

# The Effect of Health Counseling Using Leaflet Media on The Level of Knowledge about Menstrual Personal Hygiene at Junior High School (JHS) Bustanul Ulum Nahdlatul Ulama (NU) Brebes

Endi Dwi Oktin Ghina Naifah<sup>1</sup>, Inggarratna Kusuma<sup>1</sup>

<sup>1</sup>Bachelor of Midwifery Study Program, Faculty of Health Science,  
Universitas Muhammadiyah Purwokerto, Indonesia

## ARTICLE INFO

### Article history:

DOI:

[10.30595/pshms.v8i.1853](https://doi.org/10.30595/pshms.v8i.1853)

Submitted:

July 29, 2025

Accepted:

Sept 22, 2025

Published:

Oct 23, 2025

### Keywords:

Adolescent Girls, Knowledge  
Leaflet, Personal Hygiene

## ABSTRACT

World Health Organization (WHO) data shows that Reproductive Tract Infections (RTIs) are most prevalent among adolescents (35%–42%) and young adults (27%–33%), with high rates of Candidiasis (25–50%), Bacterial Vaginosis (20–40%), and Trichomoniasis (5–15%). Furthermore, 75% of women globally have experienced vaginal discharge. In 2012, among 43.3 million Indonesian girls aged 10–14, poor hygiene behavior was common. Personal hygiene practices are essential for adolescent reproductive health. One way to improve knowledge is through printed media such as leaflets. To analyse the effect of leaflet-based health education on menstrual hygiene knowledge at Junior High School (JHS) Bustanul Ulum Nahdlatul Ulama (NU) Brebes. This pre-experimental study used a one-group pre-test–post-test design, with 180 purposively selected respondents from a population of 273 students. The instruments used were leaflets and a menstrual personal hygiene knowledge questionnaire. Data were analysed using the Wilcoxon test with a 95% significance level. There was a significant effect of health education using leaflet media on students' knowledge about menstrual personal hygiene, with a  $p$ -value of 0.001 ( $<0.05$ ). Health education using leaflet media effectively increases students' knowledge about menstrual personal hygiene at JHS Bustanul Ulum NU Brebes.

This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).



### Corresponding Author:

**Inggarratna Kusuma**

Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto

Soepardjo Rustam Street KM. 7, Banyumas, Indonesia

Email: [inggarratnakusuma@gmail.com](mailto:inggarratnakusuma@gmail.com)

## 1. INTRODUCTION

According to World Health Organization (WHO) data, the highest incidence of Reproductive Tract Infections (RTIs) globally occurs among adolescents (35%–42%) and young adults (27%–33%). The prevalence rates for Candidiasis are 25%–50%, Bacterial Vaginosis 20%–40%, and Trichomoniasis 5%–15%. Based on reproductive health research, approximately 75% of women worldwide have experienced vaginal discharge at least once, and 45% more than once (Dayanti & others, 2024; Organization, 2022).

According to the Indonesian Demographic and Health Survey (IDHS), menstrual hygiene behavior among adolescent girls remains poor, with 69.3% demonstrating inadequate practices. This is mainly due to a lack of knowledge and information regarding personal hygiene during menstruation. Poor understanding of

genital hygiene can lead to various reproductive health problems, such as vaginal discharge, reproductive tract infections, pelvic inflammatory disease (PID), and even the potential development of cervical cancer (Laswini, 2022).

Several methods can be used to improve adolescent girls' knowledge about menstruation, such as providing information through printed media like leaflets. The cognitive process that occurs while reading includes comprehension, concentration, memory, analysis, drawing conclusions, and other elements related to critical thinking. Therefore, reading is more effective for long-term memory retention compared to listening, making leaflets an appropriate medium for this study (Harahap et al., 2024). Leaflets are a simple form of information media, relatively small and practical in size, easy to understand, and serve as a reminder tool. They can be carried by readers for independent study and can be read anytime and anywhere (Lubis & Kasjono, 2022).

This study aims to analyze the effect of health counseling using leaflet media on the level of knowledge about menstrual personal hygiene among students at SMP Bustanul Ulum Brebes. The goal is to provide proper guidance regarding menstrual personal hygiene and to benefit female students by increasing their awareness and understanding of personal hygiene during menstruation as early as possible.

## 2. RESEARCH METHOD

This research is a quantitative study, specifically an interventional study using a paired comparative design with a pre-experimental method. In this design, the researcher applies a treatment to the research subjects to observe its effects. The study aims to determine differences in the improvement of menstrual hygiene knowledge after the use of leaflet media among female adolescents at JHS Bustanul Ulum NU Brebes.

