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The Effect of Digital Storytelling on the Level of Knowledge of Risky Sexual Behavior Among Adolescents

Kholifatus Sa'diyah*, Siti Sholikhah and Inta Susanti
Nursing Department, Faculty of Health Sciences, Universitas Muhammadiyah Lamongan, Lamongan, East Java, Indonesia

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Co-Author
Kholifatus Sa'diyah
kholifatussadiyah271@gmail.com
Nursing Department, Faculty of Health Sciences, Universitas Muhammadiyah Lamongan, Lamongan, East Java, Indonesia

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ABSTRACT

Introduction: Adolescents are particularly vulnerable to risky sexual behaviors due to insufficient reproductive health knowledge. Digital storytelling has emerged as an innovative health education approach to improve adolescents' reproductive health knowledge. This study aimed to analyze the effect of digital storytelling on the level of knowledge of risky sexual behavior among adolescents.

Methods: This pre-experimental study used a one-group pretest–posttest design. A total of 219 of 482 students at Persatuan Senior High School, Kedungpring, were selected through stratified random sampling. Participants received a 20-minute digital storytelling intervention. Data were collected using a validated 15-item true-or-false questionnaire and analyzed using the Wilcoxon signed-rank test.

Results: The results of this study show that before the digital storytelling intervention, most respondents (83%) had a moderate level of knowledge. After the intervention, almost all respondents (85%) had a good level of knowledge. Analysisi test with the Wilcoxon test showing a significant improvement ($p = 0.001$).

Conclusion: Digital storytelling is effective in improving adolescents' knowledge of risky sexual behavior. This method is recommended as a creative and relevant strategy for health promotion among youth.

Keywords: Adolescents, Digital Storytelling, Risky Sexual Behavior

INTRODUCTION

Adolescents face various challenges and problems due to their sensitive nature and vulnerability related to moral, ethical, religious, and socio-economic factors. At this stage, they cannot yet be considered fully mature, as they are still in a transitional phase. During this developmental transition from adolescence to adulthood, a lack of adequate knowledge about the risks of premarital

sexual relationships can lead adolescents to engage in deviant behaviors such as drug use, alcohol consumption, and risky sexual practices, including sexual activity with multiple partners or unprotected sex (Arisa et al., 2023).

In the current era of globalization, a wide range of information is easily accessible to anyone, anywhere, covering topics such as politics, lifestyle, culture, and even sexual issues. Sexual-related cases frequently become trending topics in the media, including issues of free association such as premarital sexual behavior and prostitution among adolescents (Aulia, 2022)

Several factors contribute to adolescents engaging in risky behaviors, including environmental influences, parent-child relationships, peer pressure, adolescents' understanding of religious values, weak faith and self-control, expressions of love toward partners, promises of marriage, high curiosity about sexuality, the desire to experiment, fear of disappointing or losing a partner, exposure to pornographic media, and lack of adequate sexual education from family and school (Hasanah, & Setiyabudi, 2020)

Based on preliminary studies and previous research, some adolescents still have limited knowledge regarding risky sexual behaviors, which may contribute to an increased risk of engaging in unhealthy sexual behaviors. This condition highlights the need for effective health education approaches that are appropriate to adolescents' characteristics. Therefore, this study is important to determine changes in adolescents' knowledge after receiving education through digital storytelling media, which may serve as an alternative health promotion medium in schools (Juliani et al., 2018).

Educational interventions are essential during adolescence to help individuals navigate these changes. One potential medium is digital storytelling, which delivers narratives—either fictional or real—through a combination of images, text, and audio. According to Al-Ghifari (2018) digital storytelling can serve as an innovative strategy to enhance literacy among the younger generation in Indonesia. Through digital storytelling, adolescents are expected to identify risky sexual behaviors and appropriately respond to the situations they face. It can also help build self-confidence, encourage viewing challenges as opportunities rather than threats, foster innovation, support goal-setting based on personal abilities, strengthen commitment, develop problem-solving strategies, and improve resilience in coping with stressors. The Digital storytelling suitable for adolescents, who are highly familiar with digital technologies and tend to engage more effectively with interactive and visually appealing learning materials than with conventional health education methods. Presenting information through relatable stories and realistic scenarios, digital storytelling not only captures students' attention but also facilitates emotional engagement, improves comprehension, and promotes better retention of health-related knowledge (Agustina, 2018). Ultimately, this approach can help adolescents control themselves and avoid negative habits or deviant sexual behaviors (Abrori, 2018). This study aimed to analyze the effect of digital storytelling on the level of knowledge of risky sexual behavior among adolescents.

