

The Relationship Between Level Of Knowledge And Personal Hygiene During Mestruation Among Students Of Class VII MTSN 6 Padang City

Ulfa Hulkarimah

Medical Doctor Study Program, Faculty of Medicine, Andalas University, Padang City

Email: ulfahulkarimah@gmail.com

Rosfita Rasyid

Department of Public Health, Faculty of Medicine, Andalas University, Padang City

Email: rosfitarasyid135@gmail.com

Muhammad Syauqi

Department of Ophtalmology, Faculty of Medicine, Andalas University, Padang City

Email: syauqiealmaidani@gmail.com

Corresponding author: ulfahulkarimah@gmail.com*

Abstract. Adolescent girls who have experienced menstruation need to know how to maintain their reproductive health. If someone has poor knowledge about personal hygiene during menstruation, it can increase the risk of getting Reproductive Tract Infections (ISR). This study aimed to assess the correlation between the level of knowledge with personal hygiene practice during menstruation among female student grade VII of MTsN 6 Padang. This study is an observational analytic study with a cross-sectional design was at MTsN 6 Padang in February - March 2022. The sample in this study were girl students grade VII of MTsN 6 Padang who had experienced menstruation as many as 68 respondents. Data were obtained from questionnaires distributed to respondents. The results of this study regarding the level of knowledge showed that respondents had a good level of knowledge (48,5%) and good personal hygiene practice during menstruation (54,4%). The results of the bivariate analysis of the correlation between the level of knowledge with personal hygiene practice during menstruation obtained p value = 0.000 ($p < 0.05$). The conclusion of this study is that there is a correlation between the level of knowledge with personal hygiene practice during menstruation among female student grade VII MTsN 6 Padang.

Keywords: Adolescent girls, The Level of Knowledge, Personal Hygiene Practice During Menstruation.

INTRODUCTION

Adolescence is a stage of life that begins with the appearance of secondary sex characteristics and ends with physical growth starting from the age between 11 - 19 years (Dorland, 2015). In adolescent girls the most prominent change is the onset of menstruation. Menstruation is uterine bleeding that occurs periodically accompanied by the release of the uterine wall (endometrium). On average, adolescent girls experience their first menstruation (menarche) at the age of 13 years and perimenarche at the age of 11 - 15 years (Prawirohardjo, 2018). After getting menstruation, adolescent girls should know how to maintain their reproductive health. One of the efforts that can be done is to maintain personal hygiene, especially during menstruation. Personal hygiene is an activity to maintain one's health and cleanliness for physical and psychological well-being (Tarwoto, 2015). While personal hygiene during menstruation is an effort to maintain overall body hygiene and reproductive organs

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* Ulfa Hulkarimah, ulfahulkarimah@gmail.com

including cleanliness of clothing during menstruation (Prayitno, 2014). Knowledge of personal hygiene during menstruation is closely related to reproductive health. If a person has a lack of knowledge about personal hygiene during menstruation, it can increase the risk of reproductive tract infection (UTI) (Habtegiorgis, 2021). In addition to UTI, diseases that may arise are urinary tract infections (UTI), pelvic inflammatory disease (PRP), and the worst possibility can cause cervical cancer which is the number one cause of death in women. According to WHO, adolescent girls in various countries aged 10-14 years have problems with their reproductive health. Based on WHO data in 2012, the incidence of reproductive tract infections in adolescents aged 10-18 years is 35% to 42%. The prevalence of reproductive tract infections for candidiasis is 25% - 50%, bacterial vaginosis is 20 - 40%, and trichomoniasis is 5 - 15% (WHO, 2012). Personal hygiene actions during menstruation depend on the awareness and knowledge of adolescent girls about it. This is something that must be considered from health education for adolescents because increasing adolescents' initial knowledge about hygiene during menstruation can have an impact on their actions (Vidya, 2019). However, in the community this is still a taboo subject to be discussed. According to data from the 2016 Indonesian Adolescent Reproductive Health Survey (SKRRI), nationally, only 21.3% of adolescents have proper personal hygiene during menstruation. Meanwhile, in West Sumatra Province, only 30% of adolescents have a good level of knowledge about reproductive health (BKKBN, 2016). Based on the 2017 Indonesian Health Demographic Survey (IDHS), the actions of adolescent girls in maintaining personal hygiene during menstruation are still poor, namely 63.9% of adolescent girls in Indonesia have improper personal hygiene during menstruation (BKKBN, 2017). In Padang City itself, there is no special program on reproductive health education targeted at school students, so there is no exact data from the Padang City Health Office regarding the condition of adolescent girls' reproductive health and data on the prevalence of ISR incidence in school students is also limited (Khatib, 2019). Research conducted by Tantry et al (2019) at JHS 13 Bandung showed that out of 188 respondents 30.9% of respondents had good knowledge while 69.1% of other respondents had good knowledge.

