



(RESEARCH ARTICLE)



Effect of e-health literacy support on the HIV/AIDS transmission preventive behavior of punk teenagers in Indonesia

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GSC Advanced Research and Reviews, 2024, 18(02), 246–251

Publication history: Received on 02 January 2024; revised on 09 February 2024; accepted on 11 February 2024

Article DOI: <https://doi.org/10.30574/gscarr.2024.18.2.0056>

Abstract

Introduction: HIV/AIDS has been acknowledged as an endemic and deadly disease which can spread rapidly. This study proposes to reveal the effect and effectiveness level of e-health literacy on the HIV/AIDS transmission preventive behavior of teen punks.

Methods: This study employed a quantitative experimental design that falls under action research. It carried out an accidental sampling approach and was conducted with 82 participants who had signed an informed consent form. Data were collected using a 5-point Likert scale questionnaire. The selected statistical analyses were Paired Sample T-Test and N-Gain score. Both were to determine the effectiveness level with a significance of 95%.

Results: This study shows that 80.5% of the participants were male, with an average age of 25.95 ± 6.442 . Furthermore, 65.9% were unmarried, and 62.2% had completed high school education. Additionally, gender, age, marital status, and education were found to have no significant influence on preventive behavior. However, support for e-health literacy significantly impacts preventive behavior ($p=0.00$), with a mean difference of 13.38. Support for e-health literacy effectively reinforces preventive behavior in the context of HIV/AIDS transmission (n-gain score=59.4%).

Conclusion: Support for e-health literacy effectively reinforces preventive behavior in the context of HIV/AIDS transmission of punk teenagers.

Keywords: HIV/AIDS; Preventive behavior; Support for e-health literacy; Punk teenagers

1. Introduction

HIV/AIDS is an endemic and deadly disease with a rapidly increasing transmission rate. According to the incidence data in 2021, the disease claimed the lives of 650,000 individuals (with a range of 510,000-860,000 deaths) and infected 1.5 million people (with a range of 1.1-2 million with HIV/AIDS) [1]. Globally, the highest contributions are from Africa, followed by Southeast Asia. Indonesia ranks as the second highest contributor in Southeast Asia. At the provincial level, East Java contributes to the highest cases (8,935), followed by DKI Jakarta (6,701), West Java (6,066), and Central Java (5,630). In terms of AIDS, Central Java has the highest number of cases (488), followed by East Java (230) and DKI Jakarta (152) [2]. Further speaking, Surakarta has 70 cases, Boyolali has 46, Sukoharjo has 56, Karanganyar has 116, Wonogiri has 64, Klaten has 80, and Sragen has 97 [3]. Based on the given information, it can be observed that the total case is quite extreme, serving as a warning to remain vigilant against the spread and transmission of HIV/AIDS in Indonesia, particularly in Solo, which is experiencing a high cumulative number of HIV/AIDS cases.

Inclining HIV/AIDS transmission can have global and national impacts, affecting the economy [4]. At the national level, the impacts can begin at the societal and familial levels, affecting social, economic, and psychological aspects [5].

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Ironically, the disease can start from the family level, our smallest social unit. Teenagers from families with less strong character and good principles are more susceptible to being influenced by a wrong or risky lifestyle, potentially leading to HIV/AIDS transmission [6]. One of the vulnerable groups among teenagers is those affiliated with the punk subculture, as their lifestyle and perception often revolve around the desire for freedom [2]. Punk teenagers' perception is rooted in their inclination towards freedom and resistance against conformity, giving rise to engagement in risky behaviors that escalate the chances of infection [7]. Therefore, it is crucial to conduct further studies targeting punk teenagers at high risk of HIV/AIDS transmission.

A field study involving 30 punk teenagers revealed the following findings: 93.3% had heard of HIV/AIDS, 97% claimed to be unaware of the modes of HIV/AIDS transmission, 86.7% reported not knowing how HIV/AIDS is transmitted, 60% admitted to being unaware of the risk factors for HIV/AIDS infection, 83.3% stated that they did not know the signs and symptoms of HIV/AIDS transmission, and 60% mentioned not being familiar with HIV/AIDS treatment options. These results indicate that punk teenagers face barriers in accessing accurate information necessary for lifestyle changes and adopting preventive behaviors against HIV/AIDS transmission. Therefore, it is crucial to conduct studies on preventive behaviors against HIV/AIDS transmission among punk teenagers.

