THE INFLUENCE OF IMPLEMENTING THE HEALTH PROMOTION MODEL VIA TELEHEALTH E-BOOKLET ON HIV/AIDS KNOWLEDGE IN ADOLESCENTS

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Abstract

The increasing cases of HIV/AIDS in the productive age in Southeast Asia require Indonesia to increase prevention of the spread and transmission of HIV. Adolescents are the productive age group that is most vulnerable to HIV/AIDS infection, and the incidence of this disease is increasing among this demographic group, based on the data results at the Batujajar Health Center, cumulatively in 2023 there were 9 cases of HIV. One of the HIV sufferers was a teenager so it is important to implement the health promotion model to increase knowledge of sexuality in adolescence and prevent risky behavior through the use of technological developments such as the use of telehealth e-booklet. This research aims to determine the effect of implementing the health promotion model via telehealth e-booklets on HIV/AIDS awareness in adolescents. This research is quantitative research with a pre-experimental design method with a one-group pretest-posttest type using the marginal homogeneity test, resulting in a p-value (0.000) a (0.05), and total participant are 34 students who are class XI of SMK Dharma Bhakti Indonesia, with the total sampling method. The research instrument used the HIV/AIDS knowledge instrument was adopted from the adolescent knowledge questionnaire about HIV/AIDS developed by Budiman and Riyanto which consisted of 20 questions, and health promotion through telehealth e-booklet consisting of 11 sheets. This result it can be concluded that there is an influence of implementing the health promotion model via telehealth e-booklets on knowledge of HIV/AIDS in adolescents. It is hoped that this research can become the basis for implementing increased health promotion by health agencies for adolescents and especially the wider community considering the very significant results of the study.

Keywords: HIV/AIDS, telehealth e-booklet, knowledge, health promotion.

Abstrak

Meningkatnya kasus HIV/AIDS pada usia produktif di Asia Tenggara mengharuskan Indonesia untuk meningkatkan pencegahan penyebaran dan penularan HIV. Remaja merupakan kelompok usia produktif yang paling rentan terinfeksi HIV/AIDS, dan angka kejadian penyakit ini semakin meningkat pada kelompok demografi ini, berdasarkan hasil data di Puskesmas Batujajar, secara kumulatif pada tahun 2023 terdapat 9 kasus HIV. Salah satu penderita HIV tersebut adalah remaja sehingga penting untuk menerapkan model promosi kesehatan untuk meningkatkan pengetahuan tentang seksualitas pada remaja dan mencegah perilaku berisiko melalui pemanfaatan perkembangan teknologi dengan penggunaan e-booklet telehealth. Penelitian ini bertujuan untuk mengetahui pengaruh penerapan model promosi kesehatan melalui telehealth e-booklet terhadap pengetahuan HIV/AIDS pada remaja. Penelitian ini merupakan penelitian kuantitatif dengan metode pre-experimental design dengan jenis one-group pretest-posttest dengan menggunakan uji marginal homogeneity test, menghasilkan nilai p-value (0,000) a (0,05), dan jumlah responden sebanyak 34 orang siswa kelas XI SMK Dharma Bhakti Indonesia, dengan metode total sampling. Instrumen penelitian menggunakan instrumen pengetahuan HIV/AIDS yang diadopsi dari kuesioner pengetahuan remaja tentang HIV/AIDS yang dikembangkan oleh Budiman dan Riyanto yang terdiri dari 20 pertanyaan, dan promosi kesehatan melalui e-booklet telehealth yang terdiri dari 11 lembar. Dari hasil penelitian ini dapat disimpulkan bahwa terdapat pengaruh penerapan model promosi kesehatan melalui e-booklet telehealth terhadap pengetahuan HIV/AIDS pada remaja. Diharapkan penelitian ini dapat menjadi dasar pelaksanaan peningkatan promosi kesehatan oleh instansi kesehatan bagi remaja dan khususnya masyarakat luas mengingat hasil penelitian yang sangat signifikan.

Kata kunci: HIV/AIDS, e-booklet telehealth, pengetahuan, promosi kesehatan.