The results of research conducted by Pemiliana et al (2018) in Medan showed that respondents who did not perform proper personal hygiene were 60.0% of respondents. While respondents who performed the correct personal hygiene actions were 40.0% of respondents (Pemiliana, 2018). Research conducted by Khatib et al (2018) at JHS 1 and JHS 23 Padang found that at JHS 1 the majority of students had a moderate level of knowledge about personal hygiene during menstruation, namely 85 respondents with 17.6% of them experiencing

symptoms of ISR. Meanwhile, at JHS 23, the average student also had a moderate level of knowledge, namely 80 students and 35% of them had experienced symptoms of ISR (Khatib, 2019). The results of research conducted by Febria (2020) at MTSN Koto Tengah Padang City found that out of 78 respondents 52.6% had low knowledge about personal hygiene during menstruation and 97.6% of them experienced vaginal discharge (Febria, 2020). Madrasah Tsanawiyah Negeri (MTsN) 6 Padang City is a junior high school that has the largest number of students in Padang City. This data was obtained from the Principal Islamic Education Data Information of the Directorate General of Islamic Education, Ministry of Religion of the Republic of Indonesia and the Padang City Education Office in 2021 and it was found that the largest number of junior high school/MTs students were in MTsN 6 Padang City, namely 1196 students with 690 female students. Based on preliminary studies conducted at MTsN 6 Padang City on 10 female students who were interviewed, it was found that 50% of female students knew about personal hygiene during menstruation and only 20% applied it, 80% of female students did not know when to change sanitary napkins during menstruation, on average, female students answered that they changed sanitary napkins when they were full, 60% of female students knew how to clean their genitals, namely from front to back, all female students had experienced vaginal discharge and 70% of them had experienced itching in their vagina. Based on the description above, the researcher is interested in conducting research on "The Relationship between Knowledge Level and Personal Hygiene Actions during Menstruation in Class VII Students of MTSN 6 Padang City".

LITERATURE REVIEW

According to WHO (2020) adolescents are a group of individuals with an age range of 10 - 19 years (Dorland, 2015). Regulation of the Minister of Health of the Republic of Indonesia Number 25 of 2014 defines adolescents as the population in the age range of 10 - 18 years.

Menstruation is defined as a physiological and cyclic condition in the form of secretions consisting of blood and mucosal tissue from the non-gravid uterus through the vagina. Menstruation is controlled by hormones and in normal situations, will occur repeatedly at intervals of about four weeks throughout the productive period except during pregnancy. The menstrual process involves two cycles, namely the cycle in the endometrium and the cycle in the ovaries which both occur simultaneously. The cycle in the endometrium consists of 3 phases, namely the menstrual phase, proliferative phase, and secretory phase. While the cycle

in the ovary consists of the follicular phase, ovulation phase, and luteal phase. (Sanchez et al., 2015).

Personal hygiene during menstruation is defined as a person's actions in maintaining the cleanliness of the whole body and female organs during menstruation (Rosyida, 2019). Personal hygiene during menstruation involves the cleanliness of the whole body (face, skin, body, female area) including cleanliness of clothing, changing pads to access to adequate disposal including access to toilets, availability of clean water, and soap to clean menstrual blood. Every woman needs comfort and privacy to maintain body hygiene, especially the hygiene of her feminine area. Maintaining feminine hygiene during menstruation is very important because it can prevent women from urinary tract infections and reproductive tract infections (Sugih, 2019). During menstruation the body produces more oil and sweat, causing the body to feel less fresh. Therefore, a woman who is menstruating must still bathe and shampoo as usual (Rosyida, 2019).

Knowledge is the result of knowing and occurs after a person senses a certain object. Sensing occurs through the five senses that humans have, namely the senses of sight, hearing, smell, taste, and touch. Most human knowledge is obtained through the eyes and ears. Knowledge or cognitive is a very important domain in shaping a person's actions (overt behavior) (Notoatmodjo, 2012).

Action is defined as the manifestation of knowledge and attitudes into real actions.⁵¹ Action is one of the domains of behavior. Action is also defined as body movement after receiving a stimulus or adaptation from inside or outside the environment. A person's action for a certain stimulus will be largely determined by his feelings or beliefs about the stimulus (Notoatmodjo, 2014).

