The Effect of Audiovisual Health Education on Vulva Hygiene Skills among Primiparous Postpartum Mothers

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ABSTRACT

Introduction: Primiparous postpartum mothers may have difficulty performing proper vulva hygiene, increasing the risk of infection and delayed wound healing. Audiovisual health education may help improve their ability to perform this care. **Objective:** This study aimed to determine the effect of audiovisual health education on the ability of primiparous postpartum mothers with spontaneous deliveries to perform vulva hygiene in the Dewi Kunti Ward of Ngudi Waluyo General Hospital. **Methods:** A pre-experimental one-group pre-test-post-test design was used. The sample consisted of 40 primiparous postpartum mothers who had spontaneous deliveries and were receiving care on the last day of hospitalization. Participants were selected using quota sampling. Data were collected from January to March using a checklist based on the Standard Operating Procedure for vulva hygiene. Univariate analysis was used to describe the mean scores, and the Wilcoxon test was used for bivariate analysis. Results: The mean pre-test score was 5.50, with a median of 3. After the intervention, the mean post-test score increased to 8.05, with a median of 8. The Wilcoxon test showed a p-value of 0.000 ($p < 0.05$), indicating a significant improvement in vulva hygiene ability following audiovisual health education. **Conclusion:** Audiovisual health education significantly improved the ability of primiparous postpartum mothers with spontaneous deliveries to perform vulva hygiene. Audiovisual media can therefore be considered an appropriate educational method for supporting postpartum self-care.

Keywords: Health education; audiovisual media; vulva hygiene; primiparous postpartum mothers

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INTRODUCTION

The postpartum period is a critical phase of maternal recovery following childbirth, particularly for primiparous mothers who experience childbirth and postpartum self-care for the first time. During this period, mothers undergo physiological changes and may experience perineal discomfort, postpartum bleeding, breastfeeding difficulties, and other complications that require appropriate monitoring and self-care (Anwar & Safitri, 2022; Arisandi et al., 2026; Schrey-Petersen et al., 2021). The importance of postpartum care extends beyond immediate recovery, as many women experience health problems that persist for months or even years after childbirth, highlighting the need for continuous and comprehensive postpartum care (World Health Organization, 2023). One essential component of postpartum self-care is vulvar hygiene, which involves maintaining the cleanliness of the vulva and perineum to promote comfort, support wound healing, and help reduce the risk of infection (Astutik & Sabarini, 2024; Nurmaliza et al., 2023; Sangkala & Sriwardana, 2020). However, primiparous mothers may have limited knowledge and practical experience in performing vulvar hygiene correctly, including appropriate handwashing, preparation of equipment, and proper cleansing techniques after urination or defecation. Inadequate hygiene practices may compromise perineal care, particularly when mothers lack sufficient information and preparation for independent self-care. Therefore, developing the ability to perform vulvar hygiene independently is an important component of postpartum self-care readiness and should be addressed through structured nursing education before hospital discharge.

Postpartum complications remain an important maternal health concern because they may interfere with recovery, impair wound healing, and require additional clinical management. In a cross-sectional study involving 263 postpartum women in Uganda, 14.1% of participants experienced postpartum complications, including postpartum hemorrhage, perineal tears, and cervical tears (Namutebi et al., 2024). At the global level, persistent health problems following childbirth also include perineal pain, urinary incontinence, and other conditions that affect women's physical and psychological well-being (World Health Organization, 2023). However, these findings do not specifically establish the prevalence of infection caused by inadequate vulvar hygiene, and specific national data linking postpartum infection directly to vulvar hygiene practices in Indonesia remain limited. Evidence from a case study in Indonesia demonstrated the clinical relevance of vulvar hygiene care, as two postpartum mothers with episiotomy wounds showed no signs of infection following three days of intervention based on the REEDA assessment, although the small sample and short observation period limit the generalizability of the findings (Aliyah & Insani, 2023). The need

to strengthen postpartum hygiene education was also reflected in a preliminary observation conducted in the Dewi Kunti Ward of Ngudi Waluyo General Hospital, Wlingi, where 86% of 15 postpartum mothers, particularly primiparous mothers, had not fully performed vulvar hygiene correctly, especially in handwashing before and after the procedure and the application of appropriate cleansing techniques.

