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Path Analysis of the Influence of Knowledge on Clean and Healthy Living Behavior Through Perceived Susceptibility as an Intervening Variable in HIV AIDS Prevention

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ABSTRACT

Aims This study aimed to analyze the effect of knowledge on the application of clean and healthy living behavior through perceived susceptibility in the prevention of AIDS.

Participants & Methods Using quantitative research, we examined the possible causality between certain factors possibly causing the studied symptoms. The statistical population was 290 people living in Wakatobi Regency, of whom 166 people were considered as samples using the Lemeshow formula. Descriptive and inferential analyses were performed using path analysis, t-test, and normality tests.

Findings Based on the results of the path analysis, the path coefficient value of the knowledge to perceived susceptibility was 0.177 with a t-value of 7.762 > 1.974 and a p-value of < 0.005. Thus, it can be concluded that knowledge has a positive and significant effect on clean and healthy living behavior in the community.

Conclusion The results showed that knowledge about the dangers of smoking had a significant effect on fostering clean and healthy behavior (PHBS) through perceived susceptibility.

Keywords Perception; Disease Susceptibility; Health; Behavior; Acquired Immunodefie ciency Syndrome

CITATION LINKS

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Introduction

Healthy behavior is very important for all aspects of life, including efforts to prevent transmission of HIV (human immunodeficiency virus). This effort needs attention because the increase in the number of new HIV cases is increasingly concerning. Based on the executive report on the development of AIDS and infectious diseases (PIMS) in the second quarter of 2022 by the Ministry of Health of the Republic of Indonesia, from April to June 2022, the number of people with HIV was found to be 11,100 people out of 986,288 who took HIV tests. The age group of 25-49 years (66.1%), followed by 20-24 years (17.6%) and 50 years and over (8.6%) were the most at-risk age groups for HIV in April-June 2022. Regarding sex, it mostly affected men 69% and females (31%) [1]. The data represents an increase from the 1st quarter report for the period January to March 2022, that is, the number of people living with HIV was 10,525 out of 941,973 people who were tested for HIV [2]. This is a common challenge because sexually transmitted infections, including HIV, are a threat to Indonesian society, especially in productive groups.

Diverse public perceptions related to AIDS cannot be separated from different individual backgrounds. Perception will affect knowledge and people's behavior in responding to vulnerability to HIV and AIDS. Not only health problems, but it has highly affected all fields and human life; thus, there must be promotional efforts that should be made through increasing knowledge, the better the knowledge, the better the perception and behavior [3, 4].

The perception of vulnerability has a positive correlation with healthy life behaviors, if the person is not sensitive to the disease, it causes neglect to practice clean and healthy life behaviors. The ability to have clean and healthy behavior is determined by the way of thinking (perception) of society and other predisposing factors, such as knowledge, beliefs, and attitudes of the individual [5, 6]. In the Health Belief Model by Rosenstock, it is explained that a person will behave according to what he/she believes regardless of the social reality of the surrounding community. This belief also causes a person to feel vulnerable or not susceptible to disease, which makes people obedient or unable to carry out clean and healthy living behaviors [7, 8].

The perception of some people who do not feel vulnerable to disease causes neglect in the application of clean and healthy living behaviors because they do not believe in the benefits.

Various efforts have been made by the government to overcome sexually transmitted infections, but these efforts cannot be maximized if there is no awareness from the public. The involvement of the younger generation in the delivery of information is expected to help reduce new cases of HIV due to the lack of knowledge [9]. Efforts to maximize HIV prevention through the adoption of healthy living behaviors to minimize the emergence of new cases are important in all regions, as well as in the Wakatobi Regency area, which based on data from KPAD and the local Health Office, experienced an increase in new cases in 2021 by 13 people to 16 new cases in 2022 [10]. Preliminary data obtained from four randomly encountered people in Wakatobi Regency revealed that they had heard about HIV and AIDS but did not know the pattern of transmission and prevention of the disease. This research is important because there are still many people in Wakatobi Regency, especially adolescents who do not understand how to prevent the signs symptoms, and transmission patterns of sexually transmitted infections that have the potential to cause HIV; thus, they do not feel vulnerable to infection.

This study aimed to analyze the influence of knowledge on the application of clean and healthy living behavior through perceived susceptibility in the prevention of AIDS.

Participants and Methods

This study used a quantitative approach to examine possible causes and effects between certain factors as possible causes of the studied symptoms. The study population was 290 people in Wakatobi Regency, Southeast Sulawesi and the study was done for three weeks (June 7, 2022, to June 25, 2022).

