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**THE COMPARISON OF HEALTH EDUCATION THROUGH TELEHEALTH (WHATSAPP) AND BOOKLET ON HIV/AIDS PREVENTION BEHAVIOR IN PROSPECTIVE BRIDES BASED ON THE HEALTH BELIEF MODEL AT RELIGIOUS AFFAIRS OFFICE CIMAHI**

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**ABSTRACT**

HIV/AIDS is a sexually transmitted disease that is currently a disease with a high prevalence in Indonesia with the majority of sufferers in the age range of 25-49 years old. Health education is one of the primary prevention efforts in suppressing the incidence of HIV / AIDS. Currently, there are many media that can be used in delivering health education such as booklets and telehealth. The purpose of this study was to determine the most effective media in providing health education on HIV/AIDS prevention behavior in prospective brides based on the health belief model. The study method used a type of quantitative study with a quasy-experiment. This study has a total sample of 54 respondents with accidental sampling technique. This study instrument used AHBS (AIDS Health Belief Scale) as a questionnaire. There is a significant difference between health education through telehealth and booklets on HIV / AIDS prevention behavior in prospective brides based on the health belief model through the Mann Whitney statistical test obtained the results of p value ( $0.000 < 0.05$ ). It can be concluded that telehealth media is a fairly effective tool with the resulting N-gain score of 59.8% in delivering health education. Through this research, it is hoped that Religious Affairs Office Cimahi can use telehealth (whatsapp) and booklets as a media for HIV/AIDS health education for prospective brides.

Keywords: HIV/AIDS Health Education, Telehealth, Booklet, Health Belief Model

**INTRODUCTION**

The Sustainable Development Goals (SDG's) is a global action plan agreed by world leaders, including Indonesia, to end poverty, reduce inequality and protect the environment [1]. The goal of the SDG's is to ensure healthy lives and promote the well-being of all people at all ages, one of which is to end the HIV/AIDS epidemic by 2030 [1, 2, 3].

Human Immunodeficiency Virus (HIV) is a type of virus that infects white blood cells which causes a decrease in human immunity [5]. The Acquired Immune Deficiency Syndrome (AIDS) is a set of symptoms that arise due to decreased immunity caused by HIV infection [6]. The high mortality rate and high cost of treatment have made HIV/AIDS the most devastating epidemic and a very serious multinational problem [5, 6, 7].

WHO reported that in 2021 in the world there were 38.4 million people living with HIV / AIDS and 650,000 people recorded deaths due to HIV / AIDS. HIV/AIDS continues to be a major global health problem and has claimed at least 36.3 million lives so far [10, 11, 12].

Based on 2019 data from the United Nations Programme on HIV and AIDS (UNAIDS), the largest HIV populations in the world are in Africa (25.7 million), Southeast Asia (3.8 million), the Americas (3.5 million), and Europe (2.5 million), while the lowest is in the Western Pacific (1.9 million). The high population of HIV-infected people in Southeast Asia makes Indonesia more vigilant against the spread and transmission of this virus [5, 9].

Indonesia is the third largest contributor of HIV/AIDS patients after India and China. Based on the HIV/AIDS and Sexually Transmitted Infectious Disease (STI) case report for the first quarter of 2022, the total number of people living with HIV/AIDS (PLWHA) infected with

HIV was 329,581 cases while PLWHA with AIDS cases were 137,397 cases. The highest percentage of HIV cases was reported in the age group of 25-49 years with a percentage of 67.9%, followed by the age group of 20-24 years with a percentage of 17.7% [14, 15]. The cumulative number of HIV in West Java until October 2022 was 57,914 cases and cumulative AIDS was 12,353 cases. Cimahi City is one of the cities/districts in West Java with high HIV/AIDS cases in 2021, with 342 HIV/AIDS cases (7.5%) or third after Bogor Regency 430 cases (9.4%) and Bekasi City 390 cases (8.6%). The majority of HIV/AIDS sufferers in Cimahi City are also in the productive age of 25-49 years as many as 170 cases (49.7%) and 20-24 years as many as 148 cases (43.2%) [16]. Productive age includes the ideal age group for marriage. The National Population and Family Planning Agency (BKKBN) in 2020 has issued a policy that the ideal age of marriage for men is 25-40 years and the ideal age for women to marry is 20-35 years [17]. Data from the Central Statistics Agency (BPS) in 2022 showed that 27.07% of young people in the country had their first marriage at the age of 22-24 years [18].

