HTechJ Health and Technology Journal (HTechJ)

Volume 03 Number 02
April 2025
p-ISSN: 2986-5662
e-ISSN: 2985-959X

The Effect of Health Education with Audio Visual Media on the Ability of Toilet Training for Preschool Children

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Abstract:
Toilet training is one way to teach children to control bowel movements and urine. It is important to teach children to be independent in ablution and defecation. Toilet training is suitable for teaching children good habits from an early age. This study aimed to determine whether health education with audiovisual media affects the independence of toilet training in preschool children. The research method used is a pre-experimental design pretest and posttest group with a quantitative approach. The population of this study was all preschool, as many as 27 people. It shows that Before the intervention, it was found that independence had not been developed (BB) 0%, independence began to develop (MB) 25.9%, independence developed as expected (BSH) 40.7%, and independence was very well developed (BSB) 33.3%. It shows that after the intervention showed that independence did not develop (BB) 0%, independence began to develop (MB) 0%, independence developed as expected (BSH) 7.4% independence is very well developed (BSB) 92.6%. It shows that the average score before and after providing health education is -4.519, the standard deviation is 1.528, and the p-value is 0.000. Health education and audiovisual media influence the independence attitude of preschool children. Policymakers and healthcare institutions should prioritize incorporating digital tools into community health programs, particularly in underserved areas, to promote equitable access to essential developmental support.

Article info:
Submitted:
13-02-2025
Revised:
24-03-2025
Accepted:
28-03-2025

Keywords:
toilet training; preschool children; independence; ability

DOI: https://doi.org/10.53713/htechj.v3i2.341

INTRODUCTION

Toilet training is a critical developmental milestone in early childhood, serving as a foundation for fostering independence and personal hygiene habits (Eliza & Priyanti, 2025). This process involves teaching preschool children to recognize bodily signals, control bowel and bladder functions, and use the toilet appropriately (Wyndaele & Vermandel, 2023). Successful toilet training enhances a child's self-esteem, reduces parental stress, and promotes readiness for formal education (Muhati-Nyakundi, 2022). However, many parents face challenges implementing effective strategies due to a lack of knowledge, inconsistent approaches, or limited access to evidence-based resources (Riyahi et al., 2025). In this context, health education emerges as a potential solution to bridge gaps in parental understanding and empower both children and caregivers (Paquet et al., 2023; Antoro et al., 2025). This study investigates the role of audiovisual media as an innovative educational tool to improve toilet training outcomes in preschoolers, emphasizing its potential to address common barriers through engaging and accessible content.

Volume 03 Number 02
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p-ISSN: 2986-5662
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Transitioning from diaper dependence to toilet independence requires careful coordination between cognitive, physical, and emotional readiness (Özsavran et al., 2024). Preschool-aged children, typically between 2 and 5 years, exhibit varying developmental maturity levels, making standardized toilet training approaches complex (Csima et al., 2024). Traditional methods, such as verbal instruction or observational learning, often fall short due to their reliance on parental consistency and the child's ability to comprehend abstract guidance (Wyndaele & Vermandel, 2023). Furthermore, cultural and socioeconomic factors may limit access to structured educational interventions, exacerbating disparities in toilet training success (Riyahi et al., 2023). These challenges underscore the need for scalable, engaging, and developmentally appropriate tools that align with children's learning preferences (Hussain & Begum, 2024). Audiovisual media, with its dynamic combination of visual and auditory stimuli, presents a promising avenue to capture children's attention and reinforce desired behaviors through repetition and modeling (Wei et al., 2022; Fikriyah et al., 2023).

Video modeling, a technique where target behaviors are demonstrated via recorded media, has gained traction in educational and therapeutic settings due to its efficacy in teaching complex skills (Erath et al., 2021). Animated videos offer a non-threatening and relatable medium for young children to observe and imitate step-by-step processes, such as using the toilet, washing hands, and communicating needs (Heryani et al., 2022). Unlike live demonstrations, video modeling allows for a controlled presentation of behaviors, enabling children to focus on specific actions without environmental distractions (Mohammad & Boushehry, 2023). Additionally, the repetitive nature of video-based learning aids memory retention and skill generalization (Navarrete et al., 2023). Audiovisual resources provide parents with a clear, standardized framework, reducing uncertainty and enhancing their confidence in guiding toilet training. This dual benefit positions audiovisual media as a versatile tool for promoting child independence and parental competence (AlShubaily, 2025).

