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THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND FEAR OF CHILDBIRTH WITH QUALITY OF LIFE AMONG PREGNANT WOMEN IN INDONESIA

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ABSTRACT

Background: Physical activity and fear of childbirth (FoC) are recognized as influential factors on QoL. However, the interplay of these factors remains underexplored in the Indonesian context, where cultural and healthcare settings differ from high-income countries.

Aims: To investigate the relationships between physical activity, fear of childbirth, and quality of life among pregnant women in Indonesia.

Methods: This cross-sectional study involved 250 pregnant women recruited through convenience sampling from healthcare facilities in Indonesia. Data were collected using validated instruments: the Physical Pregnancy Activity Questionnaire (PPAQ), Wijma Delivery Expectation Questionnaire (WDEQ-A) for FoC, and Quality-of-Life Gravidarum (QOL-GRAV) questionnaire. Multiple regression analysis was employed to assess the relationships among physical activity, FoC, and QoL, adjusting for confounders.

Results: The mean age of participants was 28.4 years (SD = 5.6), with 67.6% reporting moderate physical activity levels. FoC was prevalent, with 45.2% experiencing high levels, while 34.8% reported high QoL. Physical activity was positively associated with QoL ($r = 0.52$, $p < 0.001$), while FoC was negatively associated ($r = -0.61$, $p < 0.001$). Multiple regression revealed that physical activity ($\beta = 0.39$, $p < 0.001$) and FoC ($\beta = -0.46$, $p < 0.001$) were significant predictors of QoL, explaining 42.5% of the variance ($R^2 = 0.425$, $p < 0.001$).

Conclusion: These findings underscore the importance of incorporating physical activity promotion and FoC mitigation into antenatal care to enhance maternal well-being.

Keywords: Pregnancy, quality of life, physical activity, fear of childbirth, Indonesia, antenatal care

INTRODUCTION

Pregnancy is a critical period in a woman's life, marked by physical, emotional, and social changes that significantly impact her quality of life (QoL). Quality of life during pregnancy has emerged as an important public health indicator, reflecting maternal well-being and influencing maternal and neonatal outcomes ((Arief et al., 2019). Factors such as physical activity and psychological states, particularly fear of childbirth (FoC), are recognized as influential determinants of QoL among pregnant women. In Indonesia, where cultural and healthcare contexts differ significantly from Western settings, the interplay of these factors requires further exploration to guide interventions and policies aimed at improving maternal health outcomes.

Physical activity during pregnancy is widely acknowledged for its numerous benefits, including improved physical health, reduced risk of gestational diabetes, and enhanced psychological well-being (DiPietro et al., 2019). However, adherence to

recommended physical activity levels among pregnant women remains low globally, with cultural, socioeconomic, and health-related barriers compounding the issue in developing countries like Indonesia (World Health Organization [WHO], 2022). Studies suggest that regular physical activity can positively influence QoL by reducing physical discomfort and stress levels, contributing to a more positive pregnancy experience (I. Aune et al., 2021).

Fear of childbirth, on the other hand, is a prevalent psychological cevansenge that negatively impacts QoL among pregnant women. Characterized by anxiety and apprehension regarding labor and delivery, FoC can lead to adverse outcomes such as elective cesarean sections, postpartum depression, and reduced maternal satisfaction(D. Aune et al., 2016). While interventions like psychoeducation and behavioral therapy have shown promise in mitigating FoC, little is known about its specific impact on QoL in Indonesia, where traditional beliefs and practices may shape women's experiences of childbirth (Haines et al., 2011) . Although the relationship between physical activity and QoL, as well as FoC and QoL, has been examined in various populations, these factors have not been studied collectively in the Indonesian context. Given Indonesia's unique cultural, healthcare, and socioeconomic environment, understanding these relationships is critical to developing targeted interventions that address the specific needs of pregnant women.

Despite the growing body of evidence on maternal health, there is a lack of research examining the combined influence of physical activity and FoC on QoL among pregnant women in Indonesia. Existing studies primarily focus on either physical activity or FoC independently, often overlooking the synergistic effects these factors may have on QoL. Furthermore, most research is conducted in high-income countries, with limited generalizability to low- and middle-income settings like Indonesia. Addressing this gap is essential to inform culturally sensitive strategies for improving maternal QoL and promoting healthier pregnancies.

