

Original Research

## Relationship between Knowledge Level and Anxiety Facing Childbirth in Primiparous Mothers at Panembahan Senopati Hospital Bantul

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**ABSTRACT**

The 7 "P" factors influencing the child-birth process are "Power", "Passage", "Passenger", "Psyche", "Pain", "Patience", and "Position". Psyche includes anxiety, which for laboring mothers creates tension, vasoconstriction in uterine blood vessels, pain, reduced uterine contraction, and delayed cervical opening so that childbirth takes longer. Long childbirth or partus can increase mothers' and babies' morbidity and mortality rates. This research aimed to identify the correlation between Knowledge Level and Anxiety Facing Childbirth in Primiparous Mothers at Panembahan Senopati Hospital Bantul. This study was quantitative research with a descriptive-analytic design using the cross-sectional approach. The population in this research consisted of 145 *primipara* mothers, with purposive sampling of 59 respondents. The data were collected with a questionnaire and analyzed with the Spearman Rank Correlation Test. The respondents' knowledge level belonged to the 'good' category, 96.6%, while the anxiety level among the *primipara* mothers belonged to the 'moderate' category, 79.7%. The analysis of the correlation between the knowledge level and the anxiety level among *Primipara* mothers in Panembahan Senopati Hospital Bantul resulted in a p-value = 0.001 with a Rho-Spearman correlation value of -0,415. There was a moderate correlation between knowledge and anxiety levels among *primipara* mothers in Panembahan Senopati Hospital Bantul. Healthcare providers can promote the seven essential power education models of childbirth ("Power," "Passage," "Passenger," "Psyche," "Position," "Pain," and "Patience") in maternity nursing practice so that nurses can pay attention to the complexities of care holistically for women who give birth

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## Introduction

One of the health development programs, namely the Sustainable Development Goals (SDGs), is a global development paradigm that has become an agreement among members of the United Nations. The 2015 SDGs are a development commitment emphasizing the fulfillment of basic human rights to implement 17 development goals, one of which is improving maternal health. One of the efforts to improve maternal health is to reduce maternal mortality due to pregnancy and childbirth (Sustainable Development Goals (SDGs), 2017).

Wahyuni et al. (2022) explained that the causes of maternal death were mainly caused by bleeding at 28%, diseases that existed before pregnancy at 27%, infection at 11%, hypertension in pregnancy at 14%, labor stuck at 9%, and unsafe abortions at 8%. Another cause in the form of a syndrome that is a complication is preeclampsia, with a range of 3-5% of all pregnancies, which contributes to high rates of maternal and fetal morbidity and mortality (Chalid, 2016; Skhvitaridze et al., 2020; Wahyuni et al., 2022; Yusrizal et al., 2021).

Other causes of Indonesia's high maternal mortality rate are eclampsia, unsafe abortion, and prolonged labor (Chalid, 2016; Wahyuni et al., 2022). Prolonged labor with anxiety in maternity may cause tension and neurophysiological reactions due to the adrenaline rush. The adrenaline rush may affect the uterus, vasoconstricting the blood vessels and inducing pain, reducing uterine contractions, so that cervical opening becomes slow, thus prolonging labor (McKinney et al., 2021).

Factors that affect smooth delivery (McKinney et al., 2021; Palmer & Coats, 2016; Murray & McKinney, 2013) are Seven "PS" consisting of power, passage, passenger, position, pain, patience, psyche (psychiatric), including anxiety. Anxiety in maternity mothers will spur increased levels of adrenaline and catecholamine hormones, which can suppress oxytocin hormone levels, cause the cervix to stiffen, and cause prolonged labor (Uvnäs-Moberg et al., 2019; Walter et al., 2021). Furthermore, according to (Arfaie et al., 2017; Hishikawa et al., 2019),

excessive anxiety and stress during childbirth invite excessive pain in the labor process.

We did the preliminary study in Panembahan Senopati Hospital Bantul. We found four of five primiparous mothers aged 20 to 30 years old and getting interviewed; two graduated from junior high school, one from elementary school, and one from a high school mother. The four mothers said they did not know about the delivery process because they never received information from health workers in their neighborhood and never read books or other media. Mothers who said they did not know about the delivery process said they felt anxious about the delivery process and thought that childbirth was excruciating. The four anxious mothers said they had difficulty sleeping, were restless, and had headaches. In addition, the number of deliveries in the Lotus Ward, Panembahan Senopati Hospital Bantul, during the last three months in 2012, among others, in August primiparas amounted to 143 people. In September, primipara 151 people. In October, primipara 141 people.