Despite growing interest in technology-driven educational interventions, limited research has explored the specific impact of audiovisual media on toilet training outcomes in preschool populations. Existing studies often focus on verbal instruction or behavioral reinforcement strategies, with fewer examining the integration of multimedia tools. Moreover, cultural contexts and regional disparities in healthcare access may influence the effectiveness of such interventions, yet these factors remain underinvestigated (Little et al., 2023). In the Engano Health Center's service area, where healthcare resources are constrained and parental education levels vary, there is a pressing need for low-cost, high-impact solutions to support early childhood development. This study addresses this gap by evaluating whether structured health education using audiovisual media can enhance toilet training independence among preschool children in this region, providing actionable insights for community health programs.

The Engano Health Center in North Bengkulu Regency serves a population where traditional toilet training practices often prioritize punitive or rushed approaches, potentially hindering a child's ability to internalize hygienic habits. By introducing audiovisual media as a complementary educational tool, this research aims to shift paradigms toward positive reinforcement and child-centered learning (Martins, 2021). The animated videos used in this study are designed to depict relatable characters navigating toilet training challenges, thereby normalizing the process and reducing anxiety for both children and parents (Ahmed et al., 2025). This approach aligns with social learning theory, emphasizing observation and imitation as key mechanisms for acquiring new behaviors (Wulandari & Rachmawati, 2024). The study's findings could inform the development of culturally adapted educational materials and strengthen partnerships between healthcare providers and families to promote early childhood health outcomes.

Volume 03 Number 02
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A key innovation of this research lies in its focus on dual-targeted education: empowering children through engaging media while equipping parents with practical strategies to reinforce learning (Nurherliyany et al., 2024). Unlike passive information dissemination, the intervention encourages active participation through guided discussions and practice sessions, fostering a collaborative learning environment (Rajaram, 2021). By measuring changes in child independence and parental self-efficacy, the study provides a holistic assessment of the intervention's impact (Huang et al., 2021). This multifaceted approach addresses immediate toilet training goals and lays the groundwork for sustained healthy habits, ultimately improving public health outcomes in underserved communities (Kahriman-Pamuk & Samuelsson, 2024).

This study seeks to answer the following research question about how health education using audiovisual media enhances preschool children's independence and toilet training activities in the Engano Health Center's service area. The primary objective is to evaluate the effectiveness of this intervention compared to conventional methods. At the same time, secondary aims include assessing parental satisfaction, changes in knowledge, and the feasibility of integrating audiovisual tools into routine health education programs. By rigorously analyzing these outcomes, the research aims to contribute valuable evidence to pediatric health promotion and inform scalable strategies for fostering early childhood independence.

METHOD

This study employs an experimental design with a one-group pretest-posttest approach to evaluate the effectiveness of health education using audiovisual media in enhancing toilet training independence among preschool children. The design was chosen to assess behavioral changes before and after the intervention without a control group, enabling efficient internal comparison. The study involved 27 preschool children (11 boys and 16 girls) from PAUD Nusa Indah Apoho, selected through total sampling due to the small and homogeneous population. The intervention consisted of short animated videos demonstrating simplified toilet training steps, followed by interactive discussions and practical demonstrations to reinforce children's and parents' understanding.

Data were collected from primary and secondary sources. Primary data included observations of children's toilet training independence (pre- and post-intervention) using a structured observation checklist, while secondary data comprised developmental records from the PAUD institution. Trained researchers conducted observations to ensure objectivity, and parents completed questionnaires regarding household toilet training habits and challenges. Ethical approval was obtained from the Ethics Commission of the Muhammadiyah University of Bengkulu, with informed consent from parents and strict confidentiality of participant data.

Data analysis began with the Shapiro-Wilk test to assess normality. Given the normal distribution of data, paired t-tests ($\alpha = 0.05$, 95% confidence level) were used to compare pretest and posttest scores, evaluating significant changes in children's independence. Descriptive analysis was also performed to characterize the sample and parental response patterns. The results aim to provide empirical evidence on the effectiveness of audiovisual media as an adaptive and sustainable health education tool, particularly in resource-limited settings.

RESULT

Table 1. Gender Characteristics of Preschool Children In the working area of the Enggano Health Center, North Bengkulu Regency

	Frequency	Percentage (%)
Gender		
Male	12	44.4
Female	15	55.6
Age (years)		
3	0	0
4	5	18.5
5	22	81.5
6	0	0

The results of Table 1 show that the male gender respondents were 44.4%, and the preppy gender respondents were 55.6%. The respondents aged 3 years were 0%, 4 years old 18.5%, and 5 years were 81.5%, and 6 years old were 0%.

Table 2. Independence of Toilet Training on Pretest and Posttest for Preschool Children In the working area of the Enggano Health Center, North Bengkulu Regency

Independence	Pretest		Posttest	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Not yet developed	0	0	0	0
Start to Grow	7	25.9	0	0
Developing as Expected	11	40.7	2	7.4
Very well developed	9	33.3	25	92.6
Total	27	100	27	100

Based on the results of Table 2, it shows that Before the intervention, it was found that independence had not been developed (BB) 0%, independence began to develop (MB) 25.9%, independence developed as expected (BSH) 40.7% and independence were very well developed (BSB) 33.3%. After the intervention showed that independence did not develop (BB) 0%, independence began to develop (MB) 0%, independence developed as expected (BSH) 7.4% independence is very well developed (BSB) 92.6%.