During menstruation, adolescent girls need to pay attention to personal hygiene actions. The personal hygiene action in question is an action to maintain body hygiene, especially female organs during menstruation. This aims to improve health status, maintain personal health, and prevent diseases that may arise as well as to increase self-confidence during menstruation (Tarwoto et al., 2015). A person's hygiene actions can be influenced by knowledge. A person with poor knowledge of menstrual hygiene will have an impact on personal hygiene actions. Wrong actions in maintaining the cleanliness and health of the female organs such as not washing hands before and after using pads, being lazy to change pads and using pads for more than 6 hours, washing the vagina with unclean water, and often using vaginal cleansers. These things can lead to the risk of infection and pathological vaginal discharge. In addition, the use of sanitary napkins for more than 6 hours can be a medium for

the growth of harmful microorganisms such as bacteria, fungi, and parasites. Such infections, if allowed to occur and persist, can lead to the risk of inflammation and can be at risk of infertilization (Haryono, 2016).

RESEARCH METHOD(S)

This type of research is an observational analytic study with a cross-sectional approach.¹⁵ This research was conducted at MTSN 6 Padang City in February - April 2022.

The population of this study were all seventh grade students of MTSN 6 Padang City, totaling 241 people. The sample of this study were seventh grade students of MTSN 6 Padang City who met the inclusion criteria and did not include exclusion criteria. The sample size in this study was determined using the Lameshow formula for observational analytic research with known population size criteria and obtained a total sample of 68 respondents.

Sampling in this study used probably sampling technique, in the form of simple random sampling, which is a sample taken randomly where each individual in the population has the same chance as a sample. This study uses univariate analysis and bivariate analysis. Bivariate analysis used the chi-square test and was declared meaningful if the p value was obtained <0.05 . This research has passed the ethical review obtained from the Research Ethics Commission of the Faculty of Medicine, Andalas University. The ethical review permit number for this research is No: 607/UN.16.2/KEP-FK/2022.

Findings

This research was conducted at MTsN 6 Padang City in February - March 2022. The population in this study were seventh grade students of MTsN 6 Padang City, totaling 241 people. The sample used in the study amounted to 68 seventh grade students who met the inclusion and exclusion criteria.

Table 1.	Respondent Characteristics	
Age	f	%
12 Years	23	33,8
13 Years	45	66,2
Total	68	100

Based on Table 1, it was found that most respondents were 13 years old.

An overview of the level of knowledge of personal hygiene in seventh grade students of MTsN 6 Padang City.

The level of knowledge of respondents regarding personal hygiene during menstruation is divided into 3 categories, namely: good, sufficient, less. As can be seen in the following table.

Table 2.	Frequency Distribution of Knowledge Level of Personal Hygiene During Menstruation in Class VII Students of MTsN 6 Padang City	
Knowledge Level	f	%
Good	33	48,5
Simply	18	26,5
Less	17	25
Total	68	100

Based on Table 2, it was found that respondents with a good level of knowledge had the largest percentage.

Overview of Personal Hygiene Actions during Menstruation in Class VII Students of MTsN 6 Padang City.

Personal hygiene actions during menstruation are divided into two categories, namely good and bad, with the interpretation of the good category if the score \geq mean (≥ 61.90) and bad if the score $<$ mean (< 61.90). As can be seen in the following table.

Table 3.	Frequency Distribution of Personal Hygiene Actions during Menstruation in Class VII Students of MTsN 6 Padang City.	
Personal Hygiene Measures	f	%
Good	37	54,4
Bad	31	45,6
Total	68	100

Based on table 5.4, it was found that more than half of the respondents already had good personal hygiene actions.

Relationship between Knowledge Level and Personal Hygiene Actions during Menstruation in Class VII Students of MTsN 6 Padang City.

Analysis of the relationship between the level of knowledge and personal hygiene actions during menstruation in seventh grade students of MTsN 6 Kota Padang can be seen in the following table.

Table 4.		Relationship Between Knowledge Level and Personal Hygiene Action During Menstruation in Class VII Students of MTsN 6 Padang City						
Knowledge Level	Personal Hygiene Action				Total		<i>p-value</i>	
	Good		Bad					
	f	%	f	%	f	%		
Good	30	90,9	3	9,1	33	100		
Enough	5	27,8	13	72,2	18	100	0,000	
Bad	2	11,8	15	88,2	17	100		
Total	37	54,4	31	45,6	68	100		

Table 4 shows that the percentage of respondents who have good personal hygiene actions is higher among respondents with a good level of knowledge. Meanwhile, respondents who have poor personal hygiene actions mostly also have a poor level of knowledge. Based on the results of the analysis using the chi-square test, the $p\text{-value} = 0.000$ ($p\text{-value} < 0.05$). The results of this analysis can be concluded that there is a significant relationship between the level of knowledge and personal hygiene actions during menstruation in seventh grade students of MTsN 6 Padang City.