INTRODUCTION

According to the World Health Organization (WHO), in 2021 there were 36.7 million cases of HIV/AIDS in the age group 16 years and above, and 1.7 million cases of HIV/AIDS in the age group 16 years and under caused by HIV infection. HIV/AIDS cases in the productive age (15-30), especially in Southeast Asia, are 1.3 million cases of HIV infection. The increasing cases of HIV/AIDS in the productive age in Southeast Asia require Indonesia to increase the prevention of the spread and transmission of HIV (Audina, 2023). According to the Ministry of Health in Indonesia, there were 36,902 cases of HIV/AIDS in 2021. Most of the patients were of childbearing age, with most cases being adolescents. The age range of the majority of HIV sufferers was 25–49 (69%), 20–24 (16.9%), and 15–19 (3.1%). However, in Indonesia, there is a significant difference: there are 25.8% of cases of men having sex with men and 28.8% of cases of injecting drugs, 24,8%, transvestite cases, and 5.3% of women work as sex workers (Sampul, 2022) . HIV/AIDS cases in West Java continue to increase from year to year, especially in adolescents. The first case in West Java was found in Bandung City in 1989, two years after AIDS cases were found in Indonesia. The number of HIV cases was 126 cases in adolescents. Based on data from the West Bandung Regency Health Service, in 2022 there were 174 cumulative cases, of which 18 were HIV positive in adolescents, with the majority being male compared to female (Profil Kesehatan KBB, 2022).

Based on the data results at the Batujajar Health Center, cumulatively in 2023, there were 9 cases of HIV. One of the HIV sufferers was a teenager. Cumulatively, HIV sufferers include 55.5% of men and 44.4% of women with the causes of free sex and deviant behavior. Based on the results of the initial preliminary study at SMK Dharma Bhakti Indonesia, it was found that health education on HIV/AIDS prevention had never been carried out. The preliminary study was carried out by distributing initial questionnaires to 5 students in class XI RPL. Of the 5 students, 2 students knew about HIV/AIDS and 3 students did not know about HIV prevention..

Adolescents are the productive age group that is most vulnerable to HIV/AIDS infection, and the incidence of this disease is increasing among this demographic group. For example, the high sexual drive and curiosity about sexual information among adolescents, who are also at the peak of their transition period, are naughty, have free sex, and have poor knowledge, or very minimal about reproductive health. Teenagers choose to seek information through various means, such as hanging out with friends, reading books about sex, visiting adult sites, masturbating, or making out with the opposite sex (Rahman, 2022).

The problem of HIV/AIDS is a public health problem that requires special treatment, this can be seen from the rapid spread of the virus regardless of country and population borders. Providing *health promotion* through students' schools can increase sexuality knowledge in adolescence and prevent risky behaviors, so it is very necessary to provide *health promotion* to increase students' knowledge (Surinati, 2020). *Health promotion* It is a process of transforming knowledge in the field of health from educators to others, both individually and in groups, which aims to change unhealthy behaviors into healthy behaviors. *Health promotion* can use a variety of methods such as videos, movies, posters, and lectures. The media can be used as a means of delivering *health promotion* such as *leaflets*, posters, *e-booklets*, *telehealth* via *WhatsApp,* and many more (Harmawati, 2018).

Generation Z is referred to as the generation that has the view that technology is part of their lives where they are present in the internet era. This makes Generation Z more open to technology and easier to utilize technology as part of their lives such as the need for information and access to health services, one of which is through *telehealth* such as *mobile phones* via SMS and telephone or internet-based applications (Risqi, 2018). Which means that around 125 million people have used WhatsApp in Indonesia, dominated by young users, namely 16-40 years old at 75.5% of the population. Therefore, media health promotion through telehealth with the use of the WhatsApp application has a great opportunity as one of the effective interventions to improve public health (Risqi, 2018). This is in line with research conducted by (Fitriana, 2018) the results show statistically that there is a significant influence of providing health promotion about HIV/AIDS through WhatsApp to respondents on adolescent knowledge about HIV/AIDS (Risqi, 2018). Which means that around 125 million people have used WhatsApp in Indonesia, dominated by young users, namely 16-40 years old at 75.5% of the population. Therefore, media health promotion through telehealth with the use of the WhatsApp application has a great opportunity as one of the effective interventions to improve public health (Risqi, 2018). This is in line with research conducted by (Fitriana, 2018) the results show statistically that there is a significant influence of providing health promotion about HIV/AIDS through WhatsApp to respondents on adolescents' knowledge about HIV/AIDS (Pemberian, 2018).

