results of logistic regression tests

Variable	p	Exp(B)	95% CI	
			Lower	Upper
Knowledge	0,078	3,852	0,859	17,272
Attitude	0,059	3,614	0,952	13,919
Husband's support	0,004	6,948	1,841	26,221

Based on the data analysis results, it can be concluded that knowledge, attitude, and husband support are key factors influencing maternal participation in pregnancy exercise ($p<0.25$). Pregnant women with good knowledge of the benefits of pregnancy exercise, a positive attitude, and support from their husbands tend to be more active in participating in it. Table 4 shows that husband support is the variable that most influence maternal participation in pregnancy exercise (p=0.000). With an Exp(B) value of 6.984 (95% CI 1.841-26.221), mothers who receive support from their husbands are 6.984 times more likely to participate in pregnancy exercise than those who do not.

Discussion

The respondents in this study had diverse demographic characteristics, particularly in terms of education level and occupation. Most respondents' relatively high education level suggests that this group has good potential to understand the benefits of pregnancy exercise. However, the results indicate that good knowledge does not necessarily correlate with a positive attitude or participation in pregnancy exercise activities.

The findings reveal a gap between the respondents' knowledge and attitudes toward pregnancy exercise. While most respondents had good knowledge, only about half had a positive attitude. This suggests that knowledge alone is insufficient to motivate individuals to take action, in this case, to participate in pregnancy exercise. A positive attitude, formed from a deep understanding of the benefits of pregnancy exercise and social support, particularly from the husband, plays a critical role in increasing participation. The study also found that more than half of the respondents did not receive support from their husbands, highlighting the need to enhance the husband's role in supporting the health of pregnant women. Husband support can provide motivation and encouragement for pregnant women to remain active and maintain health during pregnancy.

The study's findings reveal that only 36.7% of pregnant women actively participate in pregnancy exercise. Previous studies support these findings, indicating a relatively low percentage of pregnant women engaging in prenatal exercise. A study in Singapore found that only 31.6% of pregnant women participated in moderate or vigorous physical activities, with only 12.6% meeting national recommendations.[26] Similarly, a systematic review revealed that 59.09% of studies showed low physical activity levels during pregnancy across various populations worldwide.[27] Although most pregnant women believe exercise is beneficial, many do not engage in sufficient physical activity.[26,28]

This study reinforces the critical role of knowledge in encouraging pregnant women to participate in pregnancy exercise. A significant relationship exists between a pregnant woman's understanding of pregnancy exercise's benefits and participation in it. Previous studies provide strong evidence of the substantial impact of maternal knowledge about exercise during pregnancy on participation in physical

activity. Several studies support this finding. For example, a study found that although most pregnant women (51%) believe exercising during pregnancy is important, only a small portion (18%) do so.[29]

Another study conducted by Lee et al.[30] successfully identified two groups of pregnant women based on their level of knowledge about exercise. The first group had accurate knowledge regarding prenatal sports, while the second group had limited knowledge. The results of this study show that groups with limited knowledge tend to have lower levels of education, higher unemployment rates, and more frequent multiple pregnancies. Research conducted by Sabiri et al.[31] also found similar results; about 17% of pregnant women in their study did not know the benefits of exercise during pregnancy. Additionally, this study showed that women with higher education levels tended to have better knowledge of prenatal exercise benefits. Gouveia et al.'s research[32] showed that although physical activity levels tend to decrease during pregnancy, factors such as age, education, and employment status can influence the extent of this decline. Pregnant women aged 25-34, with higher education and employment, tend to be more physically active than other groups.