HIV/AIDS can be transmitted through sexual intercourse. Culturally and religiously, Indonesian people believe that sexual intercourse can only be done after marriage. Marriage aims to preserve offspring and avoid sexually transmitted diseases that may occur as a result of sexual relations that are not based on religious foundations and norms that exist in society [19]. Data from the Indonesian Ministry of Health in 2021 recorded that 18,848 housewives contracted AIDS [20]. One of the risk factors causing high HIV/AIDS cases in housewives is the risky behavior often carried out by husbands [12, 13]. Lack of knowledge about HIV prevention is one of the causes of the increase in HIV/AIDS cases in husbands who are then transmitted to their wives or vice versa [3, 12, 18].

One of the Cimahi City Government's policies in addressing the HIV/AIDS problem is to establish the Cimahi City Regional Regulation (PERDA) No. 7/2018 on the prevention and control of HIV and AIDS in article 19 paragraph 1 which reads "Prevention and control of HIV and AIDS in prospective brides as referred to in article 17 paragraph 2 letter b is given to each prospective bride and groom by officers of the religious affairs office, regional apparatus in charge of population and civil registration and other religious assemblies" [20]. Data from the Cimahi City Health Office shows that the South Cimahi Region holds the first position as the region with the most cases, throughout 2022 there were 96 total cases of HIV/AIDS with 32 cases of HIV/AIDS, 41 cases of diseases caused by HIV and 23 cases of HIV.

The results of preliminary studies that have been conducted by researchers through interviews with the Head of the Religious Affairs Office (KUA) in the South Cimahi District area in February 2023, obtained information that the program of providing education about HIV / AIDS cannot be done to every couple who will get married, because the KUA of South Cimahi District has its own schedule for providing education. Based on the results of the survey on knowledge and attitudes that the researchers conducted, 6 out of 10 prospective brides said they did not know how to prevent HIV/AIDS and considered the importance of a thorough premarital examination, especially to conduct HIV tests and immunizations, because prospective brides felt they had no risk of the disease. If this is overlooked, it will certainly increase the risk of health problems in the future.

This indicates that there is a need to improve knowledge and attitudes towards a better direction as a way to prevent HIV/AIDS. The way that can be done is by providing health education to prospective brides. Providing health education can be through many media as a means of delivering information such as leaflets, posters, booklets, audiovisual media, telehealth via Whatsapp and more [25].

Telehealth is a way of delivering services and information about health using communication technology. Telehealth uses communication technology such as cellphones via telephone and sms, video conferences or other internet-based applications to be able to convey messages in the form of health information, health services based on client conditions and

observe client conditions without having to meet in person [24, 25]. Currently, the use of social media, one of which is Whatsapp in Indonesia, is dominated by the age group 25-34 years (35.4%) and 18-24 years (30.3%), so health education media through Whatsapp has a great opportunity as an effective intervention to improve public health [17, 18]. This is in accordance with research conducted by Mayasari (2020) which proves that mobile-based reproductive health education through Whatsapp can increase the knowledge of prospective brides about reproductive health [30]. The Whatsapp application has a simple chat application, a simple interface, easy to understand and saves internet data. The Whatsapp application can also send and receive messages not only in the form of text but also in the form of images, videos, audio, or others in unlimited quantities [24, 25].

Another media used to educate health is booklets. According to research conducted by Hapsari and Handayani (2021), it shows that booklets have proven effective in providing health messages. Booklet media has an influence on increasing knowledge about HIV/AIDS health education because it has the advantage of being easy to understand, more interesting, presented more completely, can be stored for a long time, is easy to carry and can provide more detailed information content that may not have been obtained orally [25, 26].

