

The Influence of Education Through Media GEMILANG (Menstrual Hygiene Education Movement with Adventure) on The Knowledge of Female Adolescents

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Abstract: Lack of understanding about hygiene during menstruation is still experienced by many adolescent girls, especially those who are about to or are experiencing menarche. The results of a preliminary study showed that 65% of female students do not know about menstrual hygiene. Innovation in learning methods is urgently needed, one of which is through the educational game media GEMILANG which was developed with an edutainment approach so that learning becomes more enjoyable and easier to accept. This study aims to determine the effect of education through GEMILANG media on increasing the knowledge of adolescent girls about menstrual hygiene. The study used a pre-experimental design with a one group pretest-posttest approach. The sampling technique used was a total sampling of 36 female students in grades 4–6 of SDN 2 Sukamanah who had not yet experienced menstruation. Data were analyzed using a Paired Sample T-Test. The results of this study showed an average pretest score of 38.47 which is included in the poor category then increased to 62.28 which is included in the sufficient category in the posttest, with an average difference of 23.81 and a significance value of $p = 0.000$ ($p < 0.05$), indicating a significant effect. Education through GEMILANG media is effective in increasing adolescent girls' knowledge about menstrual hygiene and can be an innovative learning medium in elementary school environments.

Keywords: adolescent girls, menstrual hygiene, GEMILANG media, education

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Introduction

Adolescence is a transitional period in which a person's life changes from childhood to adulthood. In general, physical maturity in adolescents occurs more rapidly than psychosocial maturity. This causes many adolescents to experience confusion in dealing with the changes occurring within themselves. Physical changes, such as height growth, changes in body shape, and reproductive organ development, often lead to anxiety and a lack of self-confidence. One significant physical change in adolescent girls is the onset of menstruation (Azzahra et al., 2024).

Menstruation is the process of shedding the lining of the uterus (endometrium), which contains many blood vessels, and usually lasts 5-7 days each month. During menstruation, maintaining personal hygiene is crucial to prevent infection, reduce the risk of irritation, and maintain the comfort and health of the reproductive organs (Adyani et al., 2022). Good self-care during menstruation helps prevent infection and other health problems, as well as improve overall well-being. During the menstrual process, support and guidance are essential to assist adolescents in the initiation of menstruation.

Menstrual hygiene is an effort to maintain the cleanliness and health of the feminine area during menstruation. The goal of maintaining menstrual hygiene is to improve health, maintain personal hygiene, correct poor hygiene habits, prevent disease, increase self-confidence, and create a better appearance (Rahmatia et al., 2024).

According to data from USAID (United States Agency for International Development), an estimated 1.8 billion people worldwide will menstruate by 2024, and of these, approximately 500 million face barriers to achieving menstrual hygiene management (MHH) (USAID, 2024). Data from the World Health Organization (WHO) in 2022 indicates that poor menstrual hygiene practices remain high worldwide. Research shows that in the United States, the prevalence of menstrual hygiene practices is around 60%, in Sweden 72%, in Egypt 75%, and in Indonesia 55% (Mayang Sari & Susan Amelia, 2024). Lack of understanding of menstrual hygiene leads to Reproductive Tract Infections (RTIs), with a prevalence of candidiasis of 25–50%, bacterial vaginosis of 20–40%, and trichomoniasis of 5–15% (Humairoh & Agustin, 2023). Among adolescent girls in parts of Java, 39.2% experience pruritus vulvae due to poor menstrual hygiene (Tri & Indah, 2021).

This lack of understanding can lead to suboptimal hygiene habits during menstruation, so engaging and effective educational media are needed. One educational medium that can be used to increase knowledge is games. The Snakes and Ladders game can be adapted to include educational materials about menstrual hygiene. For example, each square on the game board could contain questions or information about menstruation and how to maintain personal hygiene. With this approach, adolescents can learn indirectly through fun play activities, making the material easier to understand and remember (Rahmawati et al., 2022).