In addition to WhatsApp*,* the media used in *health promotion* is in the form of *e-booklets*. *E-booklets* are one of the effective digital media in providing health information because *e-booklets* have the advantages of being easy to understand, interesting, presented with complete information, and details that can be accessed through *mobile phones/smartphones* (HP), and laptops, and are environmentally friendly. However, this media has a drawback, namely the

need for electronic devices such as *smartphones* or laptops, and can interfere with eye health if it is too long for reading (Tambunan, 2020). [10] This is in line with research conducted by (Nuni Husni, 2022) the results show that there is an influence of health promotion media using e-booklet media on obesity prevention knowledge in respondents (Wahidah, 2022).

In addition to providing nursing care, nurses also have an educational function. In addition to providing services, nurses also have the responsibility to improve health and educate school-age adolescents about HIV/AIDS prevention. The role of nurses has an important role in preventing disease and injury through health education and anticipatory guidance. One of the theories that is the basis for health promotion is the Health Promotion Model (HPM) theory developed by Nola J. Pender. HPM describes the ability of individuals or families to improve their health and quality of life. Therefore, HPM plays a critical role in reducing the burden on the health system by encouraging adolescents to adopt a healthy lifestyle (Utami, 2017).

Based on the description above, one of the strategies to increase knowledge and healthy behavior of a person by providing health promotion is expected to be that Indonesia can achieve "three zeroes," namely, no new HIV infections. Therefore, researchers are interested in conducting research with the title “The Influence of Implementing the Health Promotion Model Via Telehealth E-Booklet on HIV/AIDS Knowledge in Adolescents *at Dharma Bhakti Indonesia.* The purpose of this study is to determine its existence the influence of Implementing the Health Promotion Model Via Telehealth E-Booklet on HIV/AIDS Knowledge in Adolescents at Dharma Bhakti Indonesia.

METHODS

The type of research used is a quantitative type that uses a *pre-experimental method, a design* with a type of *one-group pretest posttest* without using a control group*,* measurements are carried out before and after health *promotion* through *telehealth e-booklet* which has the purpose of determining the effect of the implementation *of health promotion model* through *telehealth e-booklet* on HIV/AIDS knowledge in adolescents. Sample sampling techniques in this study with as many as 34 students who are class XI of SMK Dharma Bhakti Indonesia. The instrument in this study uses a questionnaire consisting of the HIV/AIDS knowledge instrument was adopted from the adolescent knowledge questionnaire about HIV/AIDS developed by Budiman and Riyanto which consisted of 20 questions. However, this study only used 17 questions, this instrument was in the form of *a questionnaire in the form of multiple*

choice (a-d) related to the definition of HIV/AIDS, signs and symptoms, transmission, prevention, treatment, impact and counseling of HIV/AIDS. The score given is 1 correct answer and 0 wrong answer score. The total score used was 0-17 made by Budiman and Riyanto. Before giving the intervention, the researcher made observations (pre-test) of the research sample, with the help of filling out the observation questionnaire by one research enumerator. The validity test on this questionnaire was carried out at SMU Pasundan 3 Cimahi to 20 students as respondents to the validity test in 2009 with 17 questions where all of them were valid and reliable, so that all 17 questions could be used as instruments in this study. And the reliability test results on the knowledge questionnaire were 0.665, so it can be concluded that the knowledge questionnaire was declared reliable. The data collection process is carried out remotely through the creation of a *WhatsApp group*. Then fill out a questionnaire in the form of *a link* (*Google Form).* The following is an explanation of the data collection process using a *WhatsApp group*. On the first day, the researcher entered the classroom that was carried out face-to-face and searched for research subjects according to the needs of the sample. After obtaining a subject, the researcher explains the benefits, objectives, and procedures for conducting research to the subject after explaining, the researcher asks for the respondent's consent by signing the informed consent sheet. On the second day, the researcher provides *a pretest* in the form of a questionnaire with questions in sequence before the intervention at a time that the researcher has determined to be sent via telehealth in the form of a Google form. The implementation of the intervention by providing an e-booklet link consists of 11 sheets sent via telehealth. Then the researcher gave a posttest after the intervention was carried out by providing a questionnaire in the form of a link. Analysis data used analysis univariate, and data data presented included the frequency and percentage of variables of HIV/AIDS knowledge level in adolescents. In each answer score, the percentage is calculated by dividing the number of correct answers for each respondent by the number of questions and multiplied by 100%. The results of the percentage are then categorized into less, sufficient, and good according to the percentage of the score obtained. And Bivariate analysis is needed to explain for two independent variables with bound variables. The data obtained from the research at SMK Dharma Bhakti Indonesia was processed in stages, namely after the data was collected and tabulated, then tested for analysis to determine the influence of *the health promotion model* through *telehealth e-booklet* on HIV/AIDS knowledge in adolescents. This research is on an ordinal (categorical) scale, namely "good", "enough", "less" or in other words using a test of more than two choices. Therefore, a *marginal homogeneity* test is used. The statistical testing criteria are using a computer application which uses a data process between *pre-test* and *post-*