Health education for prospective brides can increase the knowledge of prospective brides to be able to form healthy attitudes and behaviors. Changes in a person's behavior can be influenced by various factors such as beliefs, values, tendencies, and habits. Health belief model (HBM) is a health promotion model theory that is often used in explaining a person's health behavior [34]. The health belief model (HBM) has components consisting of perceived seriousness, vulnerability, benefits, barriers, cues to action and self-efficacy that can explain a person's actions to accept or reject information in an effort to improve health behavior [21, 22, 23].

In a study conducted by Kurniawan and Yani (2021) regarding the effectiveness of health education based on the health belief model for chronic diseases, it shows that HBM education can be used as a reference in efforts to treat patients with chronic diseases and can provide good changes in perception patterns for people with chronic diseases [38]. As for the research conducted by Joorbonyan, et.al (2022) on 80 high school students (SMA) through peer-led using health belief model construction material as HIV / AIDS prevention, there was a significant increase in all HBM variables after intervention [39]. By increasing one's knowledge and attitude can form healthy behavior, one of which is through health education, it is hoped that Indonesia can achieve "three zero", namely no new HIV infections, no deaths from AIDS and no stigma against people with HIV to achieve HIV elimination in 2030 [40]. Therefore, researchers are interested in taking a study with the title "Comparison of the effectiveness of health education through telehealth and booklets on HIV / AIDS prevention behavior in prospective brides based on the health belief model". The purpose of this study was to determine the comparison of health education through telehealth (whatsapp) and booklets on HIV / AIDS prevention behavior in prospective brides based on the health belief model.

## **METHOD**

The type of research used in this study is quantitative research using a quasy-experimental research design with a two group pre-post test design. The characteristic of this study is to reveal the comparison of causal relationships by involving two groups of subjects, namely prospective brides who are given health education through telehealth (whatsapp) and prospective brides who are given health education through booklets. The total sample was 54 prospective brides at KUA Cimahi Selatan, according to the inclusion criteria through accidental sampling technique. Data collection by observation method using AIDS Health Belief Scale (AHBS) questionnaire. Data collection was conducted for 3 weeks, starting from May 29 - June 16, 2023. Before giving the intervention, the researcher made observations (pre-

test) to the research sample, with the help of filling out the observation questionnaire by one research enumerator.

In the telehealth (whatsapp) group, before implementing the intervention, the researcher will provide a questionnaire sheet (pretest) then the researcher provides an intervention in the form of health education using whatsapp as a medium for delivering information the day after the pretest. A total of 11 messages were sent to each respondent for the telehealth (whatsapp) group. There were 2 times sending messages containing information to each respondent, sending messages for six consecutive days to each respondent. Researchers send information messages through personal chat not through whatsapp groups. The post-test was given 3 days after the last message or intervention was completed.

In the booklet group, before the implementation of the intervention, the researcher will provide a questionnaire sheet (pretest), then the researcher provides an intervention in the form of giving a booklet. The booklet is read 2 times a day with the terms of reading the pages that have been made by the researcher. There is no whatsapp group created in this study to monitor booklet reading. Researchers used a booklet reading provision card for each respondent to monitor respondents in reading information per day.

The post-test was given 3 days after the last message or intervention was completed.

## RESULTS

Overview of HIV/AIDS Prevention Behavior of Prospective Brides Based on the Health Belief Model Before and After Health Education in Telehealth (Whatsapp) Groups at KUA Cimahi Selatan.

### 1. Table 1 Frequency distribution of preventive behavior before and after health education in the telehealth group (whatsapp)

HIV/AIDS Prevention Behavior	Pretest		Posttest	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good	13	48,1	22	81,5
Bad	14	51,9	5	18,5
$\Sigma$ Respondents	27	100	27	100

Source: Primary Data (2023)

Overview of HIV/AIDS Prevention Behavior of Prospective Brides Based on Health Belief Model Before and After Health Education in Booklet Group at KUA Cimahi Selatan.

### 2. Table 2 Frequency distribution of Preventive Behavior before and after health education in the booklet group.

HIV/AIDS Prevention Behavior	Pretest		Posttest	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good	12	44,4	21	77,8
Bad	15	55,6	6	22,2
$\Sigma$ Respondents	27	100	27	100

Source: Primary Data (2023)

Comparison of the Effectiveness of Health Education in Telehealth (Whatsapp) and Booklet Groups on HIV/AIDS Prevention Behavior in Prospective Brides Based on the Health Belief Model.