DISCUSSION

Respondent Characteristics

This study was conducted on 68 seventh grade students of MTsN 6 Padang City who met the inclusion and exclusion criteria. Based on the results of the study, the characteristics of respondents based on age were more than half of the respondents (66.2%) were 13 years old, and respondents aged 12 years were 33.8%. This shows that most of the seventh grade students at MTsN 6 Padang City who have menstruated are 13 years old. These results are comparable to research conducted by Tantry et al (2019) at JHS 13 Bandung, where 52.7% of respondents studied were 13 years old.¹² Adolescents who have experienced menstruation should have knowledge about personal hygiene during menstruation so that in the future these adolescents have good personal hygiene actions during menstruation.

Overview of the Level of Knowledge of Personal Hygiene during Menstruation in Class VII Students of MTsN 6 Padang City.

In this study, the variable level of knowledge was divided into three categories, namely: good, sufficient and lacking. From the results of the research that has been done, it is found that almost half of the respondents, namely 48,5% of respondents, have a good level of knowledge, while respondents who have a sufficient level of knowledge are 26,5% and respondents who have a poor level of knowledge are found to be 25%. The results of this study are comparable to research conducted by Yanti et al (2020) at JHS 31 Padang which showed that as many as 59,6% of respondents had good knowledge, 32,7% had sufficient knowledge and 7,7% had good knowledge (WHO, 2020).

However, the results of this study are different from those obtained by Fauziah et al (2021) at MTs Pondok Pesantren Al-Amanah Al-Gontory Banten where the study showed that most respondents (84.7%) had a lack of knowledge. The difference in the results of this study is due to the lack of information sources received by respondents because in these schools the students have limitations in using electronic media and accessing the internet and the

information received by respondents from schools is also not effective.¹⁷ This is in accordance with the theory of Mubarak (2012) which states that the more sources of information a person has, the more knowledge he will have (US Departement of Health and Human Service, 2018).

Knowledge is defined as the result of knowing and occurs after a person senses a certain object and produces knowledge (American Psychological Association, 2002). Differences in the level of knowledge a person has can be influenced by several factors including: age, education, experience, information sources/mass media, social, cultural, economic and surrounding environment. These factors will affect how a person can receive and absorb information so that it will have an impact on the level of knowledge they have (Santrock, 2012).

Based on the analysis of questionnaire answers from 10 questions, there were still several questions that most respondents answered incorrectly. The question about what is included in personal hygiene during menstruation was the question that most respondents answered incorrectly. As many as 57.4% of respondents did not know what was included in personal hygiene during menstruation, some respondents answered that personal hygiene during menstruation only maintains body hygiene and female organs.

The question regarding the correct statement about personal hygiene during menstruation was also the question that was answered incorrectly by most respondents. 52.9% of respondents answered incorrectly, assuming that it is recommended to use feminine hygiene liquid or soap to clean the feminine area during menstruation. The next question that was answered incorrectly by many respondents was the question about how many times to change sanitary napkins during menstruation. Almost half of the respondents (42.6%) did not know how many times to change pads during menstruation, most respondents answered that they should change pads only when bathing or when the pads were full.

This can occur due to the lack of information received by respondents. Based on information from the school, there is no program related to reproductive health, especially regarding personal hygiene during menstruation, and the school also said that the local health agency or puskesmas has not specifically provided counseling or information about personal hygiene during menstruation to school students. Research conducted by Suryani (2019) at JHS 12 Pekanbaru from 82 respondents still found 39% of respondents had poor knowledge and 51.2% of them were due to respondents never getting information about personal hygiene during menstruation (Pinem, 2014).

In the context of social life, issues about personal hygiene during menstruation are also not discussed openly and most people even still consider this a taboo to talk about, so there are still many young women who are embarrassed or reluctant to ask and find out about this matter.

Overview of Personal Hygiene Actions during Menstruation in Class VII Students of MTsN 6 Padang City

In this study, personal hygiene during menstruation was divided into two categories, namely good and bad categories. The results of this study showed that of the 68 respondents studied 54.4% had good personal hygiene during menstruation while 45.6% of other respondents had poor personal hygiene during menstruation. Similar to the research conducted by Susanti & Lutfiyati (2020) at JHS 1 Gamping Sleman Yogyakarta, the results obtained from 62 respondents, as many as 61.3% had good personal hygiene during menstruation and respondents who had poor personal hygiene were 38.7% (Sanchez, 2015).

Action can be interpreted as a real response from a person to the stimulus given to him (Sherwood, 2018). Personal hygiene during menstruation is also defined as a person's action in maintaining the cleanliness of the whole body including the cleanliness of the face & skin, body, hair, genital organs and the cleanliness of daily clothing during menstruation. Differences in personal hygiene practices during menstruation among respondents can occur due to the influence of several factors including the level of knowledge, attitudes, sources of information, facilities and culture (Hall JE, 2016).