The population in this study consisted of female students from grades 7, 8, and 9, totalling 273 students. The sampling technique used was accidental sampling, and the sample size was determined using a paired categorical comparative formula.

$$n = \frac{(Z\alpha + Z\beta)^2 \pi}{(P1 - P2)^2}$$

Based on the sample calculation, a total of 180 students were included in this study. Data were collected using a questionnaire as the main research instrument. The leaflet on menstrual hygiene was adapted from the official United Nations International Children's Emergency Fund (UNICEF) website and translated into Indonesian (UNICEF, 2018). Data collection techniques consisted of questionnaires and documentation. Data analysis was carried out using univariate analysis to describe the frequency distribution of respondents' characteristics and knowledge, and bivariate analysis with the Chi-square test to examine the relationship between health education using leaflet media and students' knowledge of menstrual personal hygiene. Statistical tests were performed using the Statistical Package for the Social Sciences (SPSS) version 25.

## 3. RESULT AND DISCUSSION

Based on the results of the study, the findings are as follows:

### 3.1 Univariate Analysis

Univariate analysis is used to describe or explain the characteristics of each variable in the study (Notoatmodjo, 2018). The distribution of respondent characteristics, including age, menarche age, and menstrual duration at JHS Bustanul Ulum NU Brebes, is presented in the following table:

Tabel 1. Frequency distribution based on age, age at menarche, menstrual duration, class level, and birth order at JHS Bustanul Ulum NU Brebes.

Characteristic	Frequency (n)	Percentage (%)
Age	10-12 Years	27
	13-15 Years	144
	16-19 Years	9
Age At Menarche	10 Years	20
	11 Years	64
	12 Years	85
	13 Years	11
Menstrual Duration	3-7 Days	97
	>7 Days	83
Total	180	100.0

Based on Table 1 regarding respondent characteristics, the majority were aged 13–15 years (80%). A total of 47.2% of respondents experienced menarche at the age of 12, and most of them had a menstrual duration of 3–7 days (53.9%).

### 3.2 Level of Knowledge Among Female Adolescents Regarding Menstrual Personal Hygiene Before and After Health Education Using Leaflet Media at JHS Bustanul Ulum NU Brebes

The following table presents the frequency distribution of female adolescents' knowledge levels regarding menstrual personal hygiene before and after health education using leaflet media at JHS Bustanul Ulum NU Brebes:

Tabel 2. Frequency Distribution of Knowledge Levels on Menstrual Personal Hygiene Among Female Adolescents After Health Education Using Leaflet Media at JHS Bustanul Ulum NU Brebes

Knowledge Level	Before		After	
	F	%	F	%
Low	138	76.7%	0	0
Moderate	42	23.3%	47	26.1
High	0	0%	133	73.9
Total	180	100%	180	100%

Table 2 shows that before the health education using leaflet media, the majority of female adolescents at JHS Bustanul Ulum NU Brebes had a low level of knowledge about menstrual personal hygiene, with a percentage of 76.7%. The same table also indicates that after the health education intervention, most of the students had a high level of knowledge, accounting for 73.9%.

### 3.3 Bivariate Analysis

In this study on the effect of health education using leaflet media on the level of knowledge about menstrual personal hygiene at JHS Bustanul Ulum NU Brebes, the differences in students' knowledge before and after the intervention were analysed using the Chi-square test. This test was employed to determine the statistical significance of changes in knowledge levels between the pre-test and post-test.

Tabel 3. The Effect of Health Education Using Leaflet Media on Knowledge of Menstrual Personal Hygiene at JHS Bustanul Ulum NU Brebes

Knowledge level (pretest)	Knowledge level (posttest)				Total		Z	p-value
	Moderate		High		f	%		
	f	%	f	%				
Low	33	18.3	105	58.3	138	76.7	-11.619	0.000
Moderate	14	7.8	28	42	42	23.3		
Total	47	26.1	133	180	180	100		

		N	Min	Max	Mean	Mean difference
Intervention	Before intervention	180	14	18	17.16	8.03
	After intervention		21	29	25.19	

Table 3 shows that out of 138 respondents who initially had a low level of knowledge (pre-test), 18.3% were categorized as having a moderate level of knowledge and 58.3% were categorized as having a high level of knowledge after receiving health education using leaflet media.

The table also shows that out of 42 respondents who initially had a moderate level of knowledge (pre-test), 15.6% were categorized as having a high level of knowledge after the intervention. The Chi-square test confirmed a significant association between health education using leaflet media and the level of knowledge about menstrual personal hygiene. The data were then analysed using the Wilcoxon test with SPSS software, which produced a p-value of 0.001 ( $< 0.05$ ), indicating a significant effect of health education using leaflet media on the level of knowledge about menstrual personal hygiene at JHS Bustanul Ulum NU Brebes.