We used non-probability sampling with a purposive sampling approach. The inclusion criteria were being healthy able to communicate well and willingness to be a respondent. The sample size was determined using the Lemeshow formula using the following calculations [11]:

$$n \frac{NZ^2\ 1-\frac{\alpha}{2}\ p\ (1-P)}{d^2\ (N-1)+Z^2\ \ 1-\frac{\alpha}{2}\ p\ (1-p)}$$

$$n = \frac{290\ .\ 1{,}96^2.\ 0.5\ (1-0{,}5)}{0{,}05^2\ (290-1)+\ 1{,}96^2\ .0.5\ (\ 1-0{,}5)}$$

$$n = \frac{290\ .3.84\ .0.5\ (0.5)}{0{,}0025\ (289)+3.84\ .\ 0.5\ (0.5)}$$

$$n = \frac{278.4}{0.7225+0.96}$$

$$n = \frac{278.4}{1.6825} = 165.4\ \approx 166$$

N: total population, n: the number of samples, p: approximate proportion (If not known can use 0.5), q: 1p=0.5, d: absolute precision/sampling error (5%/0.05), Z1-a/2: the confidence level of 95%, Z = 1.96.

Accordingly, the number of samples in this study was 166 respondents.

The data collection tool was a questionnaire scored on a five-point Likert scale (strongly disagree, disagree, hesitate, agree, and strongly agree) in the form of positive and negative statements containing questions that must be answered/filled in by

respondents. This research instrument was then tested using validity and reliability tests.

The implementation of the research included:

1- Preparatory phase: managing research administration and licensing and preliminary observations.

2- Implementation phase: dissemination of tools in the form of questionnaires directly to the respondents at the research site and documentation of activities.

3- Final phase: data collection and transferring to SPSS 25, followed by data analysis and interpretation.

Data Analysis

Descriptive and inferential analyses were used. Descriptive analysis was done to determine the frequency and variation of respondents' answers to the items of the questionnaire. The inferential analysis included path analysis, t-test, and normality test. Path analysis was used to determine the direct influence of knowledge about sexually transmitted infections, including HIV as an independent variable on healthy living behavior as a dependent variable, as well as the indirect influence of knowledge about HIV on healthy living behavior through the perceived susceptibility in HIV prevention as intervening variable. Path analysis is an extension of multiple linear regression analysis, or the use of regression analysis to estimate pre-established causality based on theory [12].

Findings

Table 1 indicates the respondents' demographic characteristics based on age, education, and occupation.

Table 1) Demographic characteristics of the respondents

Characteristics	No.	%
Age (year)		
17-19	5	3.0
20-29	89	53.6
30-39	47	28.3
≥40	25	15.1
Education		
Not finished school	5	3.0
Primary school	39	23.5
Junior high School	55	33.1
Senior high school	60	36.1
Bachelor's degree	7	4.2
Occupation		
Housewife	152	91.6
Farmer	10	6.0
Merchant	1	6.0
Technical staff	2	1.2
Health worker	1	0.6
Total	166	100,0

Source: Primary data, 2022.

Based on Table 1, most participants were in the age group of 20-29 years (53.6%) and the age group of 17-19 years (3.0%) included the lowest number of participants. The majority of participants had a senior high school level or the equivalent (36.1%), compared to those who did not finish school (3.0%). Also, most respondents were housewives (91.6%).

Table 2 indicates the results of the calculation of the path analysis.

Table 2) Path analysis results for direct effects

Path	Path Coefficient	p-Value	t
Knowledge → perceived susceptibility	0.177	0.000	7.762
Perceived susceptibility → clean and healthy living behavior	0.280	0.002	3.115
Knowledge → clean and healthy living behavior	0.104	0.001	3.388

Source: Primary Data Processed (2023)

Based on the results of the path analysis, the path coefficient value of the knowledge to perceived susceptibility was 0.177 with a t-value of 7.762>1.974 and a p-value of 0.000<0.05, then, the first hypothesis is accepted. Thus, it can be concluded that knowledge has a positive and significant effect on clean and healthy living behavior in the community. The higher the level of public knowledge related to the HIV threat, the increase in clean and healthy living behavior of the community to prevent sexually transmitted infections, especially AIDS.

Testing the second hypothesis for the indirect effect of knowledge on clean and healthy living behavior through perceived susceptibility as an intervening variable was done by the Sobel test. This test was carried out by testing the strength of the indirect path of knowledge to clean and healthy living behavior through perceived susceptibility. The indirect effect of knowledge on clean and healthy living behavior through perceived susceptibility was calculated by multiplying the path of knowledge to perceived susceptibility by the path of perceived susceptibility to clean and healthy living behavior.

Discussion

The perceived sensitivity that a person feels about the risks related to their health condition is subjective sensitivity. Likewise, the perception of susceptibility to other diseases will be a trigger for someone to behave healthily. If someone can understand that he/she is potentially sick then he/she will carry out clean and healthy living behaviors [7, 8, 13]. This is because perception is the process of interpreting impressions related to the five senses and giving rise to meaning [14]. Risky behavior will lead to sexually transmitted infections. The results showed a relationship between the perception of vulnerability to HIV infection and the implementation of clean and healthy living behaviors in Wakatobi Regency.

