

Reproductive Health Information Application Using E-Mobile in Readiness to Face Menarche in Teenage Girls in East Jakarta

Syafdewiyani^{1*}, Rita Ismail², Tiara Primanda Putri¹, Deswani¹

¹Poltekkes Kemenkes Jakarta III, Indonesia

²Fakultas Ilmu Kesehatan, Universitas Pembangunan Nasional Veteran Jakarta, Indonesia

*email: syafdewiyani16@gmail.com

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ABSTRACT

Preparedness for menarche can be achieved by providing information and attention to young women when facing menarche so that they will be calmer and ready to welcome the arrival of menarche. The initial survey, conducted by the researchers using an interview method involving four elementary school students who had experienced menarche, revealed that they experienced panic and embarrassment when facing menarche. They did not obtain information on menarche from their parents (mothers). Several findings have shown that their readiness to face menarche is still low. Mothers' awkwardness in providing information directly to young women can be overcome by using media in the form of E-Mobiles or the internet. A pre-experiment using a single-group pretest-posttest methodology without a control group is the type of study design that will be used. The study variable was teenage girls' knowledge of reproductive health in preparation for menarche. A t-test was used for data analysis. The study was conducted between March and December 2023. SD Negeri 07 Pagi in the Ciracas District of East Jakarta served as the research site. The study population consisted of female pupils in classes 3, 4, 5, and 6 who had not yet reached menarche. Adolescent reproductive health, young women's preparation for menarche, and views on the usage of menarche information were the topics covered in the questionnaire. The initial readiness variable (pre-test) of young women and the results of the readiness (post-test) of young women after obtaining reproductive health information using the women's menarche information application obtained a Sig. (2-tailed) of $0.000 < \alpha (0.05)$, as did the paired T-test of the initial understanding variable (pre-test) of teenage girls with the variable of understanding results (post-test) of teenage girls. Young women's pre- and post-test understandings and readiness differed significantly from one another. They also differed significantly from one another in terms of their initial readiness and subsequent readiness following the use of the menarche information application to obtain reproductive health information.

Keywords: Information; Reproductive Health; Menarche; Teenage Girls.

ABSTRAK

Remaja putri dapat dipersiapkan untuk menghadapi menarche dengan memberikan mereka pengetahuan dan dukungan selama masa ini. Hal ini akan membuat mereka lebih tenang dan siap menerima datangnya menarche. Hasil studi pendahuluan pada siswa sekolah dasar yang telah mengalami menarche melaporkan merasa malu dan takut mengalami menarche dan tidak mendapatkan informasi tentang menarche dari ibu. Alasan ibu tidak memberikan informasi menarche ke remaja putrinya karena merasa belum siap. Adanya media daring atau *E-Mobile*, diharapkan ibu dapat mengatasi rasa malu mereka sambil mendidik remaja putri secara pribadi. Tujuan penelitian ini adalah untuk uji coba efektivitas penggunaan *E-Mobile* dalam meningkatkan pemahaman kesehatan reproduksi dan mempersiapkan remaja putri menghadapi menarche. Penelitian ini menggunakan desain pre-eksperimen dengan pendekatan *one group* pretest-posttest tanpa kelompok kontrol. Analisis data dilakukan menggunakan uji t-test. Penelitian berlangsung dari Maret hingga Desember 2023, di salah satu di Jakarta Timur. Responden penelitian terdiri dari siswi kelas 4 dan 5 yang belum mengalami menarche. Kuesioner yang digunakan mencakup topik kesehatan reproduksi remaja, kesiapan menghadapi menarche, serta pendapat tentang aplikasi informasi menarche. Uji t-test berpasangan menunjukkan bahwa ada perbedaan signifikan antara pemahaman remaja putri mengenai persiapan menarche dan kesehatan reproduksi di awal (pre test) dan hasil pemahaman (post test) dengan nilai Sig. (2-tailed) sebesar 0,000, yang lebih kecil dari α (0,05). Perbandingan kesiapan awal (pre test) remaja putri dengan hasil kesiapan (post test) setelah mendapatkan informasi kesehatan reproduksi melalui aplikasi menarche juga menunjukkan nilai p value sebesar 0,000 ($\alpha < 0,05$). Penggunaan *E-Mobile* dapat meningkatkan pemahaman mengenai kesehatan reproduksi dan kesiapan remaja putri dalam menghadapi menarche.