METHOD

The research employed a pre-experimental design using a one-group pre-test and post-test approach. The study was conducted at Persatuan Senior High School Kedungpring, with a total population of 482 students. A sample of 219 students was selected using stratified random sampling.

The research instrument consisted of a questionnaire assessing knowledge of risky sexual behavior, comprising 15 items. Prior to data collection, the questionnaire underwent validity and reliability testing. The reliability test results indicated that the instrument demonstrated good reliability, confirming its suitability for measuring adolescents' knowledge of risky sexual behavior.

The study began with a pretest to assess participants' baseline knowledge before the intervention. Subsequently, participants received a 20-minute digital storytelling educational intervention covering risky sexual behavior, its risk factors, consequences, and preventive strategies. Upon completion of the intervention, participants completed the same questionnaire as a posttest to evaluate changes in their level of knowledge following the educational program.

Data were analyzed using the Wilcoxon Signed-Rank Test because the study compared participants' knowledge scores before and after the intervention within the same group. Furthermore, the normality test indicated that the data were not normally distributed; therefore, a nonparametric statistical test was employed. Statistical significance was determined at a p-value of < 0.05.

RESULTS

Data collection was conducted in February 2025. The results are presented in two categories: general data and specific data.

Table 1. Frequency Distribution of Respondents by Gender, Age and Grade Among Students (n=219).

Characteristics	n	(%)
Gender		
Male	109	49
Female	110	51
Total	**219**	**100**
Age		
15 Year	19	8.8
16 Year	60	27.3
17 Year	50	22.8
18 Year	50	22.8
19 Year	40	18.3
Total	**219**	**100**
Grade		
X	77	35
XI	72	33
XII	70	32
Total	**219**	**100**

Table 2. Frequency of Knowledge Level Before and After Intervention (n=219)

Knowledge	Before		After	
Level	n	(%)	n	(%)
Good	14	6	186	85
Adequate	182	83	28	13
Inadequate	23	11	5	2
Total	**219**	**100**	**219**	**100**

Based on Tables 1, a total of 219 respondents participated in this study. The majority of respondents were 16 years old, female, and enrolled in Grade 10.

Base on Table 2. above indicates that prior to the intervention, students' knowledge levels fell into the "fair" category. However, following the intervention, the students' knowledge levels improved significantly, shifting almost entirely to the "good" category. This demonstrates that the use of digital storytelling as an educational medium has a significant impact on students' knowledge levels.

These findings are further supported by the results of the Wilcoxon signed-rank test, which yielded a p-value of 0.001. Since this p-value is less than the significance level ($\alpha = 0.05$), it can be concluded that the research hypothesis (H1) is accepted; this means that digital storytelling has a significant influence on the knowledge regarding risky sexual behavior among adolescents at SMA Persatuan Kedungpring.

DISCUSSION

Based on the findings from 219 students, it can be explained that before the digital storytelling intervention, most respondents (83%) were in the moderate knowledge category, a small proportion (6%) were in the good category, and 11% were in the poor category. Students' knowledge can be influenced by several factors, including education, age, environment, socio-cultural background, and access to information or mass media.

According to Diananda (2019) knowledge is influenced by several factors such as education level, information exposure, culture, experience, and socio-cultural environment. Individuals with broader access to information tend to have clearer and better knowledge. Information obtained from both formal and informal sources can provide short-term knowledge that leads to changes and improvements in understanding. Likewise, technological advancements have provided various forms of mass media that can influence students' knowledge of new information. Communication media such as magazines, television, and others have a strong influence on students' opinions, perceptions, and beliefs. One of the factors contributing to the low level of knowledge among respondents regarding risky sexual behavior in this study is the lack of education or information received.

According to Notoatmodjo (2019) knowledge is influenced by several factors, including education level, information, culture, experience, and socio-cultural aspects. Access to extensive information leads to clearer knowledge. Information obtained through either formal or informal channels can provide short-term knowledge, thereby resulting in changes to and an increase in knowledge. Similarly, technological advancements provide various forms of mass media that can influence students' knowledge regarding new information. Communication channels such as magazines, television, and others significantly impact students' opinions and beliefs. The factor contributing to the respondents' lack of knowledge regarding risky sexual behavior in this study is the lack of education or information acquired.