The path coefficient for the perceived susceptibility to clean and healthy living behavior was 0.280, with a t-value of 3.115 and a significance value of 0.002. This result indicates that the second hypothesis is acceptable. Thus, it can be concluded that perceived susceptibility has a positive and significant effect on people's clean and healthy living behavior. This

means that the higher the perceived sensitivity of people to the threat of HIV, the more clean and healthy life behavior will increase. Although each individual's perception of the disease is different based on his/her respective background, he/she will take preventive measures if he/she feels of having a risk of getting the disease. A person's perception that sexually transmitted infections are diseases that can lead to death is dangerous, so he takes precautions such as not having promiscuous sex or obeying the use of condoms [15, 16].

The coefficient for the path from the knowledge to clean and healthy living behavior was 0.104 with a t value of 3.388 and a significance value of 0.001and the third hypothesis was accepted. Thus, it can be concluded that knowledge has a positive and significant effect on clean and healthy living behavior. This means that the higher people's knowledge about the risks of HIV, the better their clean behavior and healthy life will be.

It is undeniable that knowledge plays an important role in the formation of behavior and adequate information related to HIV AIDS that is obtained from it positively contributes to the attitude and actions of a person in carrying out HIV prevention. Aspects that intervene in behavior in HIV prevention are information obtained through competent people, friends, and media because people need continuous information, especially related to HIV [17, 18].

The calculated t-value of 3.388 was greater than 1.974 with a significance level of 0.005; thus, perceived susceptibility can mediate the influence of community knowledge level on clean and healthy living behavior. This shows that the existence of perceived susceptibility as a mediating variable can affect the clean and healthy behavior of the community. A high level of public knowledge about HIV can affect perceived susceptibility or the perception of people's vulnerability to a disease in their environment to improve the pattern of clean and healthy living behavior of the community.

According to this study, respondents in Wakatobi Regency have an adequate understanding of sexually transmitted diseases if there are family members who behave at risk. In addition, the perception of susceptibility to the threat of HIV can also be triggered by other factors that influence the implementation of clean and healthy living behaviors. These factors can be caused by self-awareness and the presence of supporting factors, such as the influence of the social environment that can facilitate the formation of behavior. A good knowledge of disease prevention contributes greatly to changing one's perception thus reinforcing to behave cleanly and healthily. Understanding the vulnerability to infection provides awareness of the community to always strengthen themselves not to suffer from the disease, for example practicing healthy behaviors and avoiding risky behaviors [19, 20]. The government's appeal to continue to comply and carry out healthy living behaviors, including avoiding promiscuity, especially in the daily association is still widely ignored by the community. The implementation of clean and healthy living behavior is one of the government's concerns that is expected to help break the chain or trigger the incidence of sexually transmitted diseases, including HIV [21, 22]. The main goal in clean and healthy living behavior is for all individuals to actively participate in realizing healthy living behavior. The Ministry of Health of the Republic of Indonesia revealed that people who behave at risk have a higher chance of being infected with HIV [23].

The importance of implementing healthy behaviors and avoiding risky behaviors is that people have self-control in their social environment. Good knowledge of transmission patterns, prevention, and control efforts will prevent sexual infections. Attention to the threat of HIV is very important because according to UNAIDS in 2014, the spread of HIV in Indonesia is faster than in other Asian countries [24, 25].

The perception of susceptibility felt by respondents in this study was very high because most subjects were women (housewives)and women usually pay close attention to health problems. However, regarding HIV, many respondents did not understand exactly the causes and preventive measures. They only knew that HIV is a disease caused by sexual behavior that changes partners. Women play an important role in economic care in predicting disease and are more disciplined than men and care about health [26, 27].

Access to information about HIV and AIDS is the right of housewives to be able to make efforts to prevent HIV infection. Many women tend to accept because of ignorance of risky behavior from their partners. Everyone and groups in society need to seek and obtain information to reduce risk and change behavior [28-30]. The adoption of healthy behaviors is a person's decision based on the perception of perceived risk, as in the theory of the health belief model that if the perceived risk is greater, the person is more likely to adopt healthy behaviors, such as prevention by eliminating risky behaviors [31].

Based on the results, the perception of susceptibility to HIV infection is due to underlying knowledge. Lawrence Green's theory groups two determinants of health problems, namely behavioral factors and non-behavioral factors [32]. Bloom's theory divides three behavioral domains, namely the cognitive domain, the affective domain, and the psychomotor (psychomotor domain) [33, 34]. Considering the perception of community vulnerability in this study, these three domains can be measured: the knowledge of individuals in the community in Wakatoby Regency to the existence of information related to HIV (knowledge), individual responses or attitudes to the information obtained (attitude), and practices in the form of actions (practices) carried out by individuals by behaving non-risky, especially in their

social associations. A good environment will form a pattern of good behavior and vice versa. Various social objects can interact and form values and norms in the environment; for example, living things can influence others, and there are also non-social objects, such as inanimate objects [22-24].

One of our limitations was our small sample size and it is suggested to consider other variable in the future studies.

Conclusion

The knowledge about HIV prevention efforts has a significant effect on clean and healthy living behavior through perceived susceptibility. This