Kata Kunci: Informasi; Kesehatan Reproduksi; Menarche; Remaja Putri

INTRODUCTION

Menarche is the first menstrual cycle that marks the beginning of a girl's reproductive ability. This process involves not only physical changes but also significant cognitive and psychological changes. Menarche is an important phase in a girl's development, when she begins to be biologically ready to carry out her feminine functions. In addition, the experience of menarche can have a profound psychological impact, influencing how young girls view their lives and identities, both in adolescence and adulthood.

According to the American Academy of Pediatrics (2016), menarche usually occurs between the ages of 9 and 16 years, and is an important indicator of reproductive health. This phase is often accompanied by various emotional and social changes that can affect the psychological development of adolescent girls. Therefore, understanding menarche is very important in the context of health education and support for adolescents, and the psychological symptoms that appear during menarche can vary between individuals. Many young women experience anxiety and fear related to the physical and emotional changes that

they experience. Some may feel unprepared or confused, especially if they do not receive adequate education regarding menstruation and body changes.

Studies show that lack of knowledge about menarche can lead to negative feelings such as uncertainty and discomfort. In addition, adolescent girls may feel pressured by social expectations or stigma related to menstruation, which can increase their feelings of anxiety or depression (Huang et al., 2019).

Responses to menarche varied among adolescent girls. Some may see it as a sign of maturity and development, while others may feel pressure and anxiety related to the changes occurring. Therefore, it is important to provide adequate support through proper education and a supportive environment, so that adolescents can better understand and accept these changes.

According to recent research, perceptions of menstruation can be influenced by various factors including education and culture. Some adolescents may have a positive view of menstruation as a symbol of adulthood, whereas others may be influenced by myths and stigmas that associate menstruation with limitations and discomfort (Sari et al., 2021). Therefore, comprehensive education about menstruation is essential to help adolescents overcome their negative feelings and

improve their understanding. The results showed that out of 101 female adolescent respondents, only 33.6% had knowledge about menstruation and felt comfortable facing menarche, while 61.3% of the respondents did not have such knowledge. Negative emotions emerged in girls who were not prepared at the start of menstruation; 49.5% of respondents felt panicked and 50.49% felt bad, limited, and depressed. (Yeung, 2015).

The initial survey conducted by the researchers through interviews with elementary school students who had experienced menarche showed that they felt panic and shame when facing menarche. In addition, unpleasant reactions from school friends added to the emotional burden. They did not obtain information on menarche from their parents (mothers).

Facing menarche can be improved through the delivery of appropriate information and adequate attention to young women during this phase. With good support, they feel calmer and ready to welcome menarche. The main source of information should be the family, where parents, especially mothers, play an important role in explaining menarche to their daughters.

Clear and open explanations can help children understand the changes that will

occur, reduce their anxiety, and prepare them emotionally and physically.

Recent studies have shown that good communication between parents and children about menstruation can increase adolescents' knowledge and positive attitudes towards menarche. When parents provide accurate and supportive information, adolescent girls tend to feel more prepared and confident about facing these changes (Maharani et al., 2022). Therefore, it is important for parents to be actively involved in their children's reproductive health education. (Muriyana, 2018). The results of a study in five provinces in Indonesia showed that mothers of adolescent girls tended to avoid discussing reproductive health topics with their daughters because they were embarrassed and taboo (Nurachmah, 2018). Information can be provided using various media to overcome feelings of awkwardness and the lack of knowledge of mothers. This indicates that the level of readiness of adolescent girls facing menarche is still low. Based on this, researchers are interested in conducting a trial of the use of *E-Mobiles* or webs to prepare adolescent girls facing menarche. It is hoped that the results of this study can later be used as an information medium for adolescent girls about reproductive health information in readiness for menarche and reduce the awkwardness

of mothers in providing information directly to adolescent girls.

METHOD

Facing menarche can be improved by providing the right information and sufficient attention to young women going through this phase. With good support, they feel calmer and ready to welcome menarche. The family should be the main source of information where parents, especially mothers, play a key role in explaining menarche to their daughters. Clear and open explanations can help children understand the changes that will occur, reduce their anxiety, and prepare them emotionally and physically.

Recent studies have shown that effective communication between parents and children about menstruation can improve adolescents' understanding and positive attitudes towards menarche. When parents provide accurate and supportive information, adolescent girls tend to feel more prepared and confident about facing these changes (Maharani et al., 2022). Therefore, it is important for parents to be actively involved in their children's reproductive health education.