Differences in knowledge levels among students stem from various factors, including education, interests, age, the surrounding environment, and the information acquired. The more information obtained and the more supportive the learning environment, the more significant the increase in knowledge

(Nainggolan, 2019). In the realm of education, there is the concept of educational levels, which represent the stages of an individual's schooling. The higher an individual's level of education, the greater the knowledge they possess (Erlina, 2020).

Differences in knowledge levels before and after the digital storytelling educational intervention were analyzed using the Wilcoxon Signed-Rank Test. The analysis revealed a statistically significant difference between pre-intervention and post-intervention knowledge scores ($Z = 12.848$, $p = 0.001$). The p-value of less than 0.05 indicates that participants' knowledge significantly improved following the digital storytelling educational intervention.

Based on the posttest results of the 219 respondents, the majority demonstrated a good level of knowledge, with 186 respondents (85%) categorized as having good knowledge, 28 respondents (13%) as having moderate knowledge, and 5 respondents (2%) as having poor knowledge. The Wilcoxon Signed-Rank Test revealed a statistically significant difference in knowledge levels before and after the intervention ($p = 0.001$), indicating that the digital storytelling intervention effectively improved participants' knowledge of risky sexual behavior.

The results of this study show that before the digital storytelling intervention, most respondents (83%) had a moderate level of knowledge. After the intervention, almost all respondents (85%) had a good level of knowledge. These findings were strengthened by the hypothesis test results, which showed a p-value of 0.001, where the p-value is smaller than α (0.005), indicating that H1 is accepted.

The findings indicate that before the digital storytelling intervention, students' knowledge levels tended to be low, while after the intervention, the majority of students were in the high knowledge category. This shows a clear improvement in students' understanding of risky sexual behavior.

Changes in students' knowledge levels regarding risky sexual behavior occurred through the use of digital storytelling, as the digital videos provided enhanced their understanding of the forms such behavior takes. Digital storytelling was implemented with the aim of imparting knowledge about risky sexual behavior to the students (Fitriani, & Purwaningtyas, 2020).

Utami (2023) reported that digital storytelling contributes to increased knowledge, as reflected in respondents' improved ability to recognize and understand risky sexual behavior. This media utilizes visual and narrative elements that are more engaging for adolescents, making it easier for them to access and absorb information through digital platforms. Stories presented in the form of videos or animations are more emotionally engaging and easier for young people to understand. Through these narratives, adolescents are able to better comprehend the consequences of risky sexual behavior because they are presented with more realistic and relatable examples.

The improvement in participants' knowledge observed in this study may be attributed to the use of digital storytelling, which delivers health information through a combination of narrative, images, audio, and video, thereby enhancing participants'

attention and engagement. As the respondents were senior high school students, they were highly familiar with digital media, making the educational content easier to understand than conventional lecture-based methods (Mojtahedzadeh et al., 2021).

Digital storytelling is also relevant to reproductive and sexual health education because sexual health topics can be sensitive and difficult to discuss through conventional teaching approaches. Described digital storytelling as a promising approach for sexual health promotion because narrative-based activities can provide a safer and more participatory context for discussing sensitive sexuality-related issues. Although the study was not conducted using the same design as the present research, its findings strengthen the rationale for using narrative media to communicate sexual health information to young people (Ferdiansyah, 2023).

The effectiveness of digital storytelling can also be explained by its ability to combine narrative content with visual and auditory information. Moreau et al., (2018) in a systematic review, found that digital storytelling can enhance learning when it is appropriately integrated into educational activities. The combination of narrative, images, audio, and video can provide contextual learning experiences and make educational information easier to understand and remember. Although the reviewfocused primarily on health professions education, its findings support the mechanism through which digital storytelling may facilitate knowledge acquisition, particularly when learners are exposed to meaningful and contextualized stories.

In the context of adolescent education, digital storytelling is particularly relevant because adolescents are familiar with digital media and commonly interact with visual and multimedia content. West et al., (2022) demonstrated that digital storytelling-based educational videos can serve as independent learning resources for late adolescents and can improve learning effectiveness. Similarly, research on digital storytelling among secondary-school learners has shown that this approach can increase student engagement and facilitate the development of digital literacy. These findings suggest that the use of digital media in health education is not only a matter of presenting information through technology, but also of adapting the delivery of information to adolescents' learning characteristics.