These findings have important implications for increasing pregnant women's participation in pregnancy exercise programs. There is a need to improve educational efforts for pregnant women about the benefits of pregnancy exercise. Effective education can enhance awareness and motivation for pregnant women to engage in pregnancy exercise. Education programs should be specifically designed for pregnant women with lower levels of knowledge. Studies show that education programs can significantly increase women's awareness and knowledge about antenatal exercise.[33,34] Other research highlights the importance of providing sports education programs tailored to the needs of each group of pregnant women.[30] Evidence-based educational materials, such as informative brochures, effectively increase knowledge about the benefits of physical activity during pregnancy.[34] To address this issue, healthcare providers should incorporate exercise education into routine prenatal care to encourage physical activity among pregnant women.[30]

Statistical analysis showed a strong association between mothers' positive views on pregnancy gymnastics and their participation in this program. The Chi-square test results reinforce the finding that positive attitudes are a key factor in increasing pregnant women's participation in pregnancy exercises. A positive attitude is the main driver for pregnant women to exercise actively during pregnancy. The results of previous studies support the association between positive attitudes and higher levels of participation in pregnancy exercises among pregnant women. Studies have found that pregnant women generally have a positive attitude toward physical activity, viewing it as necessary, beneficial, and safe.[35,36] Positive perceptions, knowledge, and attitudes toward physical activity were significantly correlated with higher participation rates.[37] Providing information about the benefits and risks of prenatal physical activity is associated with better attitudes and may motivate pregnant women to engage in healthier behaviors.[38] However, fatigue, lack of time, and pregnancy discomfort can hinder participation. Supporting factors include perception of maternal and fetal health benefits, social support, and pregnancy-specific programs.[35] These findings suggest that increasing knowledge and fostering positive attitudes can increase participation in prenatal physical activity.[36,37]

Promotional efforts must emphasize the positive aspects to encourage more pregnant women to participate in pregnancy exercises. Intensive education about the benefits of pregnancy exercises is essential to change the negative views that are still often encountered. Studies show many women are less aware of the recommended physical activity guidelines during pregnancy.[39,40] Despite having a generally positive attitude towards exercise, pregnant women face obstacles such as fatigue, lack of time, and pregnancy discomfort.[35] However, they know the potential benefits, including improved fitness, reduced pain, and more effortless delivery.[40]

A statistically significant correlation exists between husband support and maternal participation in pregnancy exercise. Chi-square test results prove that husband support is essential in encouraging women to participate in pregnancy exercise. Women who receive support from their husbands are 5.260 times more likely to engage in pregnancy exercise compared to those who do not receive support. This very high Odds Ratio (OR) indicates that husband support strongly predicts pregnancy exercise participation.

Other studies confirm that partner support significantly impacts pregnant women's participation in physical activity and healthy behaviors. A study in San Francisco found that the partner's physical activity level significantly predicted the pregnant woman's physical activity level.[41] Similarly, research in Turkey revealed a significant positive correlation between partner support and health behaviors during pregnancy.[42] A study in Iran found that partner support can increase physical activity in women and reduce their Body Mass Index.[43] Furthermore, research in Indonesia showed a strong relationship between husband's social support and participation in prenatal classes..[44]

The involvement of husbands in pregnancy exercise programs needs to be increased to improve their understanding of the importance of physical activity for both the mother and the fetus. Previous studies emphasize the need for a more father-friendly healthcare environment and significant support for expectant fathers.[45,46] Active involvement of husbands during pregnancy, marked by instrumental and emotional support, can strengthen the couple's relationship after birth, leading to increased trust, love, and communication.[47] Public perceptions of paternal involvement in pregnancy regard the father as physically and emotionally present, approachable, and highly motivated to provide support. Based on this perspective, prenatal programs should be designed to actively involve fathers and provide more intensive interventions for both parents.[48] Couple counseling can be an effective way to equip partners with the knowledge and skills needed to maintain the health of both mother and fetus.

Conclusion

The results of this study indicate that knowledge, attitude, and husband's support significantly influence pregnant women's participation in pregnancy exercise classes. Pregnant women who understand the benefits of pregnancy exercises, have a positive attitude towards physical activity during pregnancy, and receive full support from their husbands tend to be more actively involved in pregnancy exercise programs. Further analysis reveals that husband's support is the most dominant factor in encouraging pregnant women to participate in pregnancy exercises. Women who receive support from their husbands are more than six times more likely to engage in pregnancy exercises compared to those who do not receive such support. These findings highlight the crucial role of the husband in supporting the health of both the mother and the fetus during pregnancy.

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