Health education is an important strategy for improving mothers' understanding and practical performance of postpartum self-care. Audiovisual education combines visual demonstrations and verbal explanations, enabling learners to observe procedural steps while understanding their purpose and importance (Andriansyah, Guslia Refi, et al., 2024; Peni et al., 2023). Previous studies have reported positive outcomes of audiovisual education in various health-related learning contexts, including improvements in mothers' knowledge, skills, and self-efficacy in kangaroo mother care, handwashing knowledge and skills among school-aged children following audiovisual education combined with role-play and first-aid skills among senior high school students (Amaliya et al., 2024; Dewi et al., 2025; Saputri et al., 2025) In reproductive health, audiovisual media have been associated with improved knowledge of vulvar hygiene among pregnant women, improved knowledge and attitudes regarding vulvar hygiene among adolescent girls with fluor albus, and changes in vulvar hygiene behavior among adolescent girls (Andriansyah, Guslia Refi, et al., 2024; Novita Ratna et al., 2023; Wahyuni & Arisani, 2022) . Nevertheless, previous research has largely focused on knowledge, attitudes, self-efficacy, or health behaviors among pregnant women, adolescents, and other populations (Mamesah & Wijaya, 2022; Misga et al., 2025; Santy Sianipar & Paska, 2022). Although postpartum personal hygiene education and maternal independence have also been examined, evidence specifically evaluating practical vulvar hygiene skills among primiparous mothers following spontaneous vaginal delivery remains limited (Astutik & Sabarini, 2024; Istiqomah et al., 2023) . Furthermore, the application of audiovisual education to prepare these mothers for independent postpartum hygiene care before hospital discharge has not been sufficiently explored.

Audiovisual health education may help address this research gap by combining visual demonstrations with verbal explanations of each stage of vulvar hygiene, including handwashing, equipment preparation, appropriate cleansing, rinsing, drying, and post-procedure care (Loy et al., 2021; Mama et al., 2021; Morgado et al., 2024). This approach may help mothers translate theoretical information into practical performance, review the procedural steps according to their needs, and prepare for independent self-care at home. Integrating audiovisual education into postpartum nursing care may also support standardized

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health education, strengthen discharge preparation, and enable nurses to provide consistent and understandable instructions. The contribution of the present study lies in its focus on the practical vulvar hygiene skills of primiparous postpartum mothers following spontaneous vaginal delivery, addressing a population and outcome that have received limited attention in previous audiovisual education research. Accordingly, this study aimed to determine the effect of audiovisual health education on the ability of primiparous postpartum mothers following spontaneous vaginal delivery to perform vulvar hygiene in the Dewi Kunti Ward of Ngudi Waluyo General Hospital, Wlingi.

METHODS

Study design

This study used a quantitative pre-experimental design with a one-group pre-test-post-test approach to assess the effect of audiovisual health education on vulvar hygiene skills among primiparous postpartum mothers with spontaneous vaginal delivery. The study was conducted in the Dewi Kunti Ward of Ngudi Waluyo Wlingi Regional General Hospital, Blitar, Indonesia, from 14 February to 15 March 2025.

Population, Sample and Sampling Technique

The study population consisted of primiparous postpartum mothers with spontaneous vaginal delivery who were treated in the Dewi Kunti Ward during the study period. A total of 40 eligible mothers participated in the study using **total sampling**. The inclusion criteria were primiparous mothers with spontaneous vaginal delivery, receiving postpartum care in the study ward, in a stable condition, able to communicate in Indonesian, willing to participate, and able to perform vulvar hygiene. Mothers with postpartum complications requiring intensive care, impaired consciousness, severe pain or physical limitations, communication problems, or those who did not complete the intervention and post-test were excluded.