The sexual behavior currently prevalent among adolescents is driven by sexual desire—whether with the opposite sex or the same sex—arising from hormonal surges that heighten the urge for sexual intercourse. This phenomenon is accompanied by physical changes. The progression of sexual intimacy ranges from hugging, holding hands, and kissing to fondling the breasts and genitals, culminating in sexual intercourse (Adi et al., 2021)

Factors influencing this behavior include predisposing factors, enabling factors, and reinforcing factors. Predisposing factors facilitate the occurrence of a behavior and include knowledge, attitudes, convictions, beliefs, values, and traditions. Enabling factors allow for or facilitate a behavior; examples include health infrastructure—such as community health centers (Puskesmas), integrated health posts (Posyandu), and

hospitals—as well as the financial means for medical treatment. Meanwhile, reinforcing factors strengthen a person's tendency to adopt either healthy or unhealthy behaviors; these include encouragement from parents, community leaders, or peers (Maharani, 2024).

The mechanism behind digital storytelling involves the activation of a "dual-coding system"—the simultaneous use of visual and verbal channels—which has been proven to enhance information retention. Furthermore, the emotional and reflective nature of the narratives in digital storytelling boosts students' cognitive and affective engagement, thereby deepening understanding and fostering attitude changes. Digital storytelling can improve adolescent literacy by forging personal connections between the story and individual experiences through empathy, self-identification, and multisensory engagement; consequently, it not only increases knowledge but also cultivates the awareness needed to make healthier decisions regarding risky sexual behaviors among adolescents (Fadillah, & Dini, 2021).

The improvement in participants' knowledge observed in this study may be attributed to the use of digital storytelling, which delivers health information through a combination of narrative, images, audio, and video, thereby enhancing participants' attention and engagement. As the respondents were senior high school students, they were highly familiar with digital media, making the educational content easier to understand than conventional lecture-based methods. Furthermore, presenting the material through stories that reflected real-life situations enabled participants to better understand the consequences of risky sexual behavior and improved their retention of the information provided. This finding is reflected in the substantial increase in the proportion of respondents with a good level of knowledge, rising from 6% at the pretest to 85% after the intervention.

These findings are consistent with those of previous studies, which have reported that digital storytelling enhances learners' engagement, strengthens their understanding of educational content, and improves the retention of health-related information by presenting it through visual, auditory, and contextual formats.

CONCLUSION

The results of this study showed that before the digital storytelling intervention, the majority of adolescents had a moderate level of knowledge regarding risky sexual behavior. After receiving the 20-minute digital storytelling intervention, the majority of adolescents had a good knowledge level. Giving digital storytelling can improve the knowledge of risky sexual behavior among students at Persatuan Senior High School Kedungpring. Therefore, digital storytelling can be used as an alternative health education medium that is relevant to the characteristics of adolescents and can support school-based health promotion.

Based on the findings of this study, schools are recommended to consider the use of digital storytelling as an alternative health education medium in adolescent reproductive health programs, particularly for providing information about risky sexual behavior, its risk factors, consequences, and prevention. Health workers and teachers are also encouraged

to develop educational materials that are attractive, age-appropriate, informative, and relevant to adolescents' daily experiences so that health information can be delivered more effectively.

For future researchers, it is recommended to use a quasi-experimental or randomized controlled trial design involving a control group, a larger sample size, and longer follow-up assessments. Further research is also recommended to evaluate not only changes in knowledge but also changes in adolescents' attitudes and actual preventive behaviors related to risky sexual behavior, so that the longer-term effectiveness of digital storytelling can be assessed more comprehensively.

REFERENCES

Abrori, Q. M. (2018). *Buku Ajar Infeksi Menular Seksual*. Universitas. Muhammadiyah Pontianak.

Adi Saputra, I. P. A., Jampel, I. N., & Suwatra, I. I. W. (2021). Pengembangan Instrumen Penilaian Kompetensi Pengetahuan Ipa Siswa Sd Kelas V. Journal for Lesson and Learning Studies, 4(1), 13–1.

Agustina, S. (2018). *Mendongeng Sebagai Energi Bagi Anak*. Rumah Ilmu Indonesia.

