



## The Relationship between Knowledge of Menstruation and Anxiety Levels in Facing Menstruation among Elementary School Students

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### Abstract

Menstruation is a normal biological process; however, for elementary school students with limited knowledge, it may provoke fear and anxiety. Previous studies indicate that 54.1% of young girls possess low levels of knowledge about menstruation, which contributes to heightened anxiety during menarche. Adequate knowledge is considered crucial for improving mental readiness. This study emphasizes the role of knowledge in comparison with other influencing factors, highlighting the importance of menstrual education in shaping students' understanding. This quantitative study employed a cross-sectional design. The sample comprised 115 female students in grades 4, 5, and 6 from SDN Kaliasin 1, Kaliasin 5, and Kaliasin 7 in Surabaya who had not yet experienced menarche. Data were collected using questionnaires to assess knowledge of menstruation (independent variable) and anxiety levels (dependent variable), measured with the Zung Self-Rating Anxiety Scale (Z-SAS). Data analysis was conducted using the Spearman Rank correlation test. The findings showed that 81.0% of respondents had a moderate level of knowledge regarding menstruation, while 12.4% had low levels of knowledge. In terms of anxiety, 55.7% of students experienced moderate anxiety when facing menarche. The Spearman Rank test yielded a p-value of 0.005 with a low correlation coefficient ( $r = 0.296$ ), indicating a statistically significant relationship between menstrual knowledge and anxiety levels. There is a significant relationship between knowledge of menstruation and anxiety levels among elementary school students. Comprehensive menstrual education is essential to enhance students' mental preparedness and to reduce anxiety when facing menarche.

### Introduction

Knowledge about menstruation is a special concern for women who are about to experience puberty (Coast et al., 2019; Msovela et al., 2025; Ganguly et al., 2025). The first puberty experienced by women is called menarche. Menarche, also known as the onset of menstruation in women, currently occurs earlier, namely at an early age (Anikwe et al., 2020; Ratnasari & Soviana, 2026; Lee et al., 2022). According to research in Brazil, the results show that the highest age range for menarche is 11 years old. A total of 381 girls aged  $\leq 11$  years experienced menarche, equivalent to 72.70% of the total age group. At age 12, this percentage increased by 10%, at age 13 by 7.9%, at age 14 by 2.8%, and finally at age 15 by 7% (Gemelli et al., 2020). Indonesia is the fifth most populous country in the world. The number of elementary school

children aged 7-12 years in Indonesia reached 22,469,533 in 2017 (Suhardi, 2019). According to the Indonesian Ministry of Health (2018), the average age of menarche is 12-14 years with a prevalence of 60%, while 30.3% experience it at 11-12 years and 30% at 13 years. Some experience menarche after they turn thirteen.

Over time, menarche is often experienced by young girls due to several factors, such as information about sex that can stimulate hormones in the body to prepare for menstruation quickly (Novalia et al., 2022; Firdawati et al., 2026; Tamo et al., 2022). In addition, improved and adequate nutrition makes the body more ready for menstruation. These various factors will have an impact on physical and psychological conditions if children do not have sufficient knowledge about early puberty (Tandon & Bhatia, 2025; Cheng et al., 2022; Dong et al., 2023).

According to research in Jember, most female students at one elementary school still have a low level of knowledge about menstruation, namely 54.1%, while 45.9% have good knowledge about menstruation (Juwita, 2025). Lack of knowledge about menstruation in children who are experiencing early puberty can lead to anxiety disorders (Nurmawati & Erawantini, 2019; Rahmadani & Istiqomah, 2025; Togaymurodova, 2026; Algedik et al., 2025). According to the Ministry of Health's Directorate of Health Promotion and Community Empowerment, anxiety disorders are characterized by excessive, constant anxiety and difficulty controlling oneself. If this problem is left unchecked, it can cause worry that disrupts daily routines and hinders academic achievement, which can lower quality of life (Indonesian Ministry of Health, 2018).

Based on preliminary studies conducted by researchers at three public elementary schools (SDN) in Genteng District, Surabaya, namely SDN Kaliasin I, SDN Kaliasin V, and SDN Kaliasin VII on July 23, 2024, four teachers said that they had never received any socialization or counseling related to menstruation for elementary school students in Genteng District, and 17 students said that they were disturbed by pain during menstruation, which caused them to ask permission to go home from school so they could not attend classes. Therefore, the researcher was interested in further investigating the relationship between knowledge about menstruation and the level of anxiety in facing menarche among female students at three elementary schools in Genteng District, Surabaya.

