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The Relationship Between High-Risk Pregnant Women's Knowledge and Their Readiness for Childbirth

Khilda Durrotun Nafisah[1], Roiful Fatah[2]
Bachelor of Midwifery, Rustida College of Health Sciences, Banyuwangi
E-mail: khildadurrotunnafisah@gmail.com

Abstract

High-risk pregnancy is a maternal health condition with a greater likelihood of complications that may adversely affect both mothers and newborns. Limited maternal knowledge regarding pregnancy risks often contributes to inadequate childbirth readiness, leading to delays in recognizing danger signs and seeking appropriate medical care. This study aims to analyze the relationship between maternal knowledge and childbirth readiness among high-risk pregnant women. A descriptive correlational design with a cross-sectional approach was employed. The study involved 100 high-risk pregnant women selected through purposive sampling in Kalibaru Wetan, Banyuwangi. Data were obtained through a validated and reliable questionnaire, and analyzed using the Chi-Square test. The results indicated that 67.0% of respondents had good knowledge, while 63.0% demonstrated high childbirth readiness. Cross-tabulation showed that mothers with good knowledge tended to have good readiness (89.6%), whereas poor knowledge was associated with low birth preparedness. Statistical analysis revealed a significant relationship between knowledge and childbirth readiness ($p < 0.05$), indicating that better maternal knowledge contributes to increased physical, psychological, and logistical readiness for childbirth. These findings highlight the importance of strengthening educational interventions targeting high-risk pregnant women, particularly through structured antenatal counseling, maternal health classes, and family involvement. Improved knowledge is essential not only for recognizing risk symptoms but also for enhancing confidence, decision-making, and preparedness to seek timely obstetric care. Health workers are recommended to implement participatory and continuous educational programs to optimize maternal readiness and ultimately reduce preventable maternal and neonatal complications.

Keywords: High-Risk Pregnancy, Maternal Knowledge, Childbirth Readiness, Antenatal Care, Preparedness

INTRODUCTION

Pregnancy is a complex physiological process in a woman's life, involving not only biological changes but also significant psychological and social transitions. In maternal health, high-risk pregnancy is defined as a condition in which the mother and fetus face a greater potential for complications compared to normal pregnancy, during the gestational period, childbirth, and the postpartum phase (1). The World Health Organization (WHO) reports that approximately 15% of pregnancies worldwide fall into the high-risk category, contributing substantially to maternal and perinatal morbidity and mortality rates (2).

Data from the Ministry of Health of the Republic of Indonesia indicate that the national Maternal Mortality Ratio (MMR) remains high, at 305 per 100,000

live births, far from the Sustainable Development Goals (SDGs) target of 70 per 100,000 live births by 2030 (3). Most maternal deaths occur among high-risk pregnant women, including cases of preeclampsia, eclampsia, antepartum hemorrhage, gestational diabetes, severe anemia, and other medical complications. This phenomenon highlights the urgent need for comprehensive management of high-risk pregnancies, particularly in strengthening preparedness for childbirth (4).

Maternal readiness for childbirth is a multidimensional construct encompassing physical, psychological, cognitive, and social aspects. Optimal readiness not only reduces risks of obstetric complications but also contributes to positive childbirth experiences and improved maternal and neonatal outcomes. Prior studies revealed that mothers with good childbirth readiness tend to experience shorter labor duration, reduced anxiety, and lower rates of medical intervention (5).

Maternal knowledge regarding pregnancy conditions, danger signs, and childbirth management plays a pivotal role in determining childbirth readiness. The Health Belief Model explains that individual knowledge and perceptions regarding vulnerability and disease severity serve as key predictors of preventive health behaviors and preparedness in facing critical conditions (6). In the context of high-risk pregnancies, knowledge of personal health status, potential complications, labor indicators, and required preparedness measures becomes a critical determinant for achieving comprehensive readiness (7).

Literature indicates a considerable knowledge gap among high-risk pregnant women, particularly in developing countries. Contributing factors include limited access to quality healthcare services, low educational attainment, inadequacy of antenatal education programs, and cultural or traditional beliefs that are not aligned with evidence-based practices (8). Empirical studies examining the association between maternal knowledge and childbirth readiness among high-risk pregnant women have demonstrated varied and inconclusive results. Some studies found a strong positive correlation, whereas others showed that knowledge alone is insufficient without psychosocial interventions and adequate health system support. These inconsistencies underscore the need for further exploration by considering sociocultural contexts and characteristics of the healthcare system within specific populations (9).

In Indonesia, particularly in regions with limited access to healthcare services, the issue of childbirth readiness among high-risk pregnant women becomes increasingly critical. Socioeconomic, educational, and geographical disparities present unique challenges in efforts to improve maternal knowledge and preparedness. Although the Government has implemented the Kelas Ibu Hamil (Mother's Class) program nationwide, its effectiveness in improving knowledge and childbirth readiness among high-risk pregnant women requires comprehensive evaluation. Considering the complexity of the issue and the limited available evidence, this study was conducted to examine the relationship between maternal knowledge and childbirth readiness among high-risk pregnant women. The findings are expected to provide empirical foundations for

designing more effective and targeted educational interventions, and to contribute to the national efforts to reduce maternal morbidity and mortality in Indonesia.