In response to the impacts and risk factors, the government has tried to combat and reduce HIV/AIDS transmission through the National Action Plan (RAN) 2020-2024. The national strategies for HIV/AIDS prevention and control within the RAN (2020-2024) consist of six strategies. However, obstacles prevent HIV/AIDS transmission, such as difficulty identifying the majority of infection sources and the challenge of achieving comprehensive and effective control. Therefore, health promotion efforts are needed to empower punk teenagers. Currently, the most viable method to prevent the spread of HIV/AIDS and protect vulnerable populations is utilizing technology and employing specialized strategies [8].

The emergence of technology and the internet has transformed disease prevention and control strategies, enabling communities or punk teenagers to access information quickly and efficiently while minimizing exposure to misinformation. However, when it comes to the effectiveness of health promotion information related to HIV/AIDS prevention among punk teenagers, there are limitations regarding electronically-based approaches. E-health literacy can be understood as a combination of technological literacy integrated with information literacy, moral literacy, media literacy, and learning skills [9].

Numerous efforts must address the preventive behaviors against HIV/AIDS transmission among punk teenagers, aiming to raise awareness and promote accurate health information literacy, avoiding misinformation. This will help individuals and punk communities access and comprehend reliable health information about HIV/AIDS prevention. By doing so, they can determine whether there are differences in preventive behaviors and the effectiveness of e-health literacy support.

1.1. Research problems

- What is the difference in HIV/AIDS preventive behaviors after receiving e-health literacy support?
- How is the effectiveness level of e-health literacy support on preventive behaviors against HIV/AIDS transmission?

2. Method

2.1. Research design and participant selection

This study employed a quasi-experimental design by carrying out pre-test and post-test measurements without a control group. The participants were 82 punk teenagers selected through accidental sampling or encountered on the spot, so it was impractical to create two groups simultaneously. The e-health literacy questionnaire was administered to 85 individuals initially, but only 82 (96.47%) completed it thoroughly. Three participants (3.53%) were excluded from the study as they needed to follow the research process and complete the questionnaire. The inclusion criteria for participants included availability of respondents, ability to read, residing in the *Subosukowanasraten* (Surakarta, Boyolali, Sukoharjo, Karanganyar, Wonogiri, Sragen, and Klaten), having good awareness, and living in the area for approximately three months.

2.2. Research instrument

All data were collected using an online learning interaction evaluation tool—developed by the researchers through e-health literacy support. The instrument utilized a 5-point Likert scale approach (5 for "strongly agree", 4 for "agree", 3 for "neutral", 2 for "disagree", and 1 for "strongly disagree"). The treatment variable of e-health literacy support was found to be valid (< 0.05) and consistent (0.0863) through testing using the Intraclass Correlation Coefficient (ICC) by three IT experts. The variables of intention for preventive action and preventive behavior also showed validity (< 0.05) and consistency (0.899). The sociodemographic variables of punk teenagers include gender, age, marital status, and education.

2.3. Statistic test

Standard deviation, mean, and interquartile range (minimum and maximum) were used to describe the characteristics of punk teenagers and categorical variables. An ANOVA test was used to assess the characteristics of participants with numerical data, while Fisher's exact test was utilized for categorical data. The Paired Sample T-Test was used to determine the difference in HIV/AIDS preventive behaviors after receiving e-health literacy support. The N-Gain Score test was used to assess the effectiveness level of e-health literacy support on preventive behaviors against HIV/AIDS transmission. The interpretation categories for N-Gain effectiveness include four categories ($<40\%$ for "not effective," 40-55% for "less effective," 56-75% for "moderately effective," and $>76\%$ for "effective"). The statistical tests were conducted with a significance level of 95% and analyzed using SPSS.

2.4. Ethical considerations

Participants were informed that all observations would be kept confidential and used solely for scientific purposes and ethical considerations. Participation was voluntary, and there were no penalties for non-participation. Participants' data were also kept confidential. The Ethics Committee of dr approved this study. Moewardi Hospital, Surakarta, with approval No. 1.659/XII/HREC/2022.

3. Results

3.1. Demographic characteristics

Table 1 Demographic Characteristics (n=82)

Information	Item	Quantity	Percentage	p-value
Gender	Male	66	80.5	0.825
	Female	16	19.5	
Age (years)	12-16 (Early Teenagers)	3	3.7	0.202
	17-25 (Late Teenagers)	44	53.7	
	26-35 (Early Mature)	26	31.7	
	36-45 (Late Adult)	9	11.0	
	Average \pm Std. deviation	25.95 \pm 6.442		
	Minimum	13		
	Maximum	43		
Marital Status	Marry	28	34.1	0.379
	Unmarried	54	65.9	
Education Level	No School	2	2.4	0.051
	Elementary School	2	2.4	
	Junior High School	15	18.3	
	Senior High School	51	62.2	
	Diploma III or Bachelor	12	14.6	

Table 1 points out the essential characteristics of the participants, including gender, education, age, marital status, and the relationship between preventive behaviors and demographic characteristics. Most participants (80.5%) were male, with an average age of 25.95 ± 6.442 (ranging from 17 to 25 years). 65.9% were unmarried, and 62.2% had completed senior high school. Gender, age, marital status, and education do not significantly differ in preventive behaviors (p -value > 0.05).