Based on data from the Ciamis Regency Statistics Agency (BPS), there are 85,549 children still attending elementary school. In Sindangkasih District, there are 4,904 children attending elementary school (Ciamis Regency Statistics Agency, 2024). A preliminary study at SDN 2 Sukamanah revealed 67 female students in grades 4-6. Of these, 31 students have started menstruating, while 36 have not. A survey of 10 menstruating and 10 nonmenstruating students found that 13 students were unaware of menstrual hygiene, indicating that 65% of female adolescents lack adequate understanding of menstrual hygiene.

Based on this description, the researcher is interested in examining the related topic "The Influence of Education Through GEMILANG Media (Menstrual Hygiene Education Movement Through Adventure) on Adolescent Girls' Knowledge of Menstrual Hygiene at SDN 2 Sukamanah, Ciamis Regency in 2025."

Method

This study used a quantitative research method with a pre-experimental design using a one-group pretest-posttest. The population in this study were female adolescents in grades 4-6 at SDN 2 Sukamanah, Ciamis Regency. The sample in this study used total sampling, namely all 36 female students in grades 4-6 who had not yet menstruated. This research was conducted in April 2025, conducted at SDN 2 Sukamanah.

Primary data in this study was collected by distributing questionnaires to respondents to obtain data on their level of knowledge about menstrual hygiene. Secondary data obtained from other parties or indirectly was used to assist in the writing of the research.

The process of collecting data from the survey variables being analyzed to obtain complete data for each object in the studied variable. a. Data Editing Stage is the initial step in data processing, which is crucial to ensure that the collected data is complete and accurate. b. Data Coding Stage is carried out to convert qualitative data (for example, answer choices in word form) into quantitative (numerical) form for easy processing in statistical software. Each answer choice is assigned a specific numeric code, for example, "True" is coded as 1 and "False" as 0. c. Data Entry Stage After the editing and coding process is complete, the data is then entered into SPSS software through the entry stage. Data entry can be done manually or by importing a coded Microsoft Excel file. d. Data Cleaning Stage is performed after all data has been entered into SPSS. The goal is to ensure there are no incorrect or inaccurate data inputs. e. Data Processing Stage involves processing data using SPSS to answer the research problem formulation and test the research hypothesis. f. Output Stage is the final result of the analysis process carried out in SPSS. The resulting output can be in the form of frequency tables, significance values (p-values), graphs, and other statistical summaries.

This research directly relates to humans, therefore, research ethics are required. The ethics in this research include conducting an ethics review with the KEPK Poltekkes Kemenkes Tasikmalaya with ethics number No. DP.04.03/F.XXVI.20/KEPK/99/2025.

Result and Discussion

Based on Table 1, the results of the descriptive statistical analysis of the pretest data given to 36 respondents, it is known that the pretest score had a minimum of 17 and a maximum of 67. The average (mean) pretest score was 38.47 with a standard deviation of 14.504, indicating significant variation in scores among respondents before the intervention.

The results of this study align with those of Nuraeni & Gunawan (2024), who found that the average knowledge level of 18 respondents before the intervention was 9.39 with a standard deviation of 2.873. With a 95% confidence level, the knowledge level after the intervention was 11.00 with a standard deviation of 1.534. This increase in knowledge occurred because the snakes and ladders game effectively combined educational and entertainment (edutainment) elements. This method made information easier to receive, remember, and understand for elementary school students who had not yet menstruated. (Nuraeni & Gunawan, 2024).

The low level of knowledge was also confirmed by the results of a preliminary study conducted by the researchers, which found that 65% of female students did not know what menstrual hygiene was. This indicates that many students have not received formal or informal education regarding hygiene practices during menstruation.

According to the theory from the Indonesian Ministry of Health (2021), adolescence is a crucial phase marked by biological, psychological, and social changes, thus requiring adequate guidance and information. Without proper education, adolescents will experience confusion in dealing with the changes occurring in their bodies. Therefore, preventive health education must begin at an early age.

Meanwhile, in the posttest data, the minimum score was recorded at 33 and the maximum at 92. The average posttest score increased to 62.28 with a standard deviation of 18.088. The increase in the average score from pretest to posttest indicates a change in respondents' knowledge after the intervention or treatment.