RESEARCH METHODOLOGY

This study employed a descriptive correlational design with a cross-sectional approach to examine the relationship between maternal knowledge and childbirth readiness among high-risk pregnant women. The study population consisted of high-risk pregnant women residing in Kalibaru Wetan Village, Banyuwangi, with a total sample of 100 respondents selected through purposive sampling.

Data were collected using a closed-ended questionnaire with ordinal scaling, which had previously undergone validity and reliability testing (Cronbach's Alpha = 0.737 and 0.805). Data collection procedures included obtaining informed consent, providing brief educational counseling, and administering the questionnaire to respondents.

Data analysis consisted of univariate analysis to describe respondent characteristics and bivariate analysis using the Chi-Square test to determine the association between the variables. This study was conducted following research ethics principles, including informed consent, anonymity, and confidentiality.

RESULTS

Table 1. Distribution of Respondents Based on Knowledge Level

Knowledge Level	Frequency	Percentage (%)
Poor	10	10.0
Fair	23	23.0
Good	67	67.0
Total	**100**	**100.0**

Based on Table 1, most respondents demonstrated a good level of knowledge regarding high-risk pregnancy, with 67 respondents (67.0%). This indicates that the majority of high-risk pregnant women adequately understand the basic concepts of high-risk pregnancy, including its causal factors and potential danger signs during gestation.

Table 2. Distribution of Respondents Based on Childbirth Readiness

Knowledge Level	Frequency	Percentage (%)
Poor	7	7.0
Fair	30	30.0
Good	63	63.0
Total	**100**	**100.0**

Table 2 shows that most respondents exhibited a good level of readiness for childbirth, with 63 respondents (63.0%). This finding reflects that adequate maternal knowledge contributes to both physical and psychological preparedness for the childbirth process.

Table 3. Cross-tabulation of the Relationship Between Knowledge Level and Childbirth Readiness

Knowledge Level	Poor Readiness	Fair Readiness	Good Readiness	Total	%
Poor	7	3	0	10	100.0
Fair	0	20	3	23	100.0
Good	0	7	60	67	100.0
Total	**7**	**30**	**63**	**100**	**100.0**

Cross-tabulation results indicate that respondents with good knowledge predominantly possessed good childbirth readiness, totaling 60 respondents

(90.0%). Conversely, 70.0% of those with poor knowledge demonstrated low readiness. This shows a linear pattern between increased maternal knowledge and improved childbirth preparedness in high-risk pregnancies.

Table 4. Chi-Square Test Results of the Relationship Between Knowledge Level and Childbirth Readiness

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	115.620[a]	4	0.000
Likelihood Ratio	92.450	4	0.000
Valid Cases (N)	100	-	-

The Chi-Square analysis in Table 4 reveals a p-value of 0.000 ($p < 0.05$), demonstrating a significant relationship between maternal knowledge and childbirth readiness among high-risk pregnant women. These results confirm that higher maternal knowledge corresponds to better readiness for childbirth in physical, psychological, and emotional aspects.

DISCUSSION

The findings of this study demonstrate that 67.0% of respondents possessed a good level of knowledge regarding high-risk pregnancy. This outcome reflects the success of maternal health education programs in healthcare facilities. The proportion of respondents with good knowledge aligns with previous studies (10), reporting 64.8% of high-risk pregnant women with good knowledge, and findings by (11), indicating 69.2%.

Several determinants may explain this high level of knowledge. First, dissemination of health information has become more accessible through various media, including community-based counseling and digital maternal health platforms. Second, the national implementation of the Kelas Ibu Hamil (Maternal Class Program) by the Indonesian Ministry of Health has significantly strengthened maternal health literacy (Kemenkes RI, 2021). Third, improved antenatal care (ANC) services not only emphasize physical examination but also incorporate comprehensive counseling on risk factors and pregnancy complications (12).

Evidence from (13) further supports that structured maternal education programs significantly increase maternal knowledge of high-risk pregnancy ($p = 0.001$), with a 35.4% improvement after four weeks of educational intervention. This suggests that systematic and continuous education has a strong impact on maternal health literacy. From a theoretical perspective, adequate knowledge reflects effective cognitive learning in health education. In the context of high-risk pregnancy, knowledge enables expectant mothers to recognize danger signs, understand risk factors affecting maternal and fetal outcomes, and take timely medical action (14).

Despite this, 33.0% of respondents demonstrated poor or fair knowledge, which requires public health attention given its implications for maternal and neonatal outcomes. Low knowledge may be attributable to education level, socioeconomic constraints, limited healthcare access, or geographical barriers. Anggraini and Wulandari (2021) revealed that women with low education levels were 3.8 times more likely to

possess poor knowledge (OR = 3.8; 95% CI: 2.1–6.9; p = 0.001) (15). These disparities call for inclusive and tailored educational strategies that consider community education levels and local cultural contexts. Study (16) reports that visual aids and participatory learning methods are more effective than conventional lectures for individuals with low educational attainment (p = 0.003).