Based on the description above, the researcher is interested in researching "The Relationship of Knowledge Level with Anxiety Facing Childbirth in Primiparous Mothers at Panembahan Senopati Hospital Bantul."

## Method

This study uses an analytical descriptive research design using a cross-sectional approach (Adiputra et al., 2021; Siyoto & Sodik, 2015). This research was conducted from April 8 until May 8, 2013. The place of research is the Maternity Room (Lotus Ward) at Panembahan Senopati Hospital, Bantul. The population in this study was the average primiparous mother who gave birth in the delivery room at Panembahan Senopati Hospital, Bantul, which opened again to 145 people. The sample of this research was 59, which were taken using the purposive sampling method (Adiputra et al., 2021; Siyoto & Sodik, 2015).

This study's independent variable was the knowledge level and the variable facing childbirth in primiparous mothers at Panembahan Senopati Hospital, Bantul. The confounding variable in this study is social factors (family support). The research instrument consisted of three kinds, the first instrument A about the characteristics of the respondents, instrument B about the level of

knowledge, and instrument C about dealing with childbirth in primiparous mothers in Panembahan Senopati Hospital Bantul.

The researcher made a list of questions or questionnaires based on the existing theory. The questionnaire consists of 3 instruments. Firstly, instrument A is about the characteristics of the respondents. Secondly, instrument B is about the level of knowledge, consisting of 15 questions measuring the level of knowledge of primiparous mothers about childbirth. Lastly, instrument C is about the anxiety questionnaire with 15 statements using a Likert scale to measure the anxiety of primiparous mothers facing childbirth. Furthermore, we conducted a validity and reliability test in the RSUD Sleman with 20 respondents. The research's validity analysis using the SPSS version 16 computer program. If one of the questions on the questionnaire list has a correlation value below 0.378, then the question item is invalid. At the same time, if the question item has a correlation value > 0.378, then the question item is valid. The validity test in this study used the Product Moment technique, while the reliability test used the Cronbach Alpha method. The results of the validity test of the primiparous mother's level of knowledge about childbirth from the 15 question items were all valid question items. Additionally, to test the validity of the

anxiety with 15 questions, we found three questions with invalid results (correlation value < 0.378). As many as 12 questions met the criteria and were valid, so 12 question items with a correlation value > 0.378 can be used in the study. Furthermore, the reliability test results on the statement items contained in the questionnaire obtained a reliability coefficient of 0.9, so the questionnaire can be said to be reliable.

Data collection tools measure the level of knowledge and anxiety facing mothers. Researchers re-checked the questionnaire related to filling out the questionnaire. Then the researcher coded the knowledge questionnaire; if the respondent answered the preferred statement with a "true" answer, the score was 1; if "wrong" the score was 0. At the same time, the number of questions was 12, and used a Likert scale. All statement items included favorable (positive); the answer "never" was given a score of 1, the answer "rarely" was given a score of 2, the answer "sometimes" was given a score of 3, and the answer "often" was given a value of 4, the answer "always" was given a score. Furthermore, the researchers entered the data into the computer using the SPSS program to analyze. We used Spearman Rank (Rho) correlation test for bivariate analysis.

## Results and Discussion

### Characteristics of Respondents

**Table 1. Frequency Distribution of Respondents' Characteristics in Panembahan Senopati Hospital, Bantul, 2013 (N = 59)**

<b>Age</b>	<b>n</b>	<b>%</b>
20-25 Years	37	62,71
26-30 Years	22	37,28
<b>Total</b>	<b>59</b>	<b>100</b>
<b>Education</b>	<b>n</b>	<b>%</b>
Primary School	2	3,4
Middle School	14	23,7
High School	43	72,9
<b>Total</b>	<b>59</b>	<b>100</b>
<b>Job</b>	<b>n</b>	<b>%</b>
Labourer	1	1,7
Housewife	33	55,9
Farmer	1	1,7
Self-employed	24	40,7
<b>Total</b>	<b>59</b>	<b>100</b>

Table 1. This shows that the majority of respondents aged 20-25 years old are 37 people

(62.71%), high school education by 43 people (72.9%), and housewife by 33 people (55.9%).

## Univariate Analysis

**Table 2. Frequency Distribution of Knowledge Levels in Panembahan Senopati Hospital Bantul, 2013 (N=59)**

Knowledge Level	n	%
Good	57	96,6
Fair	2	3,4
<b>Total</b>	<b>59</b>	<b>100</b>

Table 2. This shows that most of the primiparous mothers have a good level of

knowledge of 57 people (96.6%) and a fair level of knowledge of 2 people (3.4%).