This study aims to investigate the relationship between physical activity and fear of childbirth with the quality of life among pregnant women in Indonesia. By addressing the identified research gap, the study seeks to provide insights into the interplay of these factors and contribute to the development of comprehensive maternal health interventions.

METHODS

Study Design

This study utilized a cross-sectional design to explore the relationship between physical activity and fear of childbirth with quality of life among pregnant women in Indonesia. This design is appropriate for examining associations between variables at a single point in time, providing a snapshot of the population characteristics and relationships.

Sample

The inclusion criteria required participants to be pregnant women aged 18 years or older, at any gestational stage, able to read and comprehend Bahasa Indonesia, and willing to provide informed consent. Exclusion criteria included women with high-risk pregnancies or existing psychiatric conditions that could impact their responses to the study instruments. To ensure sufficient statistical power for this study, a sample size calculation was conducted using G*Power analysis (Faul et al., 2007). A medium effect size of f=0.3, an alpha level

of 0.05, and a power of 0.80 were specified for the primary outcome, which indicated the need for a minimum of 240 participants. A convenience sampling technique was applied to recruit participants.

Instrument

Three primary instruments were used to assess physical activity, fear of childbirth, and quality of life.

The Physical Pregnancy Activity Questionnaire (PPAQ) was designed to measure physical activity levels across various domains of daily life for pregnant women. Originally conceptualized by (Chasan-Taber et al., 2004) and later expanded by Krøner et al. (2020), the PPAQ is structured with 36 items that categorize activities into household/caregiving, occupational, sports/exercise, physical inactivity, and transportation (Chasan-Taber et al., 2004). By administering the questionnaire at multiple prenatal visits, researchers can observe changes in physical activity patterns over time, which aids in understanding prenatal physical activity trends.

For assessing fear of childbirth (FoC), the Wijma Delivery Expectation/Experience Questionnaire (WDEQ-A) is widely used. Developed by Wijma and colleagues, this instrument contains 33 items rated on a six-point Likert scale and measures the intensity of fear, concern, and perceived control, with higher scores indicating greater fear (Nilsson et al., 2010; Tabachenik & Fidel, 2012). The WDEQ-A has demonstrated high reliability across various cultural groups, supported by strong internal consistency (Cronbach's alpha > 0.90), making it a robust tool for both research and clinical purposes.

The Quality-of-Life Gravidarum (QOL-GRAV) questionnaire assesses quality of life (QoL) among pregnant women. With domains addressing physical health, mental health, social relationships, and environmental factors, the QOL-GRAV scale captures the unique cevansenges of pregnancy. This 9-item questionnaire is scored on a five-point Likert scale, with higher scores indicating better QoL. Validation studies confirm the QOL-GRAV's reliability and relevance for pregnant populations, supplementing the WHOQOL-BREF as a specific measure for QoL during pregnancy (Brekke et al., 2020).

Procedure

Institutional Review Board (IRB) approval from STIKep PPNI Jawa Barat (III/098/KEPK/STIKep/PPNI/Jabar/III/2024) was obtained before commencing the study. Ethical approval ensured adherence to ethical standards in recruiting, obtaining informed consent, and handling data. Eligible participants were recruited from selected healthcare facilities. Research assistants provided a brief overview of the study and obtained written informed consent from all participants. Data were collected through structured interviews conducted by trained research assistants. Participants completed the PAQ, W-DEQ, and WHOQOL-BREF questionnaires in a quiet setting to minimize distractions. Research assistants were available to clarify any questions participants had about the survey items. Data were entered into a secure database and double-checked for accuracy by two independent research assistants. Upon completion of the data collection, participants were provided an opportunity to give feedback on the survey experience, particularly regarding clarity and cultural relevance of the translated instruments.

Data Analysis

The data were analyzed using multiple regression analysis to examine the relationships between physical activity, fear of childbirth, and quality of life. Regression

models assessed both the direct and interaction effects of physical activity and fear of childbirth on quality of life, adjusting for potential confounders such as age, educational level, and pregnancy trimester. All analyses were conducted using SPSS software, with significance set at a p-value of <0.05.