In this study, overall the respondents already had good personal hygiene actions, but based on the analysis of the questionnaire answers, it was found that there were still some respondents' actions that were not correct, namely as many as 45.6% of respondents answered sometimes for the statement to wash their face 3 times a day using special facial soap during menstruation and only 16.4% answered always, 32.4% of respondents answered that they never had a special towel or tissue to clean their private parts during menstruation, 38.2% of respondents answered that they never dried their private parts with tissue, 44.1% of respondents answered that they sometimes changed sanitary napkins 4-5 times a day, 36.8% answered that they sometimes changed underwear 2-3 times per day during menstruation and 38.2% answered that they always did not wash their hair during menstruation.

The respondents' improper personal hygiene actions during menstruation can be caused by several factors including the lack of adequate facilities and the respondents' improper habits. Based on the researcher's observations at the school, things such as tissue in each toilet and soap for washing hands are not available in all toilets. In addition, from interviews with several respondents, respondents also admitted that they were uncomfortable and lazy to change sanitary napkins during school because the water in the bathroom was sometimes not available. From the respondents' information, it was also known that most respondents were not accustomed to bringing tissue or small towels and spare sanitary napkins to school. Another

factor can be the culture that develops in the community regarding personal hygiene during menstruation. In this study, it was found that 38.2% of respondents always did not wash their hair during menstruation, this could be due to the fact that there are still many regions in Indonesia where people have wrong habits or beliefs, one of which is the myth that during menstruation they should not wash their hair (Ernawati Sinaga, 2017). In fact, during menstruation it is very important to wash your hair more often than usual because during menstruation the hair becomes easily flaccid and can become a growth medium for microorganisms (Hall JE, 2016).

Relationship between Knowledge Level and Personal Hygiene Actions during Menstruation in Class VII Students of MTsN 6 Padang City.

In this study, the data were analyzed using the chi-square statistical test and obtained a value of $p = 0.000$ which showed that there was a significant relationship between the level of knowledge and personal hygiene actions during menstruation in seventh grade students of MTsN 6 Padang City. The results of this study indicate that the level of knowledge affects personal hygiene actions during menstruation, namely as many as 33 respondents who have a good level of knowledge 90.9% of them have personal hygiene actions during menstruation which are also good, while from 18 respondents who have a sufficient level of knowledge 72.2% of them have poor personal hygiene actions during menstruation and from 17 respondents who have a lack of knowledge 88.2% of them have poor personal hygiene actions during menstruation.

Ilmiati (2019) in her research conducted at JHS 40 Padang also obtained similar results, namely that there was a significant relationship between the level of knowledge and personal hygiene actions during menstruation ($p\text{-value} = 0.000$) (Walter F et al., 2017). This is in accordance with the theory put forward by Notoatmodjo (2014) that knowledge is one of the important domains to shape a person's actions. Actions based on knowledge and awareness will last longer than actions that are not based on knowledge (Sherwood L., 2018).

The level of knowledge a person has plays an important role in the personal hygiene actions he takes. Someone who has a good level of knowledge will consider taking good personal hygiene actions during menstruation because they know the purpose and benefits of taking these actions.

However, this study also found that 11.8% of respondents with poor knowledge had good personal hygiene practices. This is because knowledge is not the only factor that can influence personal hygiene during menstruation, there are other factors including: attitudes, sources of information, facilities and culture (Hall JE, 2016).

Respondents who have good knowledge but have poor personal hygiene actions during menstruation can occur because these respondents are only at the stage of knowing or understanding but do not yet have the awareness and motivation to apply their actions. Therefore, in addition to having knowledge, a person should also have motivation and be accustomed to maintaining personal hygiene so that good personal hygiene actions during menstruation can be realized (Clayton SG., 2013). In addition, habits, thoughts, beliefs and emotions also play an important role in the formation of good personal hygiene actions during menstruation (Lyndon S., 2013).

The habits that a person has play a role in his personal hygiene actions, with good habits will result in good personal hygiene actions during menstruation and vice versa. Habits can be used as an experience, therefore good habits need to be practiced in order to form good personal hygiene actions (Lavenia C., 2019).

The low level of knowledge possessed by a person will allow that person to have poor personal hygiene actions during menstruation which will increase the risk of reproductive tract infections (RTIs) (Prayitno S., 2014). Therefore, intervention strategies are needed such as counseling by the school, forming peer education. According to Ratnasari et al (2019) this program is quite effective in increasing the knowledge of female students regarding personal hygiene during menstruation (Potter P., 2017).