**Table 3. Frequency Distribution of Anxiety Facing Childbirth in Primiparous Mothers at Panembahan Senopati Hospital, Bantul, 2013 (N=59)**

Anxiety Level	n	%
Mild	6	10,2
Moderate	47	79,7
Severe	6	10,2
<b>Jumlah</b>	<b>59</b>	<b>100</b>

Table 3. shows that most of the anxiety levels of primiparous mothers are moderate, as

many as 47 people (79.7%), while the level of severe anxiety is six people (10.2%).

## Bivariate Analysis

**Table 4. Relationship of Knowledge Level with anxiety facing childbirth in primiparous mothers at Panembahan Senopati Hospital, Bantul, 2013 (N=59)**

Knowledge	Anxiety						Total		p	pVal
	Mild		Moderate		Severe		n	%		
	n	%	n	%	n	%	n	%		
Good	4	6,8	47	79,7	6	10,2	57	96,6	-0,415	0,001
Fair	2	3,4	0	0,0	0	0	2	3,4		
<b>Total</b>	<b>6</b>	<b>10,2</b>	<b>47</b>	<b>79,7</b>	<b>6</b>	<b>10,2</b>	<b>59</b>	<b>100</b>		

The cross-tabulation in table 4 shows that 57 (96.6%) respondents with good knowledge experienced moderate anxiety by 47 people (79.7%). Two (3.4%) respondents had fair knowledge as much as most experienced mild anxiety as much as two people (3.4%). Spearman rank correlation obtained a p-value of 0.001 (p-value <0.05), which means that there is a significant relationship between the level of knowledge and anxiety about childbirth in Primiparous mothers, so the hypothesis in this study is acceptable (H1/Ha). The correlation coefficient value is -0.415; based on the interpretation table, the value of r shows a close relationship between the level of knowledge and anxiety about childbirth in primiparous mothers at Panembahan

Senopati Hospital, Bantul. Relationship in the medium category.

The results show a relationship between the level of knowledge and anxiety about childbirth in primiparous mothers. In this study, the level of knowledge of the respondents in the good category was 57 people (96.6%), and anxiety facing childbirth in primiparous mothers with moderate categories as many as 47 people (79.7%).

The correlation coefficient value of -0.415 based on the interpretation table of the r-value indicates a close relationship between the level of knowledge and anxiety facing childbirth in primiparous mothers at Panembahan Senopati Hospital, Bantul. The relationship is in the medium category with a negative relationship direction, so it can be interpreted that if the level of knowledge is

improving or increasing, the anxiety facing childbirth will decrease, and vice versa.

Labor is a physiological process that removes the fetus, umbilical cord, placenta, and amniotic membranes from the uterus. Labor usually begins between 38 and 42 weeks of gestation (Palmer & Coats, 2016). The labor process requires interaction and cooperative efforts from seven important components to deal with the labor process, namely Power, Passage, Passenger, Position, Pain Management, Psyche, and Patience (Palmer & Coats, 2016). In addition, several things contribute to the onset of labor, namely the combination of factors that cause labor, such as increased levels of oxytocin. Oxytocin is produced in uterine tissue at the end of pregnancy, with concentrations increasing in early labor while progesterone levels decrease towards the end of pregnancy, allowing estrogen to stimulate contractions (Einion, 2017). Oxytocin helps in stimulating the increased production of prostaglandins through receptors in the decidua, i.e., the lining of the uterus. Prostaglandins are hormone-like substances that affect tissues, including the contraction and relaxation of smooth muscles. Oxytocin and prostaglandins are the most important biochemical factors in stimulating contraction (Uvnäs-Moberg et al., 2019; Walter et al., 2021).

Progress in the labor process requires power. Power is an interaction between involuntary (strength and frequency of uterine contractions) and voluntary (diaphragm and abdominal muscles) muscles (Kay et al., 2022). Power is also an ability to provide delivery guidance so that the resultant of the three forces goes well to achieve a spontaneous form of back-of-the-head delivery (Begum, 2019). Failure of the progress of labor related to maternal power, i.e., lack of coordination of strong regular contractions of the uterus. Maternal anxiety also plays a role in the progress of the labor process. When the mother experiences anxiety, it can cause an imbalance in the oxytocin system (Hishikawa et al., 2019). Oxytocin is one of the important hormones for childbirth and regulates milk production and breastfeeding; social bonds also cause smooth muscle contractions during labor.