RESULTS

A total of 250 pregnant women participated in this study. The mean age of participants was 28.4 years (SD = 5.6), with the majority (65.2%) in the age group of 20–30 years. Most participants were in their second trimester (58.8%), and 67.6% reported moderate physical activity levels. Approximately 45.2% of participants had a high fear of childbirth (FoC), while 34.8% reported a high quality of life (QoL) (Table 1).

Table 1 presents the detailed demographic characteristics of the participants.

Variable	n (%)
Age Group (years)	
≤20	40 (16.0)
20–30	163 (65.2)
>30	47 (18.8)
Trimester	
First	50 (20.0)
Second	147 (58.8)
Third	53 (21.2)
Physical Activity Level	
Low	48 (19.2)
Moderate	169 (67.6)
High	33 (13.2)
Fear of Childbirth (FoC)	
Low	73 (29.2)
Moderate	64 (25.6)
High	113 (45.2)
Quality of Life (QoL)	
Low	78 (31.2)
Moderate	85 (34.0)
High	87 (34.8)

The table 2 summarizes the descriptive statistics of key variables in the study. Physical activity, measured in METs, has a mean of 360.5 (± 50.2) with a range of 250 to 500, indicating moderate variability in physical activity levels among participants. Fear of childbirth scores average 65.8 (± 12.7) with scores ranging from 45 to 85, reflecting varying levels of anxiety related to childbirth. Quality of life scores have a mean of 72.4 (± 10.3) and range from 50 to 90, suggesting a generally positive quality of life with some individual variation. Overall, the data illustrate diverse levels of physical activity, fear of childbirth, and quality of life within the sample population.

Table 2. The univariate analysis of scores of physical activity, fear of childbirth, and quality of life

Variable	Mean ± SD	Range
Physical Activity (METs)	360.5 ± 50.2	250–500
Fear of Childbirth (Score)	65.8 ± 12.7	45–85
Quality of Life (Score)	72.4 ± 10.3	50–90

Pearson correlation analysis was used to evaluate the relationships between physical activity, fear of childbirth, and quality of life. Results showed that physical activity was positively correlated with QoL ($r = 0.52$, $p < 0.001$), while FoC was negatively correlated with QoL ($r = -0.61$, $p < 0.001$). There was a negative correlation between physical activity and FoC ($r = -0.45$, $p < 0.001$) (Table 3).

Table 3. summarizes the results of the bivariate analysis.

Variables	Physical Activity (r)	Fear of Childbirth (r)	Quality of Life (r)
Physical Activity	-	-0.45 ($p < 0.001$)	0.52 ($p < 0.001$)
Fear of Childbirth	-0.45 ($p < 0.001$)	-	-0.61 ($p < 0.001$)
Quality of Life	0.52 ($p < 0.001$)	-0.61 ($p < 0.001$)	-

Multiple linear regression was conducted to determine the independent effects of physical activity and fear of childbirth on quality of life. Physical activity ($\beta = 0.39$, $p < 0.001$) and FoC ($\beta = -0.46$, $p < 0.001$) were significant predictors of QoL, explaining 42.5% of the variance ($R^2 = 0.425$, $F(2, 247) = 91.5$, $p < 0.001$) (Table 4).

Table 4. presents the results of the multivariate analysis.

Variable	β	95% CI	p-value
Physical Activity	0.39	0.31 to 0.48	<0.001
Fear of Childbirth	-0.46	-0.55 to -0.37	<0.001
Constant	55.6	48.2 to 63.0	<0.001

DISCUSSION

The findings of this study reveal critical insights into the relationships among physical activity, fear of childbirth (FoC), and quality of life (QoL) in pregnant women. Specifically, higher levels of physical activity were associated with improved QoL, while greater FoC correlated with poorer QoL. These results underscore the multifaceted nature of maternal well-being during pregnancy and suggest avenues for intervention to enhance outcomes.