Variable and Instruments

The independent variable was audiovisual health education, while the dependent variable was the ability to perform vulvar hygiene. Primary data were obtained through direct observation of the respondents' vulvar hygiene skills. Secondary data were obtained from medical records. The instrument was an observation checklist developed from the vulvar hygiene standard operating procedure used in the Dewi Kunti Ward. The checklist assessed the completeness and accuracy of the vulvar hygiene procedure, including hand hygiene, preparation of equipment, genital cleansing, rinsing from front to back, drying, pad replacement, and hand hygiene after the procedure.

Data Collection

Data collection was conducted in several stages. First, the researcher identified eligible respondents and obtained written informed consent. The respondents' baseline vulvar hygiene skills were assessed using the observation checklist as the pre-test. Subsequently, audiovisual health education was provided through a video demonstrating the correct vulvar hygiene procedure, followed by an explanation from the researcher when required. After the intervention, the respondents demonstrated the procedure again, and their skills were assessed using the same checklist as the post-test.

Data Analysis

Data were analyzed using SPSS. Univariate analysis was used to describe respondent characteristics and vulvar hygiene scores before and after the intervention. Bivariate analysis was performed to compare pre-test and post-test scores. Data normality was assessed before selecting the statistical test. A paired-samples t-test was used for normally distributed data, while the Wilcoxon signed-rank test was used for non-normally distributed data. Statistical significance was determined at a p-value of <0.05.

Ethical Considerations

Ethical approval was obtained from the Health Research Ethics Committee of Ngudi Waluyo Wlingi Regional General Hospital under approval number **T/070/1255/DIKLAT/409.52.4/2025**. The study followed the ethical principles of social value, scientific validity, fair participant selection, favorable risk–benefit assessment, independent review, informed consent, and respect for participants. Participation was voluntary, and respondents could withdraw at any time without affecting the healthcare services they received. Confidentiality and anonymity were maintained by using respondent codes instead of names. Data were collected and stored securely and were used only for research purposes.

RESULT

Characteristics of Primiparous Postpartum Mothers with Spontaneous Vaginal Delivery

Table 1. Characteristics of Primiparous Postpartum Mothers Following Spontaneous Vaginal Delivery

No	Characteristics		f	%
1.	Age	16-20 years	12	30
		21-45 years	28	70
		Amount	40	100
2.	Education	Junior High School	14	35
		Senior High School	24	60
		College	2	5

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No	Characteristics		f	%
		Amount	40	100
3.	Work	Housewife	26	65
		Self-employed	9	22,5
		Private sector employee	4	10
		Teachers	1	2,5
		Amount	40	100
4.	Gravida	First	40	100
		> 1	0	0
		Amount	40	100

Based on Table 1, 70% of the primiparous mothers were aged 21–28 years, 60% had completed senior high school or vocational high school, 65% were housewives, and 100% were experiencing pregnancy for the first time.

Previous Exposure to Health Education on *Vulvar Hygiene*

Table 2. Previous Exposure to Health Education on *Vulvar Hygiene*

No	Previous Health Education	f	%
1.	Never	38	95
2.	Ever	2	5
Amount		**40**	**100**

Based on Table 2, 95% of the primiparous mothers had never received health education about vulvar hygiene, while 5% had previously received such education.

Pre-Test and Post-Test Results of Vulvar Hygiene Skills among Primiparous Mothers with Spontaneous Vaginal Delivery

Table 3. Pre-Test and Post-Test Results of Vulvar Hygiene Skills among Primiparous Mothers with Spontaneous Vaginal Delivery

Capability variable	N	Mean	Std. Deviation	Median (minimum-maximum)
Pre-test	40	3,50	1,340	3 (2-8)
Post-test	40	8,05	0,959	8 (6-9)

Based on Table 3, the pre-test results showed a mean score of 3.50, a median of 3, a minimum score of 2, and a maximum score of 8, with a standard deviation of 1.340. Following the intervention, the post-test mean score increased to 8.05, with a median of 8, a minimum score of 6, and a maximum score of 9. The post-test standard deviation was 0.959