test, then using *a marginal homogeneity test*. Based on the statistical testing criteria, namely if the significant value > 0.05, then Ho is accepted and if the significant value < 0.05, then Ho is rejected.

RESULTS

Overview of the level of HIV/AIDS knowledge in adolescents before being given the application of *the health promotion model* through *telehealth e-booklet* at Vocational School Dharma Bhakti Indonesia.

Table 1. Overview Respondent Characteristic and the Level of HIV/AIDS Knowledge in Adolescents Before Being Given The Application of The Health Promotion Model through Telehealth E-Booklet.

Respondent Characteristic	*Frequency* (F)	*Persentase* (%)
Age		
17 yo	28	82.4 %
18 yo	6	17.6 %
Total	**34**	**100 %**
Gender		
Female	15	44.1 %
Male	19	55.9 %
Total	**34**	**100 %**
Religion		
Muslim	34	100 %
Christiany	0	0 %
Total	**34**	**100 %**

Knowledge	*Frequency* (F)	*Presentase* (%)
less	27	79,4%
Enough	7	20,6%
good	0	0%
Total	**34**	**100**

Source : 2024 research data

Overview of the respondent characteristic and the level of HIV/AIDS knowledge in adolescents after being given the application of *the health promotion model* through *telehealth e-booklet.*

Table 2. Overview of the Level of HIV/AIDS Knowledge in Adolescents After Being Given the Implementation of the Health Promotion Model through Telehealth e-Booklet.

knowledge	*Frequency* (F)	*Presentase* (%)
Less	0	0%
Enough	5	14,7%
Good	29	85,3%
Total	**34**	**100**

Source : 2024 research data

The Influence of Implementing the Health Promotion Model Via Telehealth E-Booklet on HIV/AIDS Knowledge in Adolescents.

Table 3. Results of the Effect of the Implementation of the Health Promotion Model through Telehealth e-Booklet

Level Knowledge	Before		After		P Value
	F	%	F	%	
Less	27	79,4%	0	0%	0,000
Enough	7	20,6%	5	14,7%	
Good	0	0%	29	85,3%	
Total	34	100%	34	100%	

Source: Primary Data (2023)

DISCUSSION

Overview of the level of HIV/AIDS knowledge in adolescents before being given the application of *the health promotion model* through *telehealth e-booklet.*

Table 1 describes the frequency distribution of the level of HIV/AIDS knowledge in adolescents before being given the application of *the health promotion model* through *telehealth e-booklet.*, above 34 students of SMK Dharma Bhakti Indonesia about students' knowledge of HIV/AIDS before being given *HIV/AIDS* health promotion through *telehealth e-booklets*, most of the students as many as 27 students (79.4%) have insufficient knowledge and a small part of 7 students (20.6%) have sufficient knowledge.

At this stage, respondents were measured on their level of knowledge about HIV/AIDS in general, the results of the study showed that the level of knowledge of respondents about HIV/AIDS was still lacking. The proportion of respondents who know with a good level of knowledge. This can be seen from the way respondents answered the questionnaire which included knowledge of understanding, causes, causes, signs and symptoms, ways of transmission, prevention, and counseling.

