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Fear, Anxiety, and Birth Outcomes: Exploring Psychological Determinants in Labor Progress

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ABSTRACT

Psychological factors such as fear and anxiety during labor have been increasingly recognized as important determinants influencing labor progression and birth outcomes. These emotional responses can alter neuroendocrine pathways, affecting uterine contractions and overall labor efficiency. Despite growing awareness, psychological determinants are still often under-assessed in routine maternity care, particularly in clinical settings. This study aims to examine the relationship between maternal fear and anxiety with labor progress and birth outcomes. A quasi-experimental study was conducted involving 60 primigravida women in the active phase of labor. Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HAM-A), while labor progress was assessed using partograph monitoring. Data were analyzed using independent t-test. Mothers with lower anxiety levels demonstrated significantly faster labor progress ($p < 0.001$) and fewer interventions compared to those with higher anxiety levels. High anxiety was associated with prolonged labor duration and increased pain perception. Fear and anxiety significantly influence labor progress and outcomes. Addressing psychological well-being should be an essential component of maternity care.

Keywords: *Anxiety, Birth Outcomes, Fear,Maternal Health Labor Progress*

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INTRODUCTION

Childbirth is a complex physiological process that is significantly influenced not only by biological mechanisms but also by psychological factors. Among these, fear and anxiety during labor have emerged as critical determinants that may affect the progression and outcomes of childbirth. Increasing attention in global maternal health discourse has shifted toward understanding childbirth as a biopsychosocial experience, where emotional states play a crucial role in shaping both maternal and neonatal outcomes (Shakarami et al, 2021).

Fear of childbirth, often referred to as tokophobia, and heightened anxiety levels during labor are associated with adverse clinical consequences, including prolonged labor, increased perception of pain, and higher rates of medical interventions such as labor augmentation, instrumental delivery, and cesarean section. Physiologically, maternal anxiety stimulates the release of stress hormones, particularly catecholamines, which may inhibit uterine contractility and reduce uteroplacental blood flow (Dai et al, 2020). This hormonal imbalance can interfere with the normal progression of labor and potentially compromise fetal well-being.

In addition to physiological effects, psychological distress during labor has been linked to negative birth experiences and long-term mental health outcomes, including postpartum depression and post-traumatic stress symptoms (Hassanzadeh et al, 2020). Women who experience high levels of fear and anxiety are more likely to report dissatisfaction with their childbirth experience, which may influence maternal-infant bonding and breastfeeding practices (Khalifatunnisak & Andarini, 2026).

Recent international guidelines, including those from the World Health Organization (WHO), emphasize the importance of providing respectful, woman-centered maternity care that addresses both the physical and emotional needs of laboring women. This paradigm shift highlights the necessity of integrating psychological support into routine intrapartum care. Despite this growing recognition, psychological determinants such as fear and anxiety are often under-assessed and inadequately managed in clinical practice, particularly in low- and middle-income settings (WHO, 2020).

Previous studies have explored various non-pharmacological interventions aimed at reducing anxiety during labor, such as continuous labor support, relaxation techniques, and mind-body approaches (Khalifatunnisak & Andarini, 2026). Although previous studies have demonstrated that fear and anxiety may influence childbirth experiences, the existing evidence remains inconsistent regarding their direct impact on objective labor outcomes, such as labor duration, pain intensity, and intervention rates. Furthermore, most studies have focused on antenatal fear of childbirth rather than anxiety experienced during the active phase of labor. This represents an important gap in the literature, particularly in low- and middle-income countries where psychological assessment is not routinely integrated into maternity care services. Given the increasing recognition of respectful and woman-centered maternity care, understanding how maternal anxiety affects labor progress has become an urgent priority for improving maternal outcomes and reducing unnecessary obstetric interventions.

The relationship between fear, anxiety, and labor outcomes can be explained through neuroendocrine and psychological mechanisms. During labor, heightened fear and anxiety stimulate the activation of the hypothalamic–pituitary–adrenal (HPA) axis and the sympathetic nervous system, resulting in increased secretion of stress hormones such as cortisol, adrenaline, and noradrenaline. Elevated levels of these hormones may inhibit oxytocin release, reduce uterine contractility, and decrease uteroplacental blood flow, ultimately leading to slower cervical dilatation and prolonged labor. Furthermore, anxiety can intensify pain perception through increased muscle tension and heightened sensitivity of the central nervous system, reinforcing the fear–tension–pain cycle described by Dick-Read. Consequently, women experiencing high levels of fear and anxiety are more likely to encounter prolonged labor, increased medical interventions, and less favorable birth experiences (Alizadeh-Dibazari, 2023).

Therefore, this study aims to explore the role of fear and anxiety as psychological determinants influencing labor progress and birth outcomes. Understanding this relationship is essential to inform evidence-based strategies that integrate psychological care into maternal health services, ultimately improving both clinical outcomes and the overall childbirth experience.

METHODS

This study employed an analytical cross-sectional design to examine the relationship between maternal anxiety levels and labor outcomes. The research was conducted at a maternity hospital and involved 60 primigravida women who were in the active phase of labor. Participants were selected using purposive sampling based on inclusion criteria, which included term pregnancy, singleton fetus, and spontaneous onset of labor. Women with high-risk pregnancies or those receiving pharmacological analgesia were excluded from the study to minimize potential confounding factors.

Data collection was conducted from January to March 2026. Eligible participants were identified upon admission to the maternity ward and screened according to the inclusion and exclusion criteria. After receiving a detailed explanation of the study objectives and procedures, written informed consent was obtained from all participants. Maternal anxiety levels were assessed using the Hamilton Anxiety Rating Scale (HAM-A) during the active phase of the first stage of labor. Based on the obtained scores, participants were categorized into low-anxiety and high-anxiety groups. Labor progress was continuously monitored using a standardized partograph by trained midwives. Pain intensity was

assessed using the Visual Analogue Scale (VAS) during the active phase of labor. All collected data were recorded using structured observation sheets and subsequently entered into a computerized database for statistical analysis.