The findings in this study follow research conducted by Ding et al. (2021),

which states that one of the factors that influence anxiety is the level of knowledge. Anxiety indicates a lack of information or knowledge about birth, and a low level of education will cause a person to experience stress and depression due to the lack of information that person gets (Niemeyer et al., 2019; Rondung et al., 2016). Lack of knowledge and fear of the unknown during pregnancy and childbirth make mothers fearful, worry, and anxious. Maternal fear and anxiety can lead to problems such as premature labor and low birth weight. Furthermore, neonates born to highly fearful and anxious mothers also tend to have weak immune systems (Hassanzadeh et al., 2020).

In addition, factors such as age or maternal parity (experience), as stated by Madhavanprabhakaran et al. (2015), are the relatively young age factor it easier to experience disorders due to anxiety than someone older (Ayu et al., 2019). Meanwhile, in terms of parity, mothers who have given birth for the first time have no idea what will happen during childbirth, so they face childbirth with feelings of anxiety and view childbirth as something scary (Aral et al., 2014; Madhavanprabhakaran et al., 2015).

Several factors that play an important role in labor (McKinney et al., 2021; Palmer & Coats, 2016; Murray & McKinney, 2013) are the 7 "Ps." PS consists of "Power" (force pushes the fetus out), "Passage" (crossroads), "Passenger" (fetus), "Position of the mother" (the position of the mother), "Pain" (Pain), "Patience" (patience) "Psyche" (psychiatric) including anxiety. Anxiety in maternity mothers will spur increased levels of adrenaline and catecholamine hormones, which can suppress oxytocin hormone levels, and cause the cervix to stiffen and cause prolonged labor (Chalid, 2016; Wahyuni et al., 2022; McKinney et al., 2021).

Physiologically anxious conditions can cause uterine contractions to feel more painful and painful (Labor & Maguire, 2008). When a woman in a contraction state experiences stress and cannot get rid of her fear before giving birth, the body's responses include "fight or flight" (Chiao et al., 2021; Sandman & Davis, 2012). As a result of the body's response, the uterus becomes increasingly tense so that the flow of blood and oxygen into the uterine muscles is reduced because the

arteries become smaller and narrower, which then causes inevitable pain. Therefore, if the expectant mother giving birth is in a comfortable, relaxed state, all the muscle layers in her uterus will work together in harmony (Tan et al., 2021).

The childbirth process often involves psychological aspects, causing various psychological problems for the mother, one of which is anxiety (García-Blanco et al., 2017). Excessive anxiety resulting in a delayed opening in the first stage is often found in the labor process. Delay in the opening is a threat to the lives of both mother and baby (Yusrizal et al., 2021). Anxiety when facing childbirth is still experienced by *inpartu* mothers, especially primiparous mothers (Emmanuel et al., 2011). The impact of anxiety on labor causing labor pain has been associated with an increase in the release of maternal catecholamines, which will cause a decrease in uterine blood flow and reduced oxygen supply to the uterine muscle, so that the oxygen supply to the uterine muscle has not fully recovered (Sari Riona, 2020).

In addition, excessive anxiety will cause tension, prevent relaxation of other body parts and also cause fatigue (Dokuhaki et al., 2021; Tzeng et al., 2017). Thus labor pain can affect uterine contractions through the secretion of increased levels of catecholamines and cortisol and consequently affect the duration of labor and result in prolonged labor (Benfield et al., 2014). Long labor will harm the baby and the mother. Mothers can be exhausted and exhausted. Knowledge about childbirth can affect maternal anxiety before delivery because mothers who have less knowledge will view the delivery process as something scary, especially for mothers who are giving birth for the first time; there is no idea about what will happen during childbirth. This fear is also caused by often hearing horror stories from friends or relatives about experiences during childbirth, such as a mother or baby dying, and will affect the mother's mindset about the scary childbirth process (Munkhondya et al., 2020).

The wrong perception in maternity women due to lack of accurate information or exposure about childbirth, especially primiparous patients so that patients tend to make their interpretations (self-

interpretation) which is sometimes excessive, such as labor is very painful and life-threatening (Martin et al., 2013; Sanders & Crozier, 2018). As a result of the emergence of this anxiety is increased sensitivity (sensitivity) individual emotions with manifestations of easy crying and easy suspect (negative thinking) in others, and causes the individual's life is always under the shadow of anxiety that continues for a long time.