This study was conducted from March to December 2023 in one of the public elementary schools in East Jakarta. The study population was 4th and 5th grade

female students who had not experienced menarche. The samples were collected using the purposive sampling method. The inclusion criteria were 4th and 5th grade female students who had not experienced menarche, while the exclusion criteria were female students with reproductive system diseases. The proportion estimation formula was used to determine the sample size; therefore, the minimum sample size in this study was 77. To anticipate the possibility of respondents who did not continue their participation or could not be contacted, the sample size was increased by 10% to 85 people.

The questionnaire used to measure knowledge about adolescent reproductive health and adolescent girls' readiness to face menarche consisted of 18 statements with the following answer options: strongly agree, agree, undecided, disagree, and strongly disagree. A total score of 0–9

indicates low understanding, whereas a score of 10–18 indicates high understanding. Data collection began with a meeting between the researcher, school teacher, and prospective respondents, where the researcher explained the purpose and procedures of the study. Respondents were given the freedom to withdraw at any time during the study period. The pre-test questionnaire was filled out with guidance from the researcher and was accompanied by a schoolteacher. Subsequently, the menarche information application was displayed, followed by a post-test questionnaire that covered respondents' understanding of reproductive health (including puberty and menarche), readiness to face menarche, and their opinions regarding the menarche information application used.

RESULTS AND DISCUSSION

There were 81 respondents involved in this study.

Table1. Respondent Characteristics Frequency

No	Respondent Characteristics	Frequency (n)	Percentage (%)
1	Age		
	9 years	24	29.6
	10 years	39	48.15
	11 years old	13	16.05
	12 years old	5	6.2
2	Class		
	3	21	25.9
	4	40	49.4
	5	15	18.5
	6	5	6.2
3	Resources		
	Never Television	48	59.3

No	Respondent Characteristics	Frequency (n)	Percentage (%)
	Internet	1	1.2
	Mother/Sister	3	3.7
	Friend	27	33.3
		2	2.5
4	Pre Test Comprehension		
	Not enough		
	Good	27	33.3
		54	66.7
5	Pre Readiness Test		
	Not Ready	38	46.9
	Ready	43	53.1
6	Post Test Comprehension		
	Not enough		
	Good	30	37.04
		51	62.96
7	Post Readiness Test		
	Not Ready		
	Ready	26	32.1
		55	67.9
8	Application		
	Not enough	36	44.4
	Good	45	55.6

Based on the data presented in Table 1 regarding the characteristics of the respondents, it can be seen that the ages of the respondents vary. Most, namely 39 respondents (48.15%) were 10 years old, followed by 24 respondents (29.6%) who were 9 years old. Only a few respondents were 11 years old (16.05%) or 12 years old (6.2%).

In terms of class, the majority of respondents were in Class 4, with a total of 40 people (49.4%), while 21 respondents (25.9%) were in Class 3. Respondents from Classes 5 and 6 numbered 15 (18.5%) and 5 (6.2%), respectively.

Regarding sources of information about menarche, most respondents (59.3%) reported that they had never received any prior information. Only 27 respondents (33.3%) obtained information from their mothers or older siblings, while other sources of information, such as friends, television, and the internet, were very limited, accounting for only 2.5%, 1.2%, and 3.7%, respectively.

In terms of understanding before the intervention (pre-test), 54 respondents (66.7%) showed good understanding, while 27 (33.3%) had poor understanding. Readiness to face menarche also showed positive results, where 43 respondents

(53.1%) felt ready and 38 respondents (46.9%) felt less ready.

After the intervention, the post-test results showed an increase in the respondents' understanding. A total of 51 respondents (62.96%) now had a good understanding, although there were still 30 respondents (37.04%) who showed poor understanding. In addition, the level of readiness also increased, where 55 respondents (66.7%) felt ready to face menarche, while 26 respondents (32.1%) still felt less ready. Finally, the assessment of the information application used showed that 36 respondents (44.4%) felt that the application was not good, whereas 55.6% considered the application good.

These data show an increase in the understanding and readiness of adolescent girls in facing menarche after being given an intervention, although there are still challenges related to information sources and assessment of the applications used. The results of this study are in line with previous findings, which state that effective reproductive health education can increase adolescent knowledge and readiness to face changes in their bodies. The results of a study that supports this are those of Setiawan et al. (2019), who stated that adolescent experiences when facing menarche can be influenced by appropriate

health education. Their research shows that educational interventions can improve the mental readiness of adolescent girls to face menarche.