GEMILANG Media combines game and educational elements tailored to the age of the child, making the learning process fun and accessible. The snakes and ladders game, featuring material about menstrual hygiene, helps students become more active, focused, and enthusiastic in understanding the material. With this approach, students not only play but also absorb the information effectively.

This is in line with research by Zuhriya et al. (2022), which found that the snakes and ladders edutainment game is effective in improving adolescents' knowledge about menstrual hygiene. In their study, the treatment group experienced a significant increase in the "good" knowledge category from 27% to 97% after the intervention, with a p-value of 0.000.

This proves that the use of educational games can be an effective alternative health learning strategy to improve adolescents' knowledge in a fun and easy-to-understand way. (Zuhriya et al., 2022)

Based on Table 2, the average distributor of the GEMILANG media intervention affected the level of knowledge, with an average value of 38.47 to 62.28. The table shows that the GEMILANG media intervention resulted in an increase in knowledge levels after the intervention was implemented through GEMILANG media. The results of the paired sample t-test showed a significant difference between the pre-test and post-test with a significance value (2-tailed) of $p=0.000 <0.05$. The null hypothesis (H_0) in this study was rejected, and the alternative hypothesis (H_a) was accepted, indicating a difference in knowledge levels before and after the intervention through GEMILANG media.

One reason games are effective in improving the knowledge of elementary school girls is because they align with their cognitive developmental stages. According to Jean Piaget's theory of cognitive development, children aged 10 to 12 are in the concrete operational stage, where they begin to think logically about real or concrete objects and events. However, at this stage, children still have difficulty understanding abstract concepts, so educational materials need to be presented in an engaging and easy-to-understand manner.

Educational games, such as the GEMILANG Snakes and Ladders game, provide concrete, visual, and enjoyable learning experiences, making them more easily understood by students. Therefore, games are an appropriate and effective approach to improving knowledge of personal hygiene during menstruation among elementary school girls (Indriyani & Sobandi, 2024).

Based on the results obtained, GEMILANG media has great potential for use in reproductive health education programs in elementary schools. Educational activities using game-based methods have been shown to be more popular among adolescent girls and have a significant impact on increasing knowledge. This demonstrates that a fun educational approach can be a solution to students' low understanding of sensitive topics such as menstruation. In addition to providing knowledge, this game can also foster positive attitudes and self-confidence in self-care during menstruation. Therefore, GEMILANG can be an innovative educational medium recommended for continued use.

Table 1. Frequency Distribution of the Effect of Education Through GEMILANG Media on the Knowledge Level of Adolescent Girls at SDN 2 Sukamanah in 2025 Before and After Intervention

Level of knowledge	n	Min	Max	Mean	SD
Pre Test	36	17	67	38.47	14.504
Post Test	36	33	92	62.28	18.088

Table 2. T-Test Results: The Effect of Education Through GEMILANG Media on the Knowledge Level of Adolescent Girls at SDN 2 Sukamanah in 2025

Level of knowledge	n	Mean	Selisih rata-rata	SD	P-Value
Pre Test	36	38.47		14,504	
Post Test	36	62.28	-23,81	18,088	0.000

Conclusion

Based on the average level of knowledge before the intervention through GEMILANG media, it was 38.47, and the average level of knowledge after the intervention was 62.28, with a mean difference of -23.81.

Based on the results of the table analysis of the groups before and after the intervention using the Paired Sample T-Test, it showed a significant figure (2-tailed) $p=0.000 <0.05$. It can be concluded that there is an effect of education through GEMILANG media on the knowledge of adolescent girls at SDN 2 Sukamanah, Ciamis Regency.

Authors' Contribution

All authors contributed equally to every aspect of this research, from the initial study design and data collection to the analysis, interpretation, manuscript preparation, and critical revisions. All authors have read and approved the final version for submission.

Conflict of Interests Statement

The authors declare no conflict of interest.

Data Availability

The dataset presented in the study is available on request from the corresponding author during submission or after publication.

Informed Consent

Written informed consent was obtained from the participants.

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