This research is in line with the research of Takainginan (2016), which showed that the results of knowledge before being given health promotion were the most knowledgeable as many as 35 students (53.8%), 25 students with less knowledge (38.5%) and 5 students with good knowledge (7.7%).[1]

Overview of the level of HIV/AIDS knowledge in adolescents after being given the application of *the health promotion model* through *telehealth e-booklet*

Based on the results of the analysis in Table 4.2 of 34 students of SMK Dharma Bhakti Indonesia about students' knowledge of HIV/AIDS after being given a *health promotion model* through *telehealth e-booklets*, most of the students were 29 students (85.3%) well-knowledged, and 5 students (14.7%) were sufficiently knowledgeable. From the results of the analysis, it can be concluded that there is a significant increase in student's knowledge about HIV/AIDS prevention in adolescents, so there is a difference from before health *promotion*.

At this stage, respondents were re-measured their level of knowledge about HIV/AIDS in general, by providing a *posttest* questionnaire, or after the health *promotion model* was given, respondents were able to answer the questionnaire well. However, there are 5 students who are sufficiently knowledgeable, namely the average student does not understand counseling. This is not a problem because the respondents in this study are not ODHA patients.

This research is in line with the research of Takaingin (2016), which showed that the results of knowledge after being given the most health promotion were 50 students (76.9%) with good knowledge, only 15 students (23.1%) and there were no students with less knowledge.[1]

The effect of the application of *the health promotion model* through *telehealth e-booklet* on HIV/AIDS knowledge in adolescents

Based on the results of the analysis in Table 4.3 about the effect of the application of *the health promotion model* through *telehealth e-booklet* on HIV/AIDS knowledge in adolescents at SMK Dharma Bhakti Indonesia, the results were 29 students with good knowledge and 5 students with sufficient knowledge, From the results of the analysis, it can be concluded that there is a significant increase in students' knowledge about HIV/AIDS prevention in adolescents, So there is a difference from before being given *health promotion* (Kurnia, 2019).

This research totaled 34 students who were class XI of SMK Dharma Bhakti Indonesia. This research was carried out in 1x50 minutes where the first stage was to conduct *a pretest*, namely by distributing questionnaires about HIV/AIDS to respondents before being given

health promotion about HIV/AIDS with the results where the category was less than 27 students/I (79.4%) and as many as 7 students/I (20.6%) had enough knowledge. The second stage in this study is the application of *a health promotion model* through *a telehealth e-booklet* to HIV/AIDS knowledge. After the *health promotion model* was carried out in the third stage, namely *the posttest* with a time interval *of 30 minutes between the pretest* and *posttest* with the same questions the results were that 29 students (85.3%) were well knowledgeable, and 5 students (14.7%) were sufficiently knowledgeable.

Data analysis showed that there was a change in the knowledge of students after being given a *health promotion model* through *telehealth e-booklets* on HIV/AIDS knowledge in adolescents, where there an increase in respondents' knowledge after being given the *health promotion model.*

Based on the results of the study analyzed using *the marginal homogeneity* test, the result of $p = 0.000 < 0.05$ was obtained, then Ho was rejected. Thus, it can be concluded that the influence of Implementing the Health Promotion Model Via Telehealth E-Booklet on HIV/AIDS Knowledge in Adolescents at Dharma Bhakti Indonesia.

This study is supported by the results of a previous study, namely Takainginan (2016), which stated that there was an influence on adolescents' knowledge after being given health promotion about HIV/AIDS with a result of $p = 0.000 < 0.05$. [1]

In this study, *the health promotion model* was carried out through *telehealth e-booklets.* Researchers use *the WhatsApp* application by utilizing the text and image sending feature as a media for delivering health information about knowledge in HIV*/AIDS* prevention in adolescents with material constructed from Nola J. Pender. The researcher uses *the WhatsApp* application as one of the health *promotion media* and *e-booklets* as an auxiliary medium for presenting material consisting of materials and images. Respondents were more enthusiastic about reading while giving a good response. This can be seen from the results of the evaluation carried out not too long after *the health promotion,* it turns out that the results have a great influence on the questionnaire answers, so that the provision *of health promotion* through *telehealth e-booklet* can affect a person's level of knowledge. This is in line with the goals *of Health Promotion*, namely: improving and maintaining the health of individuals, families, and community groups to live a healthy life, establishing health as a valuable thing in society, encouraging individuals to prevent diseases and health problems, overcoming diseases and health problems to improve the degree of health, creating a situation or change in unhealthy behavior be healthy and encourage the use of health facilities (Rachmawati, 2019).