**Table 3 Mann Whitney Test Results**

Health Education Media	Mean Rank	Sum of Rank	Mann-Whitney p Value	N
Telehealth	41,00	1107,00	0,000	0.000 27
Booklet	14,00	378,00		27

Source: Primary Data (2023)

**Table 4 N-Gain Score Test Results**

Health Education Media	Mean N-Gain Score (%)	Minimum	Maximum
Telehealth	59,8 %	48,7 %	70,3%
Booklet	35,7 %	18,7 %	45,6%

Source: Primary Data (2023)

## DISCUSSION

### Overview of HIV / AIDS Prevention Behavior in Health Belief Model-Based Brides Before and After Health Education in the Telehealth Group (Whatsapp)

Table 1 describes the frequency distribution of hiv/aids prevention behavior in health belief model-based brides before and after health education in the telehealth group (whatsapp), namely there were 14 respondents (51.9%) behaving badly and almost half or as many as 13 respondents (48.1%) were in the good behavior category. After being given health education, the results of the posttest value in the telehealth group have increased, namely 22 respondents (81.5%) are in the good behavior category and 5 respondents (18.5%) are still in the bad behavior category.

Based on the results of the research that has been done, there is a significant difference in HIV / AIDS prevention behavior in prospective brides based on the health belief model before and after being given health education through telehealth (whatsapp). Before being given health education in the telehealth (whatsapp) group, most of the respondents were in the bad behavior category (51.9%) and almost as many or as many as (48.1%) respondents were in the good behavior category. This may occur due to several possibilities, one of which is the level of education dominated by high school / equivalent in respondents so that HIV / AIDS prevention behavior is not so good.

Behavior is a form of a person's response to a given stimulus. The stimulus has behavioral determinants that are closely related to the provision of responses that may vary by a person/individual such as age, gender, knowledge, experience, and education that exists in the individual [54].

After being given health education, the results of the posttest value in the telehealth group (whatsapp) have increased, namely as many as (81.5%) are in the good behavior category and (18.5%) are still in the bad behavior category. Changes after the provision of health education may occur due to increased knowledge and experience of respondents regarding health, especially in HIV / AIDS prevention behavior.

This is related to the health belief model theory which explains that the consideration between threats and losses related to diseases that a person may face will affect how a person makes a decision to take preventive action or not. Various variables can influence threats and losses in a person's consideration, one of the variables that influence it is demographic variables (age, gender, knowledge, previous experience). There were sixteen statement items given to respondents before and after the intervention. The statement that experienced a significant increase in the telehealth (whatsapp) group was in statement item number nine regarding the

chances of being exposed to AIDS. Before the intervention, the respondents felt that they had no chance of being exposed to AIDS. The thing that might underlie the respondents felt this was the lack of knowledge about who might be infected and might transmit and behaviors that have a risk of transmitting HIV/AIDS. Knowledge is the basis for a person to form healthy attitudes and behaviors. [34]. Then the respondents had a significant increase in posttest scores. The researcher's assumption in this case, respondents began to realize that HIV / AIDS can infect anyone, especially people who have risky behavior after a stimulus in the form of health education through telehealth (whatsapp) to respondents regarding HIV / AIDS prevention behavior.

Based on research by D'azzuri, et al (2020) which explains that health education is an activity carried out with the aim of conveying information to increase knowledge about health. With the use of social media, it is currently an effective medium in providing health education. The advancement of information technology in the 5.0 era has a positive impact, one of which is in the health sector. Currently, smartphones connected to the internet make health services, one of which is in terms of health education, easily accessible, making it easier for people to get or find health information in various types of social media, one of which is Whatsapp. [48, 74].

HBM states that increasing a person's ability to recognize a disease minimizes the risks that will occur to the individual. there are several motivations for a person to prevent a disease, the respondent will feel that the intervention provided is beneficial to life and is vulnerable to HIV / AIDS and the impact that will be experienced [22, 23].