3.2. Effectiveness of e-health literacy support

Table 2 demonstrates that e-health literacy support has a significant effect, with a mean difference of 13.38 on the intention for action and preventive behavior toward transmitting HIV/AIDS (p -value = 0.00). The support of e-health literacy was effective in improving preventive behaviors against the transmission of HIV/AIDS (n-gain score = 59.4%).

Table 2 Results of Paired T-Test and N-Gain Score

	Mean Difference	Effectiveness Level	
		p-value	N-gain
Pre-test_Post-test	13.38	$0.00 < 0.05$	59.4%

4. Discussion

The results point out the effects and differences in preventive behaviors against the transmission of HIV/AIDS after receiving support from e-health literacy. This finding is consistent with previous research that demonstrated the differential impact of preventive behavior following education using the Theory of Planned Behavior (TPB) and the Health Belief Model (HBM) [10]. The study concluded that education provided evidence of improving preventive behavior in the health field. Other studies have also explained that there is a significant change in intention to improve the quality of life at the individual, group, and community levels, indicating the impact of education in bringing about behavioral changes (habit patterns) [11]. Another study stated that there is an influence of using Web-Based She Smart on preventive behavior [12]. Additionally, this study aligns with research that indicates a change in behavior regarding preventing HIV/AIDS transmission through education based on Android platforms, known as YAP [13].

E-health literacy support application is quite effective in influencing preventive behaviors against the transmission of HIV/AIDS among punk teenagers. This aligns with studies stating that Android-based educational methods are effective in HIV/AIDS prevention efforts by providing information on HIV/AIDS symptoms, prevention methods, management, treatment, access to HIV services, and related protective measures (condom use) [13]. Another study stated that overall, Android-based applications are easy to understand due to their clear objectives and purpose and clear explanations of the application's flow. The Android-based telenursing application (SI-Telur Petis) significantly influences behavioral modifications in disease prevention [12]. Additionally, this study aligns with research that indicates the effectiveness of implementing the Android-based HIV Care Tool application in promoting lifestyle changes among mothers with HIV/AIDS, leading to increased knowledge of preventive behaviors and reduced HIV transmission [14]. Another study also stated that using technology effectively enhances the quality of learning by providing information, organizational support, and skills [15]. However, this recent study has a limitation: the researchers could not monitor the behavior of punk teenagers all the time.

5. Conclusion

The results of this study show that e-health literacy support significantly changes the preventive behaviors of HIV/AIDS transmission among punk teenagers, with a p -value of 0.00 and a mean difference of 13.38. Furthermore, the e-health literacy support application is considered quite effective in promoting behavioral changes regarding HIV/AIDS prevention among punk teenagers, with an effectiveness score of 59.38% falling within the interpretation range of 56–75 (quite effective). Further studies are suggested to update information on HIV/AIDS preventive behaviors—specifically among punk teenagers, add varied and interactive app interfaces to make them more appealing, and develop interactive teaching methods to facilitate learning.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflict of interest.

Authors' Contributions

- Yuliana Nur Kolifah & Martono Martono: conception, design, data collection, manuscript preparation, and critical revision.
- Yeni Tutu Rohimah: conception, design, and approval of publication, critical revision.

Statement of informed consent

The authors stated that the ethical consideration for this retrospective study was obtained from the Health Research Ethics Committee of Dr. Moewardi General Hospital, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, with the issuance number 1.659/XII/HREC/2022. Any information attained through the survey was kept confidential and would only be used for scientific purposes. The authors further stated that participation on the study was voluntary and respondents were maintained anonymity. A detailed description of the methodological expectations, anonymity, and confidentiality was discussed in the written agreement. No conflict of interest is declared by authors.