Table 3 The effect of health education with audiovisual media on the attitude of independence of preschool-age children in the work area of the Enggano Health Center, North Bengkulu Regency

Independence	Mean	SD	T	df	P Value
Pre-post	-4.519	1.52	-15.361	26	0.000

Based on the results of Table 3, it shows that the average score before and after providing health education is -4.519, the standard deviation is 1.528, and the p-value is 0.000, it can be concluded that there is an influence of health education with audiovisual media on the independence attitude of preschool children.

DISCUSSION

The findings of this study reveal a significant improvement in toilet training independence among preschool children following a health education intervention using audiovisual media.

Volume 03 Number 02
April 2025
p-ISSN: 2986-5662
e-ISSN: 2985-959X

Demographic data (Table 1) indicated a nearly equal gender distribution (44.4% male, 55.6% female), suggesting that the intervention's effectiveness was not gender-specific. The age distribution (Table 2) highlighted that 81.5% of participants were 5 years old, aligning with typical developmental expectations for toilet training mastery. However, the sample's absence of 3- and 6-year-olds underscores the need for age-specific recruitment strategies in future studies to ensure broader generalizability.

Prior to the intervention, only 33.3% of children demonstrated highly developed independence (BSB), while 25.9% were in early stages (MB), and 40.7% met expected benchmarks (BSH) (Table 3). Post-intervention, the proportion of children achieving BSB surged to 92.6%, with no participants falling below the BSH category (Table 4). This dramatic shift underscores the potential of audiovisual media to accelerate skill acquisition by providing precise, engaging, and repeatable demonstrations of toilet training steps (Kaimara et al., 2021; Noviyanti et al., 2023). The animated format likely captured children's attention, while the structured guidance empowered parents to reinforce learning at home, addressing common barriers such as inconsistent instruction or communication gaps.

The statistical analysis (Table 5) confirmed the intervention's efficacy, with a mean score difference of -4.519 and a p-value of 0.000, indicating a statistically significant improvement at the 95% confidence level. The enormous effect size suggests that audiovisual media influenced behavioral outcomes and standardized the learning process across diverse family environments. This aligns with social learning theory, where observational learning through relatable models enhances retention and imitation (O'Leary & Matusitz, 2024). The findings corroborate previous studies demonstrating that video modeling reduces the time required for toilet training and increases child autonomy compared to traditional verbal instruction (Eliza & Priyanti, 2025).

The success of this intervention in a resource-limited setting like the Enggano Health Center highlights its practicality for rural or underserved populations. By leveraging low-cost, scalable tools such as animated videos, healthcare providers can bridge gaps in parental knowledge and cultural practices that often delay toilet training (Andriyani & Putri, 2024). For instance, the shift from punitive approaches to positive reinforcement, as modeled in the videos, may reduce anxiety and resistance in both children and caregivers (Kumschick et al., 2024). This approach is particularly relevant in regions with limited access to formal parenting education.

Despite these promising results, the study's one-group pretest-posttest design limits causal inferences, as external factors (e.g., maturation or concurrent interventions) could not be ruled out. Additionally, the short follow-up period precludes conclusions about long-term habit retention. Future research should incorporate control groups, longer observation timelines, and larger samples to validate these findings. Exploring the integration of audiovisual tools with other behavioral strategies, such as reward systems, could further enhance outcomes (Al-Maroof et al., 2022).

This study also highlights the importance of culturally tailored educational content. The animated characters and scenarios were designed to reflect local norms, which may have increased parental acceptance and child engagement. However, replicating this intervention in diverse cultural contexts would require adaptations to ensure relevance and relatability. Collaborations between healthcare providers, educators, and multimedia developers could facilitate the creation of region-specific resources, maximizing accessibility and impact (Al-Worafi, 2024).

CONCLUSION

This research provides robust evidence that audiovisual media-based health education is a viable strategy to enhance toilet training independence among preschool children. By addressing both child learning preferences and parental guidance needs, such interventions offer a sustainable

solution to early childhood development challenges. Policymakers and healthcare institutions should prioritize incorporating digital tools into community health programs, particularly in underserved areas, to promote equitable access to essential developmental support.

ACKNOWLEDGEMENT

The author would like to express his deepest gratitude to all parties who have helped and always supported the author during this research.

CONFLICT OF INTEREST

There is no conflict of interest in this research. The research was conducted according to procedures, and official permission was obtained. Research is not related to the interests of other parties or anything else.

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