Research conducted by researchers also utilizes advances in existing communication technology, one of which is telehealth. Telehealth is currently one of the alternative media in providing health education to the public. In this study, researchers utilized Whatsapp social media as one of the communication media in telehealth because Whatsapp has advantages, namely Whatsapp is a chat application that is simple and easy to understand, Whatsapp makes delivering messages more interesting because it not only sends text messages but can also send images, audio and video or others in unlimited quantities [49, 50].

### **Overview of HIV/AIDS Prevention Behavior in Health Belief Model-Based Bride-to-be Before and After Provided Health Education in the Booklet Group**

Table 2 describes the frequency distribution of hiv/aids prevention behavior in health belief model-based brides before and after health education in the booklet group, obtained the results of pretest values, namely most respondents (55.6%) had poor HIV / AIDS prevention behavior and (44.4%) respondents had HIV / AIDS prevention behavior that fell into the good category, the researcher assumed that the age and education of respondents was one of the factors influencing the pretest results above. In a literature study conducted by Dewi, et al (2022) regarding factors associated with the incidence of HIV / AIDS, it shows that the age entering the early adult stage, namely 18-40 years, is active in having sexual intercourse and is more prone to risky behavior.

In the posttest results, HIV/AIDS prevention behavior in the good category increased so that the total number of respondents who behaved well became (77.8%) while for respondents who behaved badly were (22.2%). There was a change in behavior after the intervention possibly due to the increased knowledge of respondents about HIV/AIDS prevention behavior. This is in accordance with research conducted by Rogers which reveals that someone who adopts behavior based on knowledge, the behavior will last longer than behavior that is not based on knowledge so that respondents in the study were very easy to accept the information provided and apply behavior in accordance with health behavior.

Of the sixteen statements given, the statement that experienced a significant increase in scores from pretest to posttest in the booklet group was statement number fifteen regarding

comfort in using contraceptives (condoms). Condoms are contraceptives that are one of the tools to prevent the transmission of the HIV/AIDS virus [62].

Changes that occur are likely because respondents have gone through an adaptation process in adopting a behavior. Rogers stated that a person's process in adopting a behavior is first based on awareness, respondents in this study may realize that contraceptives are also needed to prevent transmission of HIV/AIDS, if indeed respondents have a risk of contracting this disease. Second is interest, because given a stimulus in the form of a booklet containing information, respondents began to be interested in increasing their knowledge about HIV / AIDS through the booklet. The third is weighing, after the information provided to the respondent, then the respondent begins to consider the information and finally tries to perform a new behavior [54].

The health belief model theory which is the basis for this study explains that it is necessary to consider the threats and losses if someone contracts a disease and makes someone realize how important it is to prevent a disease in an individual, one of which is through the media information or health education provided to individuals [30, 36]. Kurniawan and Yani (2021) in their research also showed that HBM education can be used as a reference in efforts to treat patients with chronic diseases and can provide good changes in respondents' perception patterns [38].

Booklets are one of the media used in this study, booklets were chosen because booklets are often used for health education until now [51]. Adriana et al (2021) in their journal entitled "The Effect of Health Promotion with Whatsapp Media and Booklets on Knowledge Level and Attitude about HIV/AIDS" state that Whatsapp media and booklets have an influence on respondents' knowledge and attitudes towards HIV/AIDS [52].

This is because booklets have several advantages, namely that the information conveyed in the booklet is more detailed so that more information can be contained in it, besides that attractive images also make readers interested in reading the contents of the booklet [51].

### **Comparison of the Effectiveness of Health Education in Telehealth (Whatsapp) and Booklet Groups on HIV/AIDS Prevention Behavior in Prospective Brides Based on the Health Belief Model**

In table 3 regarding the comparison of the effectiveness of health education through telehealth (whatsapp) and booklets on HIV / AIDS prevention behavior in prospective brides based on the health belief model, the results of data analysis in the telehealth group (whatsapp) mean rank value generated in this group is 41.00 with a sum of rank of 1107.00. Then in the booklet group, the mean rank value is 14.00 and the sum of rank is 378.00. The results of statistical tests using the Mann Whitney test obtained a value of  $p = 0.000 < \alpha (0.05)$ , it can be concluded that there are differences in health education through telehealth and booklets on HIV / AIDS prevention behavior in prospective brides based on the health belief model.