The Wilcoxon test also showed a Z-value of -11.619, confirming a significant increase in knowledge between the pre-test and post-test scores. This result supports the research hypothesis that health education using leaflet media has a significant effect on improving knowledge of menstrual personal hygiene among students at JHS Bustanul Ulum NU Brebes.

#### 4. DISCUSSION

The respondent characteristics show that the majority were aged 13–15 years (80%). At this stage, adolescents focus on developing identity and independence, their thinking becomes more logical and idealistic, and they tend to spend more time outside the family environment (Hartoyo & Susanto, 2021). Age is also associated with an individual's level of understanding, experience, and cognitive patterns. It influences how well one comprehends information received (Prabasiwi & Adila, 2016).

These findings are in line with the study by (Nnenna, 2021) which involved 297 high school students in Nigeria, with the majority being 15 years old (146 students or 49.2%). Similarly, (Amanda, 2022) found that most tenth-grade female students at Public High School (PHS) 1 Kelapa were 15 years old. At this age, adolescents begin to experience various physical changes (Villasari, 2021) These changes include the growth of hair in the armpits and genital area, widening of the hips, breast development, and most girls begin menstruating during this period (Mulyani et al., 2019).

The study results show that the majority of female adolescents at JHS Bustanul Ulum NU Brebes had a low level of knowledge about menstrual personal hygiene before receiving health education using leaflet media, with a percentage of 76.7%. This condition is likely influenced by limited personal experience and the lack of exposure to information related to personal hygiene.

The results of this study are in line with research conducted by Yanawari Harahap (Harahap et al., 2024), The study found that before the health education (pre-test), the majority of students had low knowledge, with 27 students (55.1%) correctly answering only 0–11 questions. Meanwhile, a minority of students had good knowledge, with only 4 students (8.2%) correctly answering 16–20 questions .

The study results indicate that after receiving health education using leaflet media, the majority of female adolescents at JHS Bustanul Ulum NU Brebes had a high level of knowledge about menstrual personal hygiene, with a percentage of 73.9%. According to Notoatmodjo (2018), changes in knowledge levels are influenced by the information provided by health workers. Both formal and informal education help increase knowledge. Education and information are key factors that significantly affect a person's level of understanding (Millenia, 2021).

Supporting this, a study by (Makhfudli, 2019) explains that there are several phases following the reception of information, in which the purpose and expected outcomes include increased knowledge, changes in habits, and the process of raising awareness in others to adopt healthier behaviors.

The Wilcoxon test using SPSS software resulted in a p-value of 0.001 ( $< 0.05$ ), indicating a significant effect of health education using leaflet media on the level of knowledge about menstrual personal hygiene among students at JHS Bustanul Ulum NU Brebes.

Reading is an activity that involves active participation, whereas watching tends to be more passive. While reading, various complex cognitive processes are engaged. These include comprehension, concentration, memory, analysis, and drawing conclusions skills closely related to aspects of critical thinking. Therefore, reading can enhance long-term memory more effectively than watching, making leaflets an appropriate and effective medium for this study (Schurer et al., 2020).

According to the researcher, the changes in research results before and after the intervention were partly influenced by each respondent's ability to retain information. Every respondent has a different capacity for storing the information they receive; those who are able to recall information well generally also possess strong learning abilities (Rahayu et al., 2024).

A study conducted by D. Herlina et al. (2022) also supports this finding, showing that after the provision of health education using leaflet media, the average knowledge score increased to 86.25, with a mean difference of 16.87. Meanwhile, the average attitude score before the intervention was 52.06 and increased to 62.81 after the intervention, with a mean difference of 10.75.

#### 5. CONCLUSION

Based on the results of data analysis and discussion, the following conclusions can be drawn:

1. The majority of respondents were female adolescents aged 13–15 years (80%), with 47.2% experiencing menarche at the age of 12 years and 53.9% having a menstrual duration of 3–7 days.
2. Before receiving health education using leaflet media, most respondents were categorized as having a low level of knowledge regarding menstrual personal hygiene (76.7%).
3. After the intervention, the majority of respondents were categorized as having a high level of knowledge regarding menstrual personal hygiene (73.9%).
4. Health education using leaflet media had a significant effect on increasing knowledge of menstrual personal hygiene among female adolescents ( $p = 0.001 < 0.05$ ). This suggests that leaflet-based health education can be used as an effective solution to improve menstrual hygiene awareness, and it is recommended that schools and health workers continue to provide structured education on this topic.