CONCLUSION AND RECOMMENDATION

Based on the research conducted, it can be concluded that almost half of the respondents (48.5%) already have a good level of knowledge, more than half of the respondents (54.4%) also have good personal hygiene actions. From this study it can be concluded that there is a significant relationship between the level of knowledge and personal hygiene actions during menstruation in seventh grade students of MTsN 6 Padang City. For future researchers, further research should be carried out related to other factors such as: attitudes, sources of information on facilities and culture that can also affect personal hygiene during menstruation, and it is also necessary to conduct other studies on personal hygiene during menstruation in school students with different methods such as providing peer education interventions using a pre-experimental research design with the one pre-post test group method so that different and better results will be obtained.

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REFERENCES

- Amanda, D., & Ariyanti, F. (2020). Perilaku menstrual hygiene remaja: Studi pada santriwati di pondok pesantren modern Kota Depok. *Jurnal Publikasi Kesehatan Masyarakat Indonesia*, 7(2), 23-29.
- American Psychological Association. (2002). *Developing adolescents: A reference for professionals*. Washington, DC: Author.
- Andani, P. R. (2021). Correlation between knowledge and attitude toward personal menstrual hygiene practice among adolescents. *Journal of Public Health Research and Community Health Development*, 4(2), 88.
- Andira, D. (2010). *Seluk beluk kesehatan reproduksi wanita*. Yogyakarta: A Pluss Book.
- Arikunto, S. (2016). *Prosedur penelitian: Suatu pendekatan praktik*. Jakarta: Rineka Cipta.
- Astuti, R., Ratnadevi, & Utami, I. (2017). Hubungan pengetahuan tentang personal hygiene dengan perilaku personal hygiene saat menstruasi pada remaja putri kelas XI di SMA Negeri 1 Pajangan Bantul. *Universitas 'Aisyiyah. Jurnal Ilmu Kesehatan*, 8(1), 1-17.
- Avianty, I. (2020). Faktor-faktor yang berhubungan dengan tingkat pengetahuan remaja putri terhadap kebersihan organ genital di Pondok Pesantren Darussalam Kabupaten Bogor. *Promotor*, 3(1), 56.
- BKKBN. (2016). *Survei kesehatan reproduksi remaja 2016*. Badan Kependudukan dan Keluarga Berencana Nasional.
- BKKBN. (2017). *Survei demografi dan kesehatan: Kesehatan reproduksi remaja 2017*. Badan Kependudukan dan Keluarga Berencana Nasional.
- Budiman, A., & Riyanto, (2013). *Kapita selekta kuesioner pengetahuan dan sikap dalam penelitian kesehatan*. Jakarta: Salemba Medika.
- Bulto, G. A. (2021). Knowledge on menstruation and practice of menstrual hygiene management among school adolescent girls in central Ethiopia: A cross-sectional study. *Risk Management and Healthcare Policy*, 14, 911-923.
- Clayton, S. G. (2013). Cyclical changes during a woman's normal ovulatory menstrual cycle. *Encyclopedia Britannica*.
- Delzaria, N. (2021). Hubungan pengetahuan sikap dan sumber informasi dengan perilaku personal hygiene saat menstruasi remaja putri di MTs Pondok Pesantren Nurul Iman. *Universitas Jambi*.
- Dorland. (2015). *Kamus saku kedokteran Dorland edisi 29*. 29th ed. Singapore: Elsevier.