Mean Pre-Test and Post-Test Scores of Vulvar Hygiene Skills among Primiparous Postpartum Mothers with Spontaneous Vaginal Delivery

Table 4. Mean Pre-Test and Post-Test Scores of Vulvar Hygiene Skills among Primiparous Postpartum Mothers with Spontaneous Vaginal Delivery

Capability variable	Mean	f	%
Pre-test	< 3,50	23	57,5
	> 3,50	17	42,5
Post-test	< 8,05	11	27,5
	> 8,05	29	72,5

Based on Table 4, the pre-test results showed that 57.5% of the primiparous postpartum mothers had scores below the mean. After the intervention, the proportion of respondents with scores at or above the mean increased to 72.5%.

Effect of Audiovisual Health Education on Vulvar Hygiene Skills among Primiparous Postpartum Mothers with Spontaneous Vaginal Delivery

Table 5. Effect of Audiovisual Health Education on Vulvar Hygiene Skills among Primiparous Postpartum Mothers with Spontaneous Vaginal Delivery

Variabel Kemampuan	N	Mean	Median (minimum-maximum)	Std. Deviation	P Value
Pre-test	40	3,50	3 (2-8)	1,340	0.000
Post-test	40	8,05	8 (6-9)	,959	

Based on Table 5, the respondents' mean vulvar hygiene skill score before the intervention was 3.50, with a standard deviation of 1.340, a median of 3, and a score range of 2–8. After the audiovisual health education intervention, the mean score increased to 8.05, with a standard deviation of 0.959, a median of 8, and a score range of 6–9. The results of the **Wilcoxon signed-rank test** showed a significance value of 0.000 ($p < 0.05$), indicating a statistically significant difference in vulvar hygiene skills before and after the audiovisual health education intervention. These findings suggest that audiovisual health education was associated with an improvement in the vulvar hygiene skills of primiparous postpartum mothers with spontaneous vaginal delivery

DISCUSSION

The findings showed that audiovisual health education was associated with a significant improvement in vulvar hygiene skills among primiparous postpartum mothers following spontaneous vaginal delivery. The mean score increased from 3.50 before the intervention to 8.05 after the intervention, while the median score increased from 3 to 8. The Wilcoxon test demonstrated a statistically significant difference between the pre-test and post-

test scores ($p < 0.001$). These findings indicate that audiovisual education may be an effective strategy for improving mothers' ability to perform vulvar hygiene during the postpartum period.

The low pre-test scores may be related to the participants' status as primiparous mothers who were experiencing childbirth and postpartum care for the first time. Limited previous experience and inadequate knowledge may make it difficult for mothers to perform vulvar hygiene correctly and independently. Postpartum discomfort, perineal pain, fatigue, and anxiety may also reduce mothers' concentration and confidence in performing personal hygiene activities(Anwar & Safitri, 2022; Astutik & Sabarini, 2024). Vulvar hygiene is important during the postpartum period because it helps maintain cleanliness, promote comfort, support wound healing, and reduce the risk of perineal infection (Amaliya et al., 2024; Dewi et al., 2025; Ginting, 2022; Sri Widhowati et al., 2022). Therefore, postpartum mothers require clear, practical, and repeated education regarding the correct procedure.

The improvement in post-test scores suggests that audiovisual education presented information in an understandable and practical form. The combination of visual demonstrations and verbal explanations enabled participants to observe the sequence of vulvar hygiene procedures directly. This learning process may have helped mothers understand the correct technique, remember each step, and apply the information during self-care. Previous research has demonstrated that audiovisual education can improve knowledge, skills, self-efficacy, and health-related behavior (Amaliya et al., 2024; Dewi et al., 2025; Ginting, 2022; Sri Widhowati et al.,2022). Audiovisual media are particularly useful for procedural learning because participants can observe the movement, order, and details of each action rather than relying only on verbal or written explanations (Mama et al., 2021; Nurfadhillah et al., 2021).