This increase in knowledge is due to the provision of *health promotion,* where there is a learning process through health education using *telehealth e-booklet* media. This method can increase knowledge so that it can respond to healthier behaviors. So providing *a health promotion model* through *e-booklets* is very effective. This is supported by Husni's (2022) research, there is a very significant increase in knowledge after providing health education through *e-booklet* media on adolescent knowledge about obesity prevention (Wahidah, 2022). This research is based on Nola J. Pender's nursing concept of the "*Health Promotion Model*" which emphasizes health promotion and empowerment of individuals and groups to achieve a good and optimal state of health. So providing health promotion to improve the quality of life and health status is an important step in increasing awareness of healthy behavior (Asrianti, 2017).

Based on the question item that was answered incorrectly, namely the question with a discussion about HIV/AIDS counseling as many as 13 respondents. Because there is no uniformity in *health promotion* about HIV/AIDS counseling students have not been maximized in knowing the purpose of HIV/AIDS counseling. Efforts to increase students' knowledge and understanding of counseling in schools are through guidance and counseling services. The program is indispensable because it has several functions for students to be able to be independent and develop optimally, in the fields of personal guidance, tutoring, career guidance.

This research limitation is not by the predetermined time because there are limitations or difficulties for respondents in filling out the pretest and posttest links, namely some respondents do not have an e-mail, and a good network connection so it can take a long time. In these limitations, the researcher suggested to the respondents to create an e-mail account and the researcher provided a network connection (Hotspot) to the respondents who did not have a good network. The nursing implication is in line with the goals of the Health Promotion Model with material constructed from Nola J. Pender, namely: improving and maintaining the health of individuals, families, and community groups to live a healthy life, establishing health as a valuable thing in society, encouraging individuals to prevent diseases and health problems, overcoming diseases and health problems to improve the degree of health, creating a situation or change in unhealthy behavior be healthy and encourage the use of health facilities. This research is based on Nola J. Pender's nursing concept of the "Health Promotion Model" which emphasizes health promotion and empowerment of individuals and groups to achieve a good and optimal state of health. So providing health promotion to improve the

quality of life and health status is an important step in increasing awareness of healthy behavior, especially for adolescents who have insufficient knowledge about HIV/AIDS.

CONCLUSION

An overview of adolescent knowledge from 34 respondents before being given the application *of the health promotion model* through *a telehealth e-booklet* on HIV/AIDS knowledge in adolescents. Data was obtained that most of the students had insufficient knowledge about HIV/AIDS, namely 27 students, and a small number of 7 students had sufficient knowledge.

An overview of adolescent knowledge from 34 respondents after being given the application *of the health promotion model* through *a telehealth e-booklet* on HIV/AIDS knowledge in adolescents. Data was obtained that most of the students had good knowledge about HIV/AIDS, namely 29 students, and a small number of 5 students had sufficient knowledge.

The results of the analysis using *marginal homogeneity* were obtained $p = 0.000 < 0.05$. So Ho was rejected, it can be concluded that based on the results of the analysis, there are influence of Implementing the Health Promotion Model Via Telehealth E-Booklet on HIV/AIDS Knowledge in Adolescents at Dharma Bhakti Indonesia.

SUGGESTION

1. For students, researchers suggest that students use e-booklet media as an interesting and enjoyable learning medium to increase knowledge, especially regarding HIV/AIDS.
2. It is hoped that future researchers can carry out further or broader research related to factors related to HIV/AIDS in the community by examining other factors that have not been previously researched to improve preventive and promotive measures.
3. For the research site, by using the media *of school e-booklets*, this research can be made as a school program to improve and utilize technology in carrying out prevention by the material that will be delivered through the UKS program in schools.

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