- Dwivedi, R., Sharma, C., Bhardwaj, P., Singh, K., Joshi, N., & Sharma, P. P. (2020). Effect of peer educator-PRAGATI (PeeR Action for Group Awareness through Intervention) on knowledge, attitude, and practice of menstrual hygiene in adolescent school girls. *Journal of Family Medicine and Primary Care*, 9(7), 3593-3599.
- Eswi, A., Helal, H., & Wafaa, E. (2012). Menstrual attitude and knowledge among Egyptian female adolescents. *Eastern Mediterranean Health Journal*, 8(6), 555-556.
- Fauziah, N. A., Srisantryorini, T., Romdhona, N., & Hygiene, P. (2021). Hubungan pengetahuan dan sikap dengan personal hygiene saat menstruasi pada santriwati di MTs Pondok Pesantren "X" Kota Tangerang Selatan. *Environmental and Occupational Health and Safety Journal*, 2(1), 81-88.
- Febria, C. (2020). Hubungan tingkat pengetahuan remaja putri dengan kejadian keputihan pada siswi-siswi MTSN Koto Tangah Padang. *Jurnal Menara Medika*, 2(2), 87-93.
- Habtegiorgis, Y., Sisay, T., Kloos, H., Malede, A., Yalew, M., & Arefaynie, M., et al. (2021). Menstrual hygiene practices among high school girls in urban areas in Northeastern Ethiopia: A neglected issue in water, sanitation, and hygiene research. *PLoS One*, 16(6), 1-22.
- Hall, J. E., & Guyton, A. C. (2016). Guyton dan Hall buku ajar fisiologi kedokteran. 12th ed. Singapore: Elsevier.
- Harmen, E. A. (2015). Hubungan tingkat pengetahuan remaja putri tentang personal hygiene saat menstruasi dengan tindakan personal hygiene saat menstruasi di JHS 28 Padang. *Jurnal Ilmu Kesehatan*, 1(3), 46-50.
- Haryono, R. (2016). Siap menghadapi menstruasi dan menopause. Yogyakarta: Gosyen Publishing.
- Infodatin Reproduksi Remaja. (2014). Kementerian Kesehatan RI pusat Data Informasi.
- Irwan. (2017). Etika dan perilaku kesehatan. 1st ed. Yogyakarta: CV. Absolute Media.
- Isro'in, L., & Andarmoyo, S. (2012). Personal hygiene: Konsep, proses, dan aplikasi dalam praktik keperawatan. Yogyakarta: Graha Ilmu.
- Katarina, C. P. (2017). Personal hygiene remaja putri ketika menstruasi. *Jurnal Promkes: Indonesian Journal of Health Promotion and Health Education*, 5, 12-24.
- Khatib, A., Adnani, S. S., & Sahputra, R. E. (2019). Hubungan pengetahuan, sikap, dan perilaku personal hygiene dengan gejala vaginitis pada siswi JHS 1 Kota Padang dan JHS 23 Padang. *Jurnal Kesehatan Andalas*, 8(1), 19.
- Kusmiran, E. (2012). Kesehatan reproduksi remaja dan wanita. Jakarta: Salemba Medika.
- Lavenia, C., & Dyasti, J. A. (2019). Studi komparatif personal hygiene mahasiswa Universitas Indonesia di indekos dan asrama. *Jurnal KSM Eka Prasetya UI*, 1(4), 1-9.
- Lyndon, S. (2013). Pengantar kebutuhan dasar manusia. Jakarta: Binarupa Aksara.

- Machfoedz, I., & Suryani, E. (2013). Pendidikan kesehatan bagian dari promosi kesehatan. 9th ed. Yogyakarta: Fitramaya.
- Maharani, R., & Andryani, W. (2018). Faktor yang berhubungan dengan perilaku personal hygiene saat menstruasi pada santriwati di MTs Pondok Pesantren Dar El Hikmah Kota Pekanbaru. *KESMARS: Jurnal Kesehatan Masyarakat, Manajemen dan Administrasi Rumah Sakit*, 1(1), 69-77.
- Michael, J., Iqbal, Q., Haider, S., Khalid, A., Haque, N., & Ishaq, R., et al. (2020). Knowledge and practice of adolescent females about menstruation and menstruation hygiene visiting a public healthcare institute of Quetta, Pakistan. *BMC Women's Health*, 20(1), 1-8.
- Mubarak, W. I. (2012). Promosi kesehatan untuk kebidanan. Jakarta: Salemba Medika.
- Mu'minun, N., Amin, K., & Nursing, F. O. (2021). Hubungan perilaku personal hygiene saat menstruasi dengan gejala pruritus vulvae pada remaja putri di Puskesmas Antang. *Jurnal Kesehatan Panrita Husada*, 6(1), 86-101.
- Nikmah, U. S., & Widyasih, H. (2018). Personal hygiene habits dan kejadian flour albus patologis pada santriwati PP AL-Munawwir, Yogyakarta. *Media Kesehatan Masyarakat Indonesia*, 14(1), 36.
- Notoatmodjo, S. (2012). Ilmu perilaku kesehatan. Jakarta: Rineka Cipta.
- Notoatmodjo, S. (2014). Promosi kesehatan dan perilaku kesehatan. Jakarta: Rineka Cipta.
- Nurhayati. (2021). Perilaku remaja putri awal terhadap personal hygiene saat menstruasi di SMP Negeri 2 Pematangsiantar. Universitas Sumatera Utara.
- Pemiliana, P. D. (2019). Perilaku remaja putri dengan personal hygiene saat menstruasi di SMA Etidlandia Medan tahun 2018. *Gaster*, 17(1), 62.
- Pinem, S. (2014). Kesehatan reproduksi dan kontrasepsi. Jakarta: Trans Info Media.
- Potter, P., & Perry, A. (2017). Fundamentals of nursing: Concepts, process, and practice. 9th ed. Singapore: Elsevier Mosby.
- Prawirohardjo, S. (2018). Ilmu kandungan. 3rd ed. Jakarta: P.T Bina Pustaka Sarwono Prawirohardjo.
- Prayitno, S. (2014). Buku lengkap kesehatan organ reproduksi wanita. Susanto, H. (Ed.). Yogyakarta: Saufa.
- Purnama, N. L. A. (2021). Pengetahuan dan tindakan personal hygiene saat menstruasi pada remaja. *Jurnal Keperawatan*, 10(1), 61-66.
- Rahma, N. F. (2017). Hubungan pengetahuan dan perilaku personal kebersihan genital terhadap kejadian keputihan pada santriwati SMAS/SMA di PPM Rahmatul Asri Enrekang. Universitas Hasanuddin.