The possibility of this difference is because respondents more often use and carry smartphones wherever they go compared to other media such as booklets. In addition, the booklet has disadvantages, namely reading skills, and the process of delivering the message is not directly to the respondent so that it requires a simple and easy-to-understand word selection by the reader so that there is no misinterpretation by the reader. [3].

When booklet users have difficulty in understanding the meaning of the information conveyed by the researcher or information provider, booklet users cannot directly ask the author or information provider. In contrast to telehealth (whatsapp), when message recipients have difficulty understanding the message conveyed, respondents can directly discuss even at the same time the message is sent. That may also be one of the reasons telehealth (whatsapp) is more attractive than booklets.

In addition, education in the telehealth group (whatsapp) almost half (40.7%) is at the undergraduate or diploma level which may be one of the supporting factors. A person's education is also related to how a person can receive information easily or not to achieve optimal health behavior [54].

Researchers also have other assumptions as to why booklets are less effective than telehealth (whatsapp), when providing interventions there are times when respondents, especially in the booklet group, are difficult to contact and do not immediately reply or read the booklet on time. This is also one of the factors causing the difficulty of monitoring the use of booklets in this study. Before a change in behavior occurs, a person will have a perception of what he will undergo, giving rise to perceptions related to the level of knowledge obtained from information, so that if the information received is not clear, the learning outcomes obtained are also not optimal [41].

Nyswander suggests that health education leads to a dynamic or non-fixed process related to behavior change in individuals, namely the process of how a person will choose to reject or accept new information or activities provided as a goal of achieving optimal health status. The health education method carried out in this study is individualized to foster new behaviors and individuals who become interested in new behaviors will make behavior changes as a process of innovation [25, 41].

In health education, there is media as a means of displaying information messages that the communicator wants to convey so that the target can increase knowledge which in turn can change health behavior in a more positive direction. As respondents in this study who were given health education interventions through telehealth and booklets which are efforts to modify respondent behavior through knowledge and attitude changes related to improving lifestyles in a healthier direction and avoiding risky behaviors that will harm health in the future [25, 38, 41].

Providing detailed information or explanation about HIV/AIDS allows respondents to have sufficient knowledge before engaging in risky behaviors that might increase the incidence of HIV/AIDS later. This study is based on the health belief model theory that explains how humans or individuals behave on a stimulus made to improve their health and how respondents recognize the four components in the health belief model, namely perceived susceptibility, perceived severity, perceived benefits and perceived barriers [22, 29, 43]. Jeihononi et.al., (2018) conducted research on the effectiveness of health education based on the health belief model using four components in the HBM, namely perceived susceptibility, perceived severity, perceived benefits and perceived self-efficacy from the research they have done, it is proven that there is an increase in HIV / AIDS prevention behavior carried out after health education [68].

Further research on predictors of HIV / AIDS preventive behavior based on the health belief model conducted by Mehri et. Al., (2018) through a questionnaire based on HBM construction. material. Shows that HBM is very useful for predicting preventive behavior in respondents. Similar to research conducted by Joorbonyan, et al (2022) which provides interventions in the form of peer-led education using health belief model construction materials as HIV / AIDS prevention, the results showed a significant increase in all HBM variables after intervention [12, 39].

Telehealth is a form of technological advancement in providing services, one of which is in the health sector. Through Telehealth, the way to deliver services and information about health uses internet-based application communication technology to convey messages in the form of health information without having to meet in person.

Concentration on telehealth in this case telecoaching is a telephone-based health message delivery service as a health promotion to be able to change behavior. The telecoaching media of choice at this time is the Whatsapp application. Whatsapp is one of the



social media used by people so Whatsapp has a great opportunity as an effective intervention to provide health information to improve public health. A simple chat application, a simple interface, easy to understand and saves internet data. Whatsapp can send and receive messages not only in the form of text but also in the form of images, videos, audio or others in unlimited quantities [48, 49, 50]. The use of telehealth must be considered, for service recipients and health care providers because they must be able to use and operate the technology used. There needs to be training in the use of technology used before implementing this telehealth program. If there is no upgrade of the information and technology used, the implementation of this telehealth will be stalled. [40]. Telehealth must always be connected to the internet, if there is no internet it will be difficult to download messages or information submitted by service providers.