## REFERENCES

- Amanda, R. (2022). The relationship between knowledge and menstrual hygiene behavior among adolescent girls at Public High School 1 Kelapa. *Jurnal Kesehatan Reproduksi*, 9(1), 45–53. <https://doi.org/10.3389/jkesehatan.2022.04553>
- Dayanti, R., & others. (2024). Efektifivitas edukasi gamifikasi terhadap pengetahuan dan sikap tentang menarche pada siswi SDN 07 Batu Putih Kabupaten Tulang Bawang Barat. *Jurnal Maternitas Aisyah*, 5(1), 12–20.
- Harahap, Y. W., Hasibuan, A. S., Soraya, H., & Sahriani, H. (2024). *Pengaruh Pemberian Informasi Menggunakan Media Leaflet Terhadap Pengetahuan Personal Hygiene Saat Menstruasi pada Remaja di SMA Negeri 7 Kota Padangsidimpuan Tahun 2024 Kebersihan diri saat menstruasi merupakan upaya yang dilakukan untuk menjaga kesehatan*. 9(2).
- Hartoyo, E. D., & Susanto, B. N. A. (2021). Pengaruh Media Leaflet Tentang Personal Hygiene Genitalia Pada Saat Menstruasi Terhadap Pengetahuan Dan Perilaku Remaja. *Ikesma*, 17(1), 46. <https://doi.org/10.19184/ikesma.v17i1.20402>
- Laswini, I. W. (2022). Pengetahuan, Sikap, dan Sumber Informasi Dengan Perilaku Personal Hygiene Saat Menstruasi Pada Remaja Putri. *SIMFISIS Jurnal Kebidanan Indonesia*, 2(1), 228–236. <https://doi.org/10.53801/sjki.v2i1.55>
- Lubis, M. S., & Kasjono, S. (2022). *PENGARUH PENYULUHAN MENSTRUASI MENGGUNAKAN MEDIA BOOKLET TERHADAP PENGETAHUAN DAN SIKAP SISWI DALAM MENGHADAPI MENARCHE DI SEKOLAH DASAR*. 26(1), 270–276. <https://doi.org/10.46984/sebatik.v26i1.1544>
- Makhfudli, M. (2019). Perubahan perilaku kesehatan melalui penyuluhan dan pendidikan kesehatan masyarakat. *Jurnal Promkes*, 7(2), 134–142. <https://doi.org/10.20473/jpk.V7.I2.2019.134-142>
- Millenia, M. E. (2021). *TINGKAT PENGETAHUAN REMAJA TENTANG BAHAYA PERNIKAHAN DINI The Effect Of Health Education On The Knowledge Level Of Youth About The Dangers Of Early Marriage Abstrak*.
- Mulyani, S., Kamariyah, & Sulistiawan, A. (2019). Pendidikan Kesehatan tentang Personal Higiene sebagai Upaya Perawatan Genitalia Siswa di SMAN 5 Kota Jambi. *Jurnal Pengabdian Kepada Masyarakat FKIK UNJA Medical Dedication*, 2(1), 29–32. <https://online-journal.unja.ac.id/medic/article/view/5898>
- Nnenna, C. (2021). Menstrual hygiene management among adolescent girls in Nigerian secondary schools. *International Journal of Reproductive Health*, 5(3), 77–84. <https://doi.org/10.5897/IJRH2021.039>
- Notoatmodjo, S. (2018). *Promosi kesehatan dan perilaku kesehatan* (8th ed.). Rineka Cipta.
- Organization, W. H. (2022). *Adolescent health and development: Reproductive health fact sheet*. <https://www.who.int/news-room/fact-sheets/detail/adolescent-health>
- Prabasiwi, & Adila. (2016). Hubungan Antara Status Gizi dengan Status Menarche pada Siswi SMP Negeri 10 Kota Tegal. *Seminar Nasional IPTEK Terapan*, 1(1), 106–111.
- Rahayu, I., Yusran, S., & Lestari, H. (2024). *PENGARUH PENGGUNAAN MEDIA LEAFLET TERHADAP TENTANG KESEHATAN REPRODUKSI DI SMAN 2 SAWERIGADI KABUPATEN MUNA BARAT TAHUN 2023 Adolescents Regarding Reproductive Health At SMA Negeri 2 Sawerigadi West Muna District In 2023*. 5(3), 112–116.
- Schurer, T., Opitz, B., & Schubert, T. (2020). *Working Memory Capacity but Not Prior Knowledge Impact on Readers ' Attention and Text Comprehension*. 5(March), 1–12. <https://doi.org/10.3389/feduc.2020.00026>
- UNICEF. (2018). *Menstrual hygiene management guidelines*. [https://www.unicef.org/wash/schools/files/UNICEF\\_MHM\\_Guidelines\\_2018.pdf](https://www.unicef.org/wash/schools/files/UNICEF_MHM_Guidelines_2018.pdf)
- Villasari, A. D. (2021). Hubungan pengetahuan dengan perilaku personal hygiene menstruasi pada remaja putri di SMA Negeri 3 Pontianak. *Jurnal Keperawatan Dan Kebidanan Indonesia*, 5(2), 77–83.