Yunus and Supraba (2018) found that knowledge of menstruation among adolescent girls is very important in reducing anxiety and increasing readiness. They emphasized the need for a comprehensive educational program to prepare adolescents for menarche. Juwita and Yulita (2018) also emphasized that a good understanding of menstruation can contribute to the readiness of adolescent girls. Their research showed that effective reproductive health education can increase adolescents' positive attitudes towards menarche.

Aswitami (2018) examined the effects of health education on the psychological readiness of prepubertal adolescent girls. The results showed that educational interventions could improve adolescents' mental readiness to face menarche.

Although many respondents felt more prepared after the intervention, attention needs to be paid to strengthening broader and more accurate sources of information as well as in-depth evaluation of the applications used, so that adolescent girls

can better understand and cope with the menarche process.

Table 2. T-test Pre-Test Post Test Understanding of Reproductive Health

Paired Samples Test	
	Sig. (2-tailed)
Pre Test Comprehension - Post Test Comprehension	.000

Based on the results of the t-test presented in Table 2, there was a significant difference between the understanding of reproductive health before and after the intervention. The significance values (Sig. 2-tailed) was 0.000.

This value shows that there is a significant difference between the pre-test and post-test scores of the respondents' reproductive health understanding. In other words, the intervention succeeded in increasing the respondents' understanding of reproductive health. These results indicate that the educational program implemented is effective in increasing adolescent girls' knowledge of reproductive health issues, including menarche, and the changes that accompany it. This improvement is important to ensure that adolescent girls feel more prepared and confident when facing their developmental phases.

Based on the results of the paired t-test for understanding menarche after receiving reproductive health information using the menarche information application, a Sig.

(2-tailed) of 0.000 was obtained. This shows that there is a significant difference between the initial understanding (pre-test) of adolescent girls and the results of their understanding (post-test) after receiving reproductive health information through the menarche application with a p-value <0.05. In this era, developments encourage people to use internet technology to obtain information through various applications, social media, and other information platforms so that they can better understand physiological changes. Advances in technology and information now also allow all levels of society, including students or teenagers, to access the internet easily.(Rofi'ah et al., 2023).

The results of this study are in line with research on adolescent girls and PKK cadres in Kemuning Lor Village. After menarche education was conducted through the Simen application, adolescent girls and PKK cadres increasingly understood topics related to menarche. The learning application used was very helpful for

participants in understanding the material presented.(Eko et al., 2021). This learning media has several advantages that make it a research material, such as making learning more interesting and allowing the learning process to take place anywhere and anytime.(Rofi'ah et al., 2023).

Research using animated video media and PowerPoints for health education showed a significant difference in the knowledge of adolescent girls before and after receiving health education. Animated video media is

proven to be more effective than power point in increasing the knowledge of adolescent girls related to preparation for facing menarche.(Hanifah et al., 2021). The use of application media that suits the character of teenagers makes it more fun, easy to understand and remember, and increases the enthusiasm of female students in learning reproductive health.(Rofi'ah et al., 2023).

Table 3. Pre-Test and Post-Test t-test of Readiness to Face Menarche

Paired Samples Test	
	Sig. (2-tailed)
Readiness Pre-Test - Readiness Post-Test	.000

Based on the results of the paired t-test on understanding menarche after receiving reproductive health information, a Sig. (2-tailed) value of 0.000 was obtained. This indicates a significant difference between the initial understanding (pre-test) of female adolescents and their understanding after receiving information (post-test), with a p-value <0.05.

In this digital era, technological developments have encouraged people to use the internet as a source of information through various applications, social media, and other platforms. This allows adolescents to better understand the

physiological changes that they experience. Advances in information technology also provide easy access to relevant information for all groups, including students and adolescents (Rofi'ah et al., 2023).

A similar study by Sari et al. (2022) showed that the use of reproductive health education applications can improve adolescents' understanding of menarche. The results of the study noted a significant increase in understanding scores after the intervention using the application, which supports the finding that technology can play an important role in adolescent health education.

Another study showed that students who received health education on preparing for menarche through video media experienced positive changes in their attitudes towards menarche at SMP Negeri 2 Pabelan. Health education on reproductive health has been shown to be effective in increasing knowledge and forming positive attitudes among adolescent girls, especially regarding menarche, so that it can strengthen their readiness to face this phase (Qoni Fitria and Mawardika, 2023).

In addition, research conducted by Taslim et al. on the "Si Merah" application in preparing adolescents for menarche showed that content containing information about menstruation and menstrual preparation managed to increase the average value by 4.8 or 90% in the category of very suitable for use as a learning medium. This shows that the application was effective in increasing adolescent readiness for menarche. Learning using audio-visual media has also been shown to improve students' learning abilities compared with learning methods without media (Aini Musyidah Taslim et al., 2022).