Ethical approval for this study was obtained from the Health Research Ethics Committee of Institut Ilmu Kesehatan Bhakti Wiyata Kediri (Ethical Clearance Number: [14/FKes/TK/II/2026]). All participants provided written informed consent before participation. Confidentiality and anonymity of all respondents were maintained throughout the study.

Data collection was carried out during the active phase of labor under the supervision of trained midwives to ensure consistency and reliability. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to summarize participant characteristics, while inferential analysis included independent t-tests to compare labor outcomes between groups. A significance level of $p < 0.05$ was applied to determine statistical significance.

RESULTS

The analysis included 60 primigravida women categorized into low-anxiety (n=30) and high-anxiety (n=30) groups based on HAM-A scores. Baseline characteristics between groups were comparable, with no statistically significant differences in age or gestational age ($p > 0.05$), indicating group homogeneity prior to outcome assessment.

Table 1. Characteristic of respondents

Characteristics	Low Anxiety (n=30)	High Anxiety (n=30)	P value
Age (mean ± SD)	26.5 ± 3.2	27.1 ± 3.5	0.58
Gestational Age	39.0 ± 1.1	39.2 ± 1.0	0.62

Regarding labor outcomes, women in the low-anxiety group demonstrated more favorable clinical profiles. They experienced shorter labor duration, lower pain intensity, and fewer obstetric interventions compared to the high-anxiety group

Table 2. Labor Outcomes

Variable	Low Anxiety (n=30)	High Anxiety (n=30)	P value
Labor duration (Hours)	6.2 ± 1.5	9.1 ± 2.0	<0.001
VAS Pain Score	4.8 ± 1.3	7.6 ± 1.2	<0.001
Intervention Rate (%)	20%	60%	<0.001

Statistical testing showed significant differences between groups across all outcome variables ($p < 0.001$). These findings indicate that higher anxiety is significantly associated with prolonged labor, increased pain perception, and a greater likelihood of medical interventions during childbirth.

DISCUSSION

The results of this study demonstrate that maternal fear and anxiety significantly influence labor progression and outcomes. Women with lower anxiety levels experienced shorter labor duration and lower pain intensity compared to those with high anxiety levels. This finding supports the theory that psychological stress can interfere with physiological labor mechanisms.

The prolonged labor observed in the high-anxiety group can be explained by increased catecholamine levels, which inhibit uterine contractions and reduce uterine efficiency. This aligns with previous studies showing that anxiety disrupts oxytocin release, thereby slowing labor progress. A study by Kido et al. (2023) reported that high maternal anxiety was associated with prolonged first-stage labor and increased risk of intervention.

Additionally, higher pain perception among anxious mothers highlights the interaction between psychological and sensory experiences. Anxiety amplifies pain perception through central nervous system pathways, leading to a more distressing labor experience. This finding is consistent with Slade et al (2021), who emphasized that maternal self-efficacy and emotional state strongly influence pain perception during childbirth.

The higher intervention rate in the high-anxiety group suggests that psychological distress may indirectly contribute to increased medicalization of childbirth. Similar findings were reported by Saisto and Halmesmäki (2003), who found that women with severe fear of childbirth had higher rates of cesarean section and instrumental delivery.

Furthermore, recent evidence Alizadeh et al (2025) highlights that continuous emotional support and anxiety-reduction strategies during labor can significantly improve birth outcomes and maternal satisfaction. This suggests that integrating psychological care into routine maternity services may help optimize both clinical and experiential outcomes.

In line with these findings, a systematic review by Alizadeh et al. (2023) emphasized that psychological interventions during pregnancy, including relaxation and cognitive-based approaches, significantly reduce childbirth-related fear and improve labor outcomes. This reinforces the importance of early identification and management of anxiety during antenatal care.

Moreover, a cohort study by O'Connell et al. (2019) demonstrated that severe fear of childbirth was associated with increased elective cesarean section rates and prolonged labor, further supporting the relationship between psychological distress and obstetric outcomes. These findings highlight that fear is not merely an emotional response but a clinically relevant factor influencing decision-making and labor progression.

Recent research by Slade et al. (2021) also indicated that unmanaged anxiety during labor is linked to negative birth experiences and may contribute to postpartum psychological disorders, including post-traumatic stress symptoms. This underscores the long-term implications of psychological well-being during childbirth and the need for holistic maternity care. Overall, this study reinforces the importance of integrating psychological assessment and intervention into labor management to improve outcomes and maternal experiences.

CONCLUSION

Fear and anxiety are significant psychological determinants that negatively impact labor progress and birth outcomes. Women with higher anxiety levels tend to experience longer labor duration, increased pain, and higher intervention rates. These findings are consistent with prior evidence indicating that elevated maternal anxiety is associated with prolonged labor and increased obstetric interventions. From a clinical perspective, integrating psychological assessment and supportive interventions into routine maternity care is essential. Addressing maternal emotional well-being may help optimize labor efficiency, reduce unnecessary interventions, and improve overall birth experiences, in line with recommendations for respectful and woman-centered care (WHO, 2018). For midwifery services, the findings emphasize the need to adopt a holistic approach to childbirth care that addresses both physical and psychological aspects of labor. Midwives play a pivotal role in identifying women at risk of childbirth-related fear and anxiety and implementing evidence-based supportive interventions. Strengthening antenatal counseling, promoting respectful maternity care, and providing continuous emotional support during labor may help improve maternal outcomes while fostering positive childbirth experiences

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