- Rosidah, L. K. (2019). Gambaran pengetahuan remaja putri kelas VIIA dan B tentang personal hygiene di JHS 2 Mojo Kabupaten Kediri. *Jurnal Kebidanan*, 7(2), 84-90.
- Rosyida, D. A. C. (2019). Buku ajar kesehatan reproduksi remaja dan wanita. Yogyakarta: Pustaka Baru.
- Sanchez, P. I. G. (2015). Menstruation in history. In C. L. Frisén (Ed.), *Encyclopedia of women in today's world* (pp. 371-377). Thousand Oaks, CA: SAGE Publications.
- Santrock, J. W. (2012). *Life-span development Jilid 1: Perkembangan masa hidup*. I. Sallama, N. (Ed.). Jakarta: Erlangga.
- Sari, R., Idris, F. P., Fachrin, S. A., Asrina, A., Kurnaesih, E., & Arman, A. (2019). Pengaruh peer education terhadap pengetahuan personal hygiene masa menstruasi remaja awal di Pondok Pesantren Puteri Ummul Mukminin Kota Makassar. *Jurnal Islam Nurs*, 4(2), 44.
- Sastroasmoro, S. (2014). *Dasar-dasar metodologi penelitian klinis*. 5th ed. Jakarta: CV. Sagung Seto.
- Setianingsih, A., & Putri, N. A. (2016). Hubungan pengetahuan dan sikap terhadap perilaku personal hygiene menstruasi. *Jurnal Ilmu Kesehatan Masyarakat*, 5(4), 15-23.
- Sherwood, L. (2018). *Fisiologi manusia dari sel ke sistem*. 9th ed. Jakarta: EGC.
- Suryani, L. (2019). Faktor-faktor yang mempengaruhi perilaku remaja putri tentang personal hygiene pada saat menstruasi di SMP Negeri 12 Kota Pekanbaru. *Jurnal Midwifery Science*, 3(2), 68-79.
- Susanti, D., & Lutfiyati, A. (2020). Hubungan pengetahuan remaja putri dengan perilaku personal hygiene saat menstruasi. *Jurnal Kesehatan*, 11(2), 110-114.
- Tantry, Y. U., Solehati, T., & Yani, D. I. (2019). Gambaran pengetahuan, sikap, dan perilaku perawatan diri selama menstruasi pada siswi JHS 13 Bandung. *Jurnal Ilmu Keperawatan dan Kebidanan*, 10(1), 146.
- Tarwoto, Wartonah. (2015). *Kebutuhan dasar manusia dan proses keperawatan*. 5th ed. Jakarta: Salemba Medika.
- US Department of Health and Human Services. (2018). *Adolescents development explained*. Office of Population Affairs.
- Vidya Basavaraju, Chetan Lakshmikantha Bukanakere, & Madonna J. Dsouza, A. K. S. M. (2019). Menstrual hygiene among adolescent girls in the rural field practice area of medical college in Mandya. *National Journal of Research in Community Medicine*, 8(3), 236.
- Walter, F. B., & Boulpaep, E. L. (2017). *Medical physiology*. 3rd ed. Philadelphia: Elsevier.
- WHO. (2012). Adolescent health. In World Health Organization. Retrieved from <https://www.who.int/southeastasia/health-topics/adolescent-health>

- WHO. (2020). Adolescence. In World Health Organization. Retrieved from <https://www.who.int/southeastasia/health-topics/adolescent-health>
- Wijayanti, N. (2021). Personal hygiene dan stress dengan kejadian keputihan pada siswi kelas X. Jurnal Ilmiah Permas, Jurnal Ilmiah STIKES Kendal, 11.
- Wolff, K., Johnson, R. A., Saavedra, A. P., & Roh, E. K. (2017). Fitzpatrick's color atlas and synopsis of clinical dermatology. 8th ed. New York: McGraw-Hill.
- Yanti, E., Fernando, F., Rahayaningrum, D. C., Wartinis, A. (2020). Faktor-faktor yang berhubungan dengan personal hygiene saat menstruasi pada remaja putri. Jurnal Syedza Saintika, 459-474.
- Yuni, N. E. (2015). Buku saku personal hygiene. Yogyakarta: Nuha Medika.