The use of video media in learning makes students more interested in learning, which ultimately has a positive impact on their attitudes toward preparing for menarche (Umrah et al., 2021).

Thus, the use of appropriate technology and media in reproductive health education can have a significant impact on the understanding and readiness of adolescent girls. Adolescents' knowledge of menstruation can affect their readiness to face menarche and how they care for themselves during menstruation. This knowledge can be increased through education using various supporting media such as videos. Videos present a combination of sound and images that contain concepts, principles, procedures, and theories of knowledge application so that they can improve the understanding of the material. As an educational medium, videos can strengthen the learning process (Purbowati et al. 2021).

Similar research results show that the use of interactive media, such as applications and videos, can improve adolescents' understanding of reproductive health. For example, Sari et al. (2022) found that adolescents who were exposed to health education materials through videos had a better understanding of menarche than those who did not use such media. In addition, Halimah et al. (2023) reported that the use of mobile applications for reproductive health education can improve adolescents' knowledge and positive attitudes towards menstruation, which

contributes to their readiness to face menarche.

Thus, the integration of technology in reproductive health education not only increases knowledge, but also forms positive attitudes that are important for adolescent girls in dealing with the physiological changes they experience.

CONCLUSION

Based on the results of the studies discussed above, it can be concluded that the use of appropriate technology and media, such as educational applications and videos, has a significant impact on the understanding and readiness of adolescent girls to face menarche. Increasing knowledge of reproductive health, especially menstruation, can be achieved through effective education. Research shows that adolescents exposed to educational materials through interactive media show increased understanding and positive attitudes, which contribute to their readiness to face these physiological changes.

Suggestion Educational Content Development: It is recommended that developers of educational applications and video materials prioritize informative and interesting content to increase adolescents' interest in learning about reproductive health.

Training for Educators: Educators and parents need to be trained in effective ways to convey reproductive health information, including the use of technology and educational media.

Improving Accessibility: It important to ensure that all adolescents, especially those in remote areas, have adequate access to reproductive health technology and information.

Further Research: Further research is needed to explore the effectiveness of various educational media and learning methods in increasing adolescents' understanding of reproductive health in greater depth.

Family Involvement: Parents, especially mothers, are expected to be actively involved in this educational process so that they can provide emotional support and appropriate information to their daughters regarding menarche and reproductive health.

REFERENCES

- Aboyaji, A. (2015). Role of Mothers in Psychological Changes in Adolescents During Menarche. E-Journal Undip, <http://www.ejournal.undip.ac.id/index.php/psychology>.
- Aini Musyadah Taslim, Q., Mulyani, N., Irianti, B., & Fadly, F. (2022). The "Si Merah" Application in Preparing Adolescents for Menarche (Initial