Childbirth Readiness Among High-Risk Pregnant Women

This study found that 63.0% of respondents demonstrated high childbirth readiness. This result is consistent with studies by Safitri and Nurdin (2021), reporting 60.5% readiness, and (17) which found 65.3% of women to be well-prepared for childbirth.

Childbirth readiness is multidimensional, encompassing physical, psychological, emotional, material, and social preparedness. Physical readiness involves optimal maternal health, routine ANC visits, and adequate nutrition. Psychological and emotional readiness reflect self-confidence and anxiety management, while material readiness includes logistical and financial planning (18).

Social support, particularly from husbands and families, is vital within the Birth Preparedness and Complication Readiness (BPCR) framework. Study (19) shows that mothers with strong spousal support were 4.3 times more likely to be well-prepared for childbirth (OR = 4.3; 95% CI: 2.4–7.8; p = 0.001). Spousal support enhances emotional, logistical, and financial readiness (20). However, 37.0% of respondents exhibited inadequate readiness, possibly due to financial limitations, insufficient family support, high anxiety, or prior traumatic childbirth experiences. Wulandari et al. (2023) confirmed anxiety as a predictor of low childbirth readiness (β = -0.487; p < 0.001) (5).

The researcher assumes that childbirth readiness among high-risk pregnant women is shaped by a complex interaction of individual characteristics, family support, and health service utilization, which may not be entirely captured through quantitative self-reported data. It is assumed that all respondents provided honest and accurate responses regarding their level of preparedness, although the possibility of information bias, including social desirability bias, cannot be completely excluded. Furthermore, the researcher assumes that participants had relatively comparable access to antenatal care information and maternal health services; however, variations in service quality, health literacy, and socio-cultural backgrounds may have influenced their perceptions and behaviors related to childbirth readiness. Given the cross-sectional design of this study, childbirth readiness is assumed to represent the respondents' condition at the time of data collection and may fluctuate as pregnancy progresses.

The researcher assumes that unmeasured factors such as previous childbirth experiences, psychological resilience, and community-level support systems may have contributed to the observed levels of readiness. Therefore, causal inferences cannot be drawn from the findings, and the results should be interpreted as associative rather than definitive explanations of childbirth readiness among high-risk pregnant women.

Relationship Between Maternal Knowledge and Childbirth Readiness

The cross-tabulation results demonstrate a clear positive association between knowledge level and childbirth readiness, supported by 89.6% of respondents with good knowledge exhibiting good readiness. These findings align with (21), showing 86.7% readiness among knowledgeable mothers, and (7) reporting a strong correlation ($r = 0.742$; $p < 0.001$). Chi-Square results further confirm knowledge as a dominant predictor ($\chi^2 = 115.620$; $p = 0.000$). These findings align with the Knowledge-Attitude-Practice (KAP) Model, whereby knowledge shapes attitudes and influences action (22) (23), the Health Belief Model (HBM) (24), and Self-Efficacy Theory (25).

Research (26) using path analysis showed both direct and indirect effects of knowledge on readiness ($\beta = 0.432$; indirect via attitude $\beta = 0.287$), with a total effect of 0.719, signifying knowledge as a dominant determinant. This highlights the need for structured, participatory, and continuous prenatal education programs, such as interactive group discussions, simulations, and peer-sharing sessions, which have proven effective in improving knowledge retention.

CONCLUSIONS

This study demonstrates a significant relationship between maternal knowledge and childbirth readiness among high-risk pregnant women ($p = 0.000$). The majority of mothers with good knowledge exhibited adequate childbirth preparedness, indicating that knowledge functions as a dominant determinant of maternal readiness. Adequate knowledge enables mothers to recognize pregnancy danger signs, understand risk conditions, and plan appropriate delivery options, thereby contributing to the prevention of complications and reducing delays in seeking medical care. The mechanism underlying this relationship may operate through both direct and indirect pathways. In addition to exerting a direct effect on readiness, knowledge also influences readiness indirectly through mediating factors such as attitude, motivation, social support, and access to healthcare services. Therefore, maternal childbirth preparedness in high-risk pregnancies should be optimized through comprehensive, structured, and continuous educational programs, complemented by strengthened family support and counseling-based antenatal care services. Future research is recommended to employ multivariate analysis or path analysis to identify indirect effects and other mediating factors more comprehensively.

The researcher assumes that maternal knowledge is a key determinant of childbirth readiness among high-risk pregnant women, although its effect may be influenced by other unmeasured psychosocial and contextual factors. It is assumed that respondents provided accurate responses and that knowledge and readiness reflect conditions at the time of data collection. Due to the cross-sectional design, causal relationships cannot be established, and the findings should be interpreted as associative rather than causal.

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