Al-Ghifari, A. (2018). *Gelombang Kejahatan Seks Remaja Modern*. Mujahid Press., (Pp. 34–36.

Arisa, A., Latifah, L., Supriadinata, S., Fawwaz, M. I. R., Junisa, N. E., & Salsabila, A. (2023). Analisis Pengembangan Self Efficacy Melalui Sains Video Edukasi Dalam Upaya Pencegahan Perilaku Seksualitas Pada Remaja di Kota Banjarmasin. Jpemas:Jurnal Pengabdian Kepada Masyarakat, 1(2), 196–.

Aulia, B. N. (2022). Analisis Faktor yang Berhubungan dengan Perilaku Seksual Berisiko Pada Remaja Usia 10-19 Tahun di Semampir Surabaya. Stikes Hang Tuah Surabaya.

Diananda, A. (2019). Psikologi Remaja dan Permasalahannya. Jurnal Pendidikan dan Pemikiran Islam, 1(1). 116–.

Erlina Putri, G. (2020). Students'perception on E-Learning Use in Fourth and Sixth Semesters of English Department in Muhammadiyah University Of Ponorogo (Doctoral Dissertation,. Universitas Muhammadiyah Ponorogo).

Fadillah, I., & Dini, K. (2021). Digital Storytelling Sebagai Strategi Baru Meningkatkan Minat Literasi Generasi Muda. Journal of Education Science, 7(2), 81–9.

Ferdiansyah. (2023). Collaborative Genre-Based Digital Storytelling of English as A Foreign Language: A Case of an Indonesian Primary School. Education, 3–13, 52(8.

Fitriani, A., & Purwaningtyas, D. R. (2020). Peningkatan Pengetahuan Dan Keterampilan Kader Posyandu Dalam Pengukuran Antropometri Di Kelurahan Cilandak Barat Jakarta Selatan. Jurnal Solma, 9(2), 367-.

Hasanah, E. H., & Setiyabudi, R. (2020). Hubungan Peran Orang Tua dan Pengetahuan Kesehatan Reproduksi Remaja Dengan Perilaku Seksual Pra Nikah Siswa di Sma Kabupaten Cilacap. Jurnal Keperawatan Muhammadiyah, 5(2). Https://Doi.Org/Https://Doi.Org/10.30651/Jkm.V5i2.5018

Juliani, K. P., Kundre, R., & Bataha, Y. B. (2018). Hubungan Pengetahuan Dengan

Sikap Remaja Tentang Perilaku Seksual Pranikah Pada Siswi Kelas X di Sma Negeri 1 Manado. Jurnal Keperawatan Unsrat, 2(2), 1049.

Maharani, S. A. (2024). Analisis Peran Media Dalam Perkembangan Perilaku Seksual Menyimpang Pada Generasi Muda.

Mojtahedzadeh, R., Mohammadi, A., Emami, A. H., & Zarei, A. (2021). How Digital Storytelling Applied in Health Profession Education: A Systematized Review. Journal of Advances in Medical Education & Professionalism, 9(2), 63–7.

Moreau, K. A., Eady, K., Sikora, L., & Horsley, T. (2018). Digital Storytelling in Health Professions Education: A Systematic Review. BMC Medical Education, 18, 208.

Nainggolan, S. J. (2019). Gambaran Pengetahuan Anak Tentang Jenis Makanan Kariogenik Terhadap Terjadinya Karies Gigi Pada Siswa/I Kelas Vb Sd Negeri 068003 Kayu Manis Perumnas Simalingkar Medan Tuntungan. Jurnal Ilmiah Pannmed (Pharmacist, Analyst, Nurse, Nutrition, Midwifery, Environment, Dentist), 14(1), 110.

Notoatmodjo, S. (2019). Promosi Kesehatan dan Konsep Perilaku. Rineka Cipta, Jakarta.

Utami, A. I., Sauqina, S., & Sari, M. M. (2023). Development of Science Education Videos Based on Digital Storytelling as an Independent Learning Resource for Late Adolescents. Journal of Innovative Science Education, 12(3), 322.

West, C. H., Rieger, K. L., Kenny, A., Chooniedass, R., Mitchell, K. M., Klippenstein, A. W., Zaborniak, A.-R., & Demczuk, L. (2022). Digital Storytelling as A Method in Health Research: A Systematic Review. International Journal of Qualitative Methods.