This study shows the results for the level of effectiveness of health education media that is quite effective in HIV / AIDS prevention behavior based on the health belief model in prospective brides is telehealth. This is evidenced by the test results based on the results of table 4 of the effectiveness test or N-Gain score test, showing that the average N-gain score for the telehealth group is 59.8% or is included in the moderately effective category. With a minimum N-gain score of 48.7% and a maximum of 70.3%. Meanwhile, the average N-gain score for the booklet group was 35.7% or included in the ineffective category. With a minimum N-gain score of 18.7% and a maximum of 45.6%.

Disadvantages of booklets, namely reading skills, and the process of conveying the message is not direct so that it requires a selection of words that are simple and easy to understand by the reader so that there is no misinterpretation by the reader. [3]. This is in line with research conducted by Mayasari, et al (2020) which states that providing health information through cellular-based media, namely Whatsapp, is more effective or has a significant effect on changing health knowledge in prospective brides [30].

Sary, et al (2020) also revealed that social media is one of the tools in delivering health promotion to increase knowledge, the more senses used to receive messages, the more information will be obtained [24]. According to Notoatmodjo (2012) the cause of behavior change depends on the quality of the stimuli. Rogers also revealed that if behavior is adopted through several stages, one of which is the Interest stage, with the whatsapp media, respondents have more interest in reading messages because messages are not only sent in text form but there are also attractive illustrations. In addition, the use of social media, one of which is WhatsApp in Indonesia, is dominated by the age group 25-34 years (35.4%) and 18-24 years (30.3%), so health education media through Whatsapp has a great opportunity as an effective intervention to improve public health [49, 50, 53, 54].

## SUMMARY

Based on the results of research on 24 respondents, it can be concluded that:

1. HIV / AIDS prevention behavior in prospective brides based on the health belief model before being given health education in the telehealth group (whatsapp) most of the respondents, namely 14 respondents (51.9%) behaved badly and almost as many or as many as 13 (48.1%) respondents were in the good behavior category. After being given health education in the telehealth group, there was an increase, namely 22 people (81.5%) were in the good behavior category and 5 people (18.5%) were still in the bad behavior category.
2. HIV/AIDS prevention behavior in prospective brides based on the health belief model before being given health education in the booklet group, most respondents, namely 15 respondents (55.6%) had poor HIV/AIDS prevention behavior and 12 (44.4%) respondents had HIV/AIDS prevention behavior in the good category, then after health education through booklets HIV/AIDS prevention behavior in the good category increased so that

the total number of respondents who behaved well became 21 people (77.8%) while for respondents who behaved badly as many as 6 respondents (22.2%).

3. There is a significant difference in effectiveness between health education through telehealth (whatsapp) and booklets on HIV / AIDS prevention behavior in prospective brides based on the health belief model with a  $p$  value =  $0.000 < \alpha$  (0.05). Then based on the effectiveness test or N-Gain score test, it shows that the average N-gain score for the telehealth group is 59.8% or is included in the moderately effective category. Meanwhile, the average N-gain score for the booklet group was 35.7% or included in the ineffective category.

#### ADVICE

1. For prospective brides, researchers suggest to seek a lot of information and references, especially health information about HIV / AIDS and diseases that may be transmitted through sexual intercourse. For further research, it can be modified by using other research methods such as quantitative approach methods with research designs using control groups.
2. It is hoped that future researchers can conduct research on variables that have not been studied by researchers in the health belief model theory such as cues to action and self-efficacy.
3. For the research site, the researcher strongly suggests that it is better if health education can be carried out to each bride and groom without having to wait for a marriage guidance schedule. For example, such as providing telehealth media (whatsapp) or booklets that can be given at any time to each prospective bride without having to schedule in advance.

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