Pain perception and preference for pain management are unique for every woman in the face of childbirth (Farnham, 2020). Based on Lindblad et al. (2022) that primiparous women have a higher level of anxiety than multiparous women. Primiparous women have higher cortisol levels in the first trimester than multiparous women. A woman's level of pain experience depends on many maternal and fetal factors, including fetal size and position, parity, maternal age, preparation for delivery, anxiety, previous pain experiences, and culture (Farnham, 2020).

Pain tolerance and pain-related anxiety are the two most studied subjects in patients suffering from pain. Pain-related anxiety is also one of the emotions most commonly associated with pain. Feelings of anxiety are such a fundamental part of the pain experience that patients have difficulty distinguishing between the two (Cimpean & David, 2019). In addition, chronic pain is generally comorbid with depression or anxiety disorders. Based on the results of research by De Heer et al. (2014), patients with depression or anxiety disorders have aches and pains that are cardio-respiratory than those without depression or anxiety disorders.

Based on the results of research by Vassend et al. (2018), it was shown that symptoms of anxiety and pain were significantly related to fatigue. In addition, the lack of knowledge and fear of the unknown during pregnancy and childbirth make mothers afraid, worried, and anxious. Maternal fear and anxiety can lead to problems such as preterm labor and low birth weight (Hassanzadeh et al., 2020). In general, anxiety in pregnant women can increase the risk of dystocia (interrupted labor) or (prolonged labor) (Hishikawa et al., 2019).

Anxiety or fear indicates an imbalance in the oxytocin system. Oxytocin is an important hormone for labor. Oxytocin plays a role in labor and breastfeeding, social bonds and causes uterine smooth muscle contractions during labor, and regulates milk production (Hishikawa et al., 2019). In addition, other hormones that are important in labor are catecholamines, including dopamine, epinephrine, and norepinephrine. Catecholamines are synthesized in the brain, adrenal medulla, and sympathetic nerve fibers, and are known to be involved in the body's stress response to exogenous situations deemed dangerous. Catecholamines activate emotional responses in the amygdala that cause fear, anxiety, or anger, dilate pupils, and increase oxygen uptake. The blood supply is pushed from the internal organs, including the uterus, to the heart, adrenal glands, and skeletal muscles. This is known as the fight-or-flight response. Higher epinephrine levels were found to be associated with lower uterine contractile activity in the first stage of labor (Hishikawa et al., 2019).

An important factor that can reduce anxiety is getting social support from partners, family, friends, or peer groups during pregnancy and childbirth. It can reduce bad moods, including anxiety, and increase feelings of self-esteem and self-efficacy, which have a positive impact on improving the mother's emotional wellbeing (Biaggi et al., 2016; McLeish & Redshaw, 2017).

In addition, efforts that can be made to overcome fear and anxiety in facing childbirth are through art therapy and auriculotherapy. This is to research conducted by Sezen & Ünsalver, (2019) that art therapy is an efficient method to reduce maternal anxiety about childbirth, art therapy programs help women face and express their fears through works of art such as drawing, making mandalas, making dolls, photographing, and making collages from safe, natural materials. Art therapy can also help mothers give birth naturally compared to a group of mothers who follow psychoeducation and undergo C-sections. Furthermore, a study conducted by Vakilian et al. (2022) under the title "Reducing Labor Anxiety with Auriculotherapy: A Randomized Clinical Trial Study" based on the results of the study concluded that

auriculotherapy is effective as an easy and safe method to reduce labor anxiety.

## Conclusion

There is a relationship between Knowledge Level and Anxiety Facing Childbirth in Primiparous Mothers at Panembahan Senopati Hospital Bantul; this is indicated by a correlation coefficient of -0.415 with a p-value of 0.001 ( $p < 0.05$ ).

Healthcare providers can promote the seven essential power education models of childbirth (Power, Passage, Passenger, Psyche, Position, Pain, and Patience) in maternity nursing practice so that nurses can pay attention to the complexities of care holistically for women who give birth. Nurses in primary health facilities can screen to identify women at risk for anxiety during pregnancy to improve the well-being of mothers and babies.

## Limitations of the study

The data collection tool in this study uses only questionnaires; research will be maximized if accompanied by direct interviews with respondents; Researchers cannot control one confounding variable, namely the husband's support. This study has a weakness in the research instrument, namely a questionnaire to measure the level of knowledge and anxiety about childbirth using only favorite question items so that it seems that respondents have to answer the available answers.

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## Conflict of Interest

There is no conflict of interest in this research.

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