The findings are consistent with studies showing that audiovisual education combined with demonstration or role-play improves practical skills, including handwashing and first aid (Dewi et al., 2025; Saputri et al., 2025). Audiovisual media can attract attention, increase learning motivation, and provide opportunities for repeated learning (Mama et al., 2021; Nurfadhillah et al., 2021). Participants may review the material several times until they understand the procedure. This feature is important for postpartum mothers because physical discomfort and fatigue may limit their ability to absorb information during a single face-to-face explanation. In addition, the visual presentation of the procedure may reduce misunderstanding and support the transfer of knowledge into actual practice (Loy et al., 2021; Morgado et al., 2024).

The results are also in line with previous research on reproductive and personal hygiene education. Educational videos have been reported to improve women's knowledge, attitudes, and behavior related to vulvar hygiene and the prevention of reproductive health problems (Andriansyah, Guslia Refi, et al., 2024; Novita Ratna et al., 2023; Wahyuni et al., 2023). Similarly, educational interventions using booklets and audiovisual media have been shown to support postpartum mothers' personal hygiene behavior (Istiqomah et al., 2023). These findings suggest that the use of an appropriate educational medium is an important component of postpartum nursing care. However, audiovisual education should not be used as the only educational method. It should be accompanied by direct explanations, opportunities for questions, and demonstrations or return demonstrations to ensure that mothers can perform the procedure correctly (Dewi et al., 2025; Saputri et al., 2025).

Several factors may also influence mothers' ability to perform vulvar hygiene, including age, educational background, occupation, previous experience, physical condition, motivation, and family support. Mothers with higher educational levels may find it easier to understand health information, whereas mothers with previous experience may be more confident in performing personal hygiene activities. Individual characteristics and learning conditions may also influence the effectiveness of health education (Pesik et al., 2024). Nevertheless, these factors were not analyzed separately in the present study. Therefore, the improvement in scores cannot be attributed exclusively to the audiovisual intervention. The increase may also have been influenced by participants' individual characteristics, interaction with healthcare providers, repeated exposure to the procedure, or recovery from childbirth.

From a nursing perspective, audiovisual health education can be integrated into postpartum care and discharge planning, particularly during the taking-hold phase, when mothers begin to develop confidence and independence in caring for themselves and their newborns (Astutik & Sabarini, 2024). Nurses can provide audiovisual materials before discharge and reinforce the information through direct instruction and return demonstration. Family members may also be involved to provide assistance and encouragement, particularly when mothers experience pain, fatigue, or difficulty performing the procedure independently. This approach may improve maternal self-care and contribute to the prevention of postpartum perineal complications (Anwar & Safitri, 2022; Istiqomah et al., 2023).

Although the findings demonstrated a significant improvement in vulvar hygiene skills, the one-group pre-test-post-test design without a control group limits the ability to establish a definitive causal relationship. Future studies should involve a control or comparison group, a larger sample, and longer follow-up periods to assess whether the improvement in

skills is maintained after discharge. Future research may also examine the influence of age, educational level, parity, family support, and maternal physical condition on the effectiveness of audiovisual education. Overall, audiovisual health education represents a practical and potentially effective approach to improving vulvar hygiene skills among primiparous postpartum mothers following spontaneous vaginal delivery.

CONCLUSION

This study showed that, before receiving audiovisual health education, most primiparous postpartum mothers had inadequate vulvar hygiene skills. Following the intervention, their skills improved, as reflected by the higher mean post-test score. These findings indicate that audiovisual health education has a positive effect on the ability of primiparous postpartum mothers to perform vulvar hygiene.

Healthcare professionals are encouraged to use audiovisual media when providing postpartum education because it can facilitate understanding, support long-term retention of information, and allow mothers to observe and practice the procedure directly. Educational institutions may use these findings as learning material and a reference by emphasizing the effectiveness of audiovisual media as a health-promotion tool. Primiparous postpartum mothers are also encouraged to actively seek health information through audiovisual media as part of their preparation for motherhood and to improve their self-care abilities.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest related to the publication of this article.

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