## Methods

In this study, a quantitative design based on cross sectional research design was used to investigate an association between knowledge about menstruation and anxiety of facing menarche among elementary school girls in the Genteng District, Surabaya. This was deemed to be the right design since the study was meant to observe both of these variables over the same duration of time and on whether there was a statistically significant relationship between menstrual knowledge level and anxiety in anticipation of menarche in students. Through this method, the study could record the state of the respondents as they were and did not control the learning environment and the psychological setting that they were placed in experiencing early pubertal issues.

The research was conducted on 115 female students studying in SDN Kaliasin 1, SDN Kaliasin 5, and SDN Kaliasin 7 in Surabaya in grades 4, 5, and 6. The respondents were chosen among the students who had not yet reached menarche as it did not mean that the study was on post menarche experience, but rather the degree of preparedness and anxiety before the first menstruation. This type of participants was especially pertinent to the objective of the study because findings indicate that the study respondents were within the age of 9 and 12 years old, which are among the ages when a girl is starting to enter the physiological and emotional transition related to early puberty. In this research, the role of knowledge on menstruation was taken as an independent variable, with anxiety in facing menarche placed as the independent variable.

The data were measured by using questionnaires given to the respondents. The questionnaire about menstrual knowledge was employed to determine the level at which the students comprehended the definition of menstruation, when menarche happened, changes in the body as a result of puberty, and simple facts about menstrual care and preparation. In the meantime, anxiety was assessed by use of the Zung Self Rating Anxiety Scale which it used to determine the emotional reactions of the respondents to their first menstruation. These tools made the research go beyond making assumptions concerning puberty and to offer a more organized display of the ways cognitive comprehension and psychological responses were related in the lives of upper grade elementary school girls. The scores of the questionnaires were then put into insight categories to enable both variables to be defined and analyzed in a relationship manner in the next phase of analysis.

The analysis was conducted in two stages, which analyzed each other. To begin with, descriptive statistics were employed to provide the frequency distribution of the respondent characteristics, the level of knowledge about menstruation and the level of anxiety in facing menarche. The stage played a crucial role in creating the empirical characteristic of the participants and demonstrating the general trend of the data prior to the inferential testing. Second, the testing of relationship between the two variables was done by the Spearman Rank correlation test. This statistical test was appropriate, as the research was focusing on the analysis of the correlation between ranked or categorized variables instead of studying experimental groups or estimating the impact of causality. This analysis enabled the study to establish the importance of the relationship in addition to its direction hence explaining whether improved knowledge regarding menstruation was likely to be accompanied by a reduction in anxiety regarding confronting menarche.

## Result and Discussion

Table 1. Frequency Distribution Analysis of Respondent Characteristics

Characteristics	Category	Total	
		Frequency (n)	Percentage (%)
Age	9 years	14	13.3
	10 years	60	57.1
	11 years	25	23.8
	12 years	6	5.7

Based on Table 1, it can be seen that there is a tendency for data to be dominated at a certain age level. The majority of subjects participating in this study were in the 10-year-old age category, with a frequency of 60 (57.1%). This indicates that more than half of the total sample had a similar age background, namely late childhood.\

Table 2. Frequency Distribution Analysis of Knowledge About Menstruation

Variable	Category	Total	
		Frequency (n)	Percentage
Knowledge about Menstruation	Good	7	6.7
	Fair	85	81.0
	Insufficient	13	12.4

Based on the results of the frequency distribution analysis in Table 2, a positive picture of the students' health literacy can be seen. The data reveals that 85 students (81.0%) of the total sample in grades 4, 5, and 6 were categorized as having sufficient knowledge about menstruation. This figure shows that most respondents already have adequate basic information to deal with menarche.

Table 3. Frequency Distribution Analysis of Anxiety Levels Regarding Menstruation

Variable	Category	Total	
		Frequency (n)	Percentage
Level of Anxiety about Menstruation	Weight	41	39
	Moderate	64	61
	Mild	0	0
	Normal	0	0

Based on the data in Table 3, it was found that the distribution of anxiety levels among female students in facing menstruation showed a significant trend. A total of 64 female students, representing 61% of the total respondents in grades 4, 5, and 6 at SDN Kaliasin I, Kaliasin II, and Kaliasin IV, were in the moderate anxiety level category. This illustrates that the majority of respondents felt psychological pressure or considerable worry when entering this phase of biological change.

Table 4 Analysis of the Relationship Between Knowledge About Menstruation and Anxiety Levels in Facing Menstruation Among Female Students in Grades 4, 5, and 6 at SDN Kaliasin I, Kaliasin II, and Kaliasin IV

Variable	Category	Level of Anxiety Facing Menarche							Total	p	r value	
		Weight		Moderate		Mild		Normal				
		(n)	(%)	(n)	(%)	(n)(%)	(n)	(%)				
Knowledge about Menstruation	Good (n=7)	2	28.6	5	71.4	0	0	0	100	0.014	-0.240	
	Sufficient (n=85)	51	60	34	40	00	0	0	100			
	Insufficient (n=13)	11	84.6	2	15.4	0	0	0	100			
Total		64	61	41	39	00	0	0	100			

Table 4 shows a correlation between the level of knowledge and the level of anxiety among female students in dealing with menstruation. In the group of students with good knowledge, there were 7 respondents, where the majority of 5 students (71.4%) were at a moderate level of anxiety. Meanwhile, in the group with sufficient knowledge, which consisted of 85 students, it was found that 34 respondents (40%) experienced moderate anxiety, which showed a lower proportion of anxiety compared to the previous group.

The most significant condition was seen in the group of respondents with low knowledge, which consisted of 13 students. In this group, most respondents, namely 11 students (84.6%), experienced severe anxiety, while the remaining 2 students (15.4%) experienced moderate anxiety. Overall, these data indicate that the lower the students' knowledge about menstruation, the greater the tendency for an increase in their psychological burden or anxiety levels.

The research results were analyzed bivariately using the Spearman's rho correlation statistical test, which yielded a p-value of  $0.014 < \alpha = 0.05$  and a correlation coefficient (r) of -0.240. This indicates that there is a weak negative relationship between knowledge about menstruation and anxiety about menstruation.

Most of the respondents in this study were 10 years old (57.1%). The ages of 7-11 or 12 are considered early adolescence. Children of this age are undergoing education at the elementary school level. At the age of 9-12 years, elementary school children have undergone growth and development that is beginning to be visible, for example, in girls, secondary development appears where breast curves begin to appear and some have experienced menarche (menstruation) for the first time (Nurlaeli et al., 2021). According to the Indonesian Ministry of Health (2018), the average age of menarche is 12-14 years. At this age range, elementary school children have undergone noticeable growth and development, for

example, girls ( ) experience secondary development where breast growth begins to appear and some have already experienced menarche (first menstruation).

Based on the results of this study, it shows that most of the respondents, namely 85 students (81.7%), have sufficient knowledge about menstruation, such as the definition of menstruation, the occurrence of menstruation, changes that occur during menstruation, care during menstruation, and menarche as part of menstruation. The results of this study are in line with the theory expressed by Suyanti et al., 2022, which states that the factors that influence a person's level of knowledge are information, environment, and socio-culture. Information is an important function to help reduce anxiety (Suyanti et al., 2022).

In addition, the results of this study are also in line with the research journal conducted by (Nurravni et al., 2021) that knowledge is the result of information management carried out by the five senses, most of which are the results of sight and hearing in the learning process, both formal (educational institutions) and non-formal (family, environment, social media, etc.). Adolescents who have knowledge about reproductive health will be prepared to face menarche because they understand that early menstruation experienced by girls during puberty is normal (Saraha, 2016). Factors that influence students' level of knowledge include education level, information, experience, culture, and socioeconomic status. Information greatly influences an individual's knowledge; when individuals obtain more information, their knowledge becomes broader. Knowledge is obtained from the internet, magazines, and health books (Ivanna & Suwardi, 2022).

Based on the results of this study, it was found that 64 respondents (61%) had moderate anxiety levels in facing menstruation, while 41 respondents (39%) had severe anxiety levels. This occurs because when adolescent girls experience menstruation for the first time, preparation is needed both physically and mentally. This readiness indicates that they are ready to enter adulthood. This readiness is influenced by various factors, such as how much knowledge they have about menstruation, their age, how they view themselves, their attitudes, and the support they receive from those around them (Nora, 2020). If a girl is not given a clear explanation about menstruation, she may feel anxious, afraid, or restricted because of it. She may also become more irritable, restless, and experience insomnia (Putri, 2023).

Anxiety has a range of responses, namely mild anxiety, moderate anxiety, severe anxiety, and panic. Female students experience mild anxiety because they already know and understand well about menarche (Adiwinoto et al., 2025). Thus, they are more prepared and feel anxious or worried when menarche occurs (Utari, 2016; Mendle et al., 2025; Yolcu & Baskaya, 2026). Mild anxiety is related to tension in daily life. At this level, a person is more alert and their perception increases, such as seeing, hearing, and gripping movements become stronger. This level can motivate learning and improve a student's development (Suarni, 2020; Rahmi et al., 2025; Rashed et al., 2025). Moderate anxiety causes symptoms such as increased fatigue, rapid heartbeat, rapid speech, narrowed perception, the ability to learn but not optimally, decreased concentration, selective attention and focus on stimuli that do not increase anxiety, shortness of breath, dry mouth, anorexia, and restlessness. At a moderate level of anxiety, female students tend to feel afraid to talk about their menarche, become easily irritated when discussing menarche, feel less confident during menarche, experience a pounding heart, headaches when thinking about menarche, and have nightmares when thinking about menarche (Retnaningsih et al., 2018). Female students who experience severe anxiety always feel fear and are reinforced by the desire to reject the physiological process. Sometimes at that time, they also blame their mothers for giving birth to them as women in a sinful condition that must be redeemed with a monthly menstrual cycle. Then, feelings of guilt and sin arise, as well as unrealistic fantasies about the process of menarche. They then consider the event of menarche as a disaster or as a process of atoning for sins (Nurwiliani & Erlinda, 2022).

Based on the research findings, there is a relationship between menstrual knowledge and the level of anxiety about menstruation among elementary school students in Genteng District, Surabaya. Based on the data, a correlation coefficient of -0.240 with a p-value < 0.014 ( $p < 0.05$ ) was obtained. It can be concluded that there is a significant relationship between knowledge about menstruation and the level of anxiety about menstruation with a weak correlation strength. This means that the better a person's knowledge about menstruation, the lower the level of anxiety tends to be (negative correlation). The results of this study are in line with Nora's (2020) research, which revealed that the chi-square statistical

test yielded  $p=0.003$  ( $p<0.005$ ), meaning that there is a significant relationship between knowledge and anxiety levels regarding menarche among female students at SDN 02 Lubuk Buaya Padang in 2017.

Lack of knowledge about menstruation is one of the causes of anxiety disorders in adolescent girls because not all adolescent girls know about menstruation and how to deal with it (Bahrami et al., 2025; Arslan et al., 2025; Niroula et al., 2025). The anxiety experienced by female students in facing menstruation is a process of self-reaction to an event, due to the students' lack of knowledge about the changes that occur when they face menarche, so that they feel embarrassed because of the physical changes in their bodies.

Based on the results of the study, it can be seen that 7 (6.7%) students have good knowledge about menstruation. However, from this category, it is known that 2 respondents experience severe anxiety (71.4%). Based on this data, it can be seen that even though the level of knowledge about menstruation in this group is in the sufficient category, the majority of female students still experience significant anxiety, even though it is not at a severe level. This indicates that sufficient knowledge about menstruation is not always directly proportional to low anxiety levels. Other factors, such as lack of personal experience, lack of psychosocial support, or lack of in-depth understanding of the changes that occur during menarche, can affect the level of anxiety experienced by these students. Therefore, efforts to increase knowledge about menstruation alone are not enough ( ). A more comprehensive approach is needed, such as providing more in-depth education and creating a supportive environment, so that female students can face menarche with greater confidence and preparedness (Berliana et al., 2026; Hasan et al., 2025; Melian & Eliasa, 2025).

## Conclusion

Based on the results of the study, it can be seen that the level of knowledge of elementary school students in Genteng District about menarche is generally in the sufficient category, as indicated by the majority of respondents, namely 85 students or 81.0%. Meanwhile, it is known that most female students, namely 64 respondents (61%), have a moderate level of anxiety in facing menstruation. This shows that there is a significant relationship between the knowledge variable and the level of anxiety.

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