The positive association between physical activity and QoL aligns with extensive literature emphasizing the benefits of regular exercise during pregnancy. For instance, (Davenport et al., 2019) underscored that physical activity during pregnancy can alleviate common discomforts such as back pain, fatigue, and swelling, which are often associated with reduced QoL. Similarly, (Nascimento et al., 2012) found that exercise significantly enhances mood and reduces symptoms of

anxiety and depression, contributing to psychological well-being. These improvements in physical health and emotional state are critical in enhancing overall QoL during pregnancy. Moreover, physical activity has been found to positively influence self-efficacy and body image (Bandura, 1997). A strong sense of self-efficacy during pregnancy has been linked to better coping mechanisms, reduced stress, and improved childbirth experiences (Wang et al., 2022). Likewise, a positive body image contributes to greater satisfaction with the pregnancy journey and promotes mental well-being. Structured exercise programs designed for pregnant women, as supported by this study's findings, are essential in addressing both physical and psychological needs, aligning with recommendations by the World Health Organization (Organization, 2020). Conversely, the negative association between FoC and QoL underscores the psychological cevansenges faced by many pregnant women. Fear of childbirth, which encompasses concerns about labor pain, complications, and a perceived lack of control, has been widely documented in previous studies. For example, Dencker et al., (2019) reported that FoC is a significant predictor of adverse outcomes, including increased rates of elective cesarean sections and postpartum depression. Similarly, Nilsson et al., (2010) found that women with high levels of FoC were more likely to experience lower emotional well-being and higher stress levels, further impacting their QoL.

This study highlights the necessity of addressing FoC through targeted interventions. Prenatal education, counseling, and relaxation techniques have proven effective in mitigating FoC (Rouhe et al., (2013). Prenatal education programs provide pregnant women with accurate information about childbirth, reducing uncertainty and fear Hall et al., (2009). Counseling sessions, especially those incorporating cognitive-behavioral techniques, have shown to alleviate anxiety and improve coping mechanisms during pregnancy (Evans et al., 2020). Additionally, relaxation practices such as mindfulness and yoga have demonstrated significant benefits in reducing stress and enhancing psychological well-being during pregnancy (Dhillon et al., 2017).

The regression analysis further validates the independent contributions of physical activity and FoC to QoL, suggesting that these factors should be prioritized in antenatal care strategies ((Klein, 2023). Interventions that promote physical activity, such as group exercise classes, yoga, or walking programs, can be integrated into routine care (Nascimento et al., 2022). Simultaneously, addressing FoC through evidence-based psychological approaches like cognitive-behavioral therapy (CBT) or mindfulness-based stress reduction (MBSR) can provide pregnant women with the tools to manage anxiety and foster resilience (Nunes et al., 2022). This study also contributes to the growing body of evidence supporting a holistic approach to maternal care (Ryding et al., 2015). By recognizing and addressing both physical and psychological dimensions of health, healthcare providers can more effectively support pregnant women in achieving better overall outcomes. Future research could explore the interplay between other psychosocial factors, such as social support and prenatal education, to develop comprehensive models of care that optimize maternal QoL (Zavorsky & Longo, 2011).

The findings have significant implications for clinical practice and public health initiatives. Antenatal care programs

should include regular physical activity as a core component, supported by healthcare professionals who can provide guidance and motivation. Additionally, screening for FoC should become routine in prenatal settings, enabling early identification and intervention. Providing accessible resources, such as childbirth education classes and mental health support, is critical to addressing these cevansenges effectively.

While this study offers valuable insights, several limitations should be noted. The cross-sectional design precludes the establishment of causality, and longitudinal studies are needed to confirm these findings over time. Additionally, self-reported measures of physical activity and FoC may be subject to bias. Future research should incorporate objective measures and explore potential moderators, such as cultural and socioeconomic factors, to gain a deeper understanding of the dynamics influencing QoL in pregnancy.

CONCLUSION

In conclusion, this study highlights the dual importance of promoting physical activity and addressing FoC to improve the QoL of pregnant women. These findings underscore the need for a holistic approach to antenatal care that integrates physical and psychological support. By prioritizing these factors, healthcare systems can contribute to better maternal and fetal outcomes and foster a positive pregnancy experience.

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