References

- [1] WHO, "HIV," <https://www.who.int/news-room/fact-sheets/detail/hiv-aids>, no. July 2022.
- [2] Kemenkes RI, "Infodatin HIV AIDS," *Kementeri. Kesehatan. Republik Indones.*, pp. 1–8, 2020, [Online]. Available: <https://pusdatin.kemkes.go.id/resources/download/pusdatin/infodatin/infodatin-2020-HIV.pdf>
- [3] BPS Jateng, "Jumlah Kasus HIV/AIDS, IMS, DBD, Diare, TB dan Malaria Menurut Kabupaten / Kota di Provinsi Jawa Tengah," *Badan Pusat Statistik*. 2018. [Online]. Available: <https://jateng.bps.go.id/indicator/30/393/1/jumlah>
- [4] International Labour Organization (ILO), "Flipchart pencegahan dan penanggulangan HIV dan AIDS," *Int. Labour Organ.*, pp. 1–41, 2011, [Online]. Available: https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms_249791.pdf
- [5] N. Prathama Limalvin, W. C. Wulan Sucipta Putri, and K. A. Kartika Sari, "Gambaran dampak psikologis, sosial dan ekonomi pada ODHA di Yayasan Spirit Paramacitta Denpasar," *Intisari Sains Medis*, vol. 11, no. 1, p. 81, 2020, doi: 10.15562/ism.v11i1.208.
- [6] Y. A. A. Swastika and A. M. Masykur, "Tabah Sampai Akhir (Sebuah Studi Kasus Pada Keluarga Penderita HIV/AIDS)," *Empati*, vol. 6, no. 4, pp. 424–432, 2018.
- [7] Siti Nurul Hidayah and Bela Fariza, "Konsep Pendidikan Dan Kebebasan Anak Punk Street," *Ed-Humanistics J. Ilmu Pendidik.*, vol. 5, no. 1, pp. 645–651, 2020, doi: 10.33752/ed-humanistics.v5i1.705.
- [8] J. Liu, "HIV Digital Vaccine Strategy: Proposal for Applying Blockchain in Preventing the Spread of HIV," *JMIR Res. Protoc.*, vol. 11, no. 6, p. e37133, 2022, doi: 10.2196/37133.
- [9] K. Media, "Istilah E-Literacy dan ICT Literasi," *Ocean Model.*, vol. 22, no. 3, pp. 1361–1369, 2017, [Online]. Available: <https://juhaeraku.wixsite.com/kavita-media/post/istilah-e-literacy-dan-ict-literacy>
- [10] S. Park and S. Oh, "Factors associated with preventive behaviors for COVID-19 among adolescents in South Korea," *J. Pediatr. Nurs.*, vol. 62, pp. e69–e76, 2022, doi: 10.1016/j.pedn.2021.07.006.
- [11] N. H. P. Nabila, Strategi Pemberdayaan Spiritual Anak Punk (Studi Kasus Program "Peta Jalan Pulang" Di Pondok Tasawuf Underground, Ciputat, Tangerang Selatan) *Skripsi*, vol. 4, no. 1. 2023. [Online]. Available: [https://repository.uinjkt.ac.id/dspace/bitstream/123456789/67654/1/Nur Hana Putri Nabila-FDK.pdf](https://repository.uinjkt.ac.id/dspace/bitstream/123456789/67654/1/Nur%20Hana%20Putri%20Nabila-FDK.pdf)
- [12] E. Ernawati, Y. S. Baso, H. Hidayanty, S. Syarif, A. Aminuddin, and B. Bahar, "Effects of Anemia Education Using Web-Based She Smart To Improve Knowledge, Attitudes, and Practice in Adolescent Girls," *Int. J. Heal. Med. Sci.*, vol. 5, no. 1, pp. 44–49, 2022, doi: 10.21744/ijhms.v5n1.1831.

- [13] D. T. Zafirah, Peran Yayasan Anak dan Perempuan (Yap) Dalam Pemberdayaan Kesehatan Dan Ekonomi Di Kalangan Pekerja Seks Perempuan (Psp). 2022. [Online]. Available: [https://Repository.uinjkt.ac.id/dspace/bitstream/123456789/60900/1/Defa Tsamara Zafirah-FDK.pdf](https://Repository.uinjkt.ac.id/dspace/bitstream/123456789/60900/1/Defa%20Tsamara%20Zafirah-FDK.pdf)
- [14] R. Galaupa and M. S. Program, "The Effectiveness of Implementing The Android-Based Hiv Car Tools Application to Lifestyle Changes in Mothers With HIV / AID," vol. 2, no. 1, pp. 108–116, 2023, [Online]. Available: <https://journal.amikveteran.ac.id/index.php/ijmh/article/view/1143/934>
- [15] M. Martono, U. Sujianto, M. A. Rasyid, P. Ayu, and R. T. Astuti, "Online Learning Interactions During The Level I Covid-19 Pandemic Community Activity Restriction : What Are The Important Determinants And Complaints ?," vol. 6, no. 6, pp. 10068–10083, 2022, [Online]. Available: <https://www.journalppw.com/index.php/jpsp/article/view/9516/6198>