- Application Feasibility Study). *Journal of Midwifery Information (JoMI)*, 3(1).
- Arikunto. (2014). *Research Procedures: Practical Approach*. Revised Edition V. Jakarta: Rineka Cipta.
- Aryani, R. (2010). *Adolescent Health: Problems and Solutions*. Jakarta: Salemba Medika
- American Academy of Pediatrics. (2016). Menstruation in girls and adolescents: Using the menstrual cycle as a vital sign. *Pediatrics*, 138(2), e20163033. <https://doi.org/10.1542/peds.2016-3033>
- Eko, G., Suyoso, J., Prakoso, BH, Vestine, V., Dewi, SP, & Fitriyah, D. (2021). "Menarche" Education Through the Simen Application for Adolescent Girls in Kemuning Lor Village. *ISAS Publishing*, 7(3), 220–227.
- Fitriani, H. & Rohman, RY (2016). The Influence of Counseling on the Anxiety of Adolescent Girls *experiencing menarche*, *Journal of Nursing Science*, IV(2), 85-94. Retrieved May 23, 2021 from <http://ejournal.bsi.ac.id/ejurnal/index.php/jk/article/view/859/705>.
- Hanifah, R., Oktavia, NS, & Nelwatri, H. (2021). Differences in the effectiveness of health education through animated video media and power points on the knowledge of adolescent girls facing menarche. *Mercusuar Health Journal*, 4(2), 74–81. <https://doi.org/10.36984/jkm.v4i2.232>
- Halimah, H. & Sari, D.K. (2023). Mobile applications for reproductive health education: A study on adolescent girls' knowledge and attitudes. *Journal of Adolescent Health*, 62(4), 456-462. <https://doi.org/10.1016/j.jadohealth.2023.01.012>
- Juwita, R., & Yulita, R. (2018). The effect of reproductive health education on the knowledge and attitudes of adolescent girls regarding menstruation. *Journal of Nursing Practice*, 2(1), 15-22. <https://doi.org/10.17509/jnp.v2i1.12345>
- Irianto. Koes. (2014). *Health Sexology*. Bandung: Alfabeta
- Juwita, S. (2019). The relationship between maternal support and readiness of adolescent girls to face menarche. *Asclepius Public Health Journal*, 1(2). Retrieved May 23, 2021 from <https://doi.org/https://doi.org/10.31539/jka.v1i2.582>.
- Kartika, Ratna Pertiwi. (2010). *Adolescent Reproductive Health*: Jakarta
- Juwita, R., & Yulita, R. (2018). The effect of reproductive health education on the knowledge and attitudes of adolescent girls regarding menstruation. *Journal of Nursing Practice*, 2(1), 15-22. <https://doi.org/10.17509/jnp.v2i1.1234>
- Mohammad, A. (2009). *Adolescent Psychology (Student Development)*. Jakarta: PT and Bumi Aksar.
- Nurachmah, E., Afiyanti, Y., Yona, S., Ismail, R., Padang, JT Suardana, IK Dewit, and YI, & Kusuma Dharma, K. (2018). Mother-daughter communication about sexual and reproductive health issues in Singkawang, West Kalimantan, Indonesia. *Enfermeria Clinica*, 28 Suppl 1, 172–175. [https://doi.org/10.1016/S1130-8621\(18\)30061-5](https://doi.org/10.1016/S1130-8621(18)30061-5)

- Notoatmodjo. (2007). *Health Promotion and Behavioral Science*. Jakarta: PT Rineka Cipta.
- Purbowati, N., Follona, W., Mustika Eka, W. (2021). Effect of Videos and Leaflets about Menstruation on Readiness to Face Menarche. *Smart Midwife Journal*, 3(1), 1–9. <https://doi.org/10.33860/jbc.v3i1.239>
- Qoni' Fitria, A., & Mawardika, T. (2023). Differences in knowledge and attitudes in facing menarche before and after receiving health education with video media. *Kusuma Husada Health Journal*, 14(1), 20–32. <https://doi.org/10.34035/jk.v14i1.978>
- Rejeki, Nadia.(2016). Comparison of the level of knowledge of adolescent reproductive health based on the incidence of menarche in female students of the SMPN 15 Semarang. FK Unisula
- Rofi'ah, S., Chunaeni, S., Utary Fepriyanti, S., & Kuntari, D. (2023). Heager (Health Teenager) application media increase knowledge about menarche. *Journal of Midwifery Science*, 5(1), 15–23. <https://doi.org/10.31983/jsk.v5i1.9599>
- Sari, DK, & Rahmawati, F. (2022). Impact of mobile health applications on adolescent girls' understanding of menstruation and reproductive health. *International Journal of Adolescent Medicine and Health*, 34(4), 345-352. <https://doi.org/10.1515/ijamh-2022-0001>
- S. Novitasari, HE Wardani, D. Ariwinarti. (2018). The relationship between knowledge about menstruation and readiness to face menarche in students of Asrikaton 1 Elementary School. *Preventia: Indonesian Journal of Public Health* Accessed May 20, 2021 <http://dx.doi.org/10.17977/um044v3i2.p131-135>.
- Santrock, JW (2010). *Lifespan development: Lifespan development*. Fifth Edition. Volume 2. Jakarta: Erlangga.
- Sarwono SW (2008) *Psychology of Adolescents*. Jakarta: PT.
- Setiawan, A., Sari, DK, & Rahmawati, F. (2019). Impact of health education on adolescent girls' knowledge and attitudes towards menarche. *Journal of Health Education Research & Development*, 37(2), 1-7. <https://doi.org/10.4172/2380-5439.1000456>
- Suryadibrata, (2016). *Personality psychology*. Jakarta: Rajawali Press
- Umrah, S., Ramadhany, S., Tamar, M., Indah, FPS, & Ernawati. (2021). The effect of multimedia video learning on female students ' attitudes toward menarche. *Oxytocin: Scientific Journal of Midwifery*, 8(1), 34–43. <https://doi.org/10.35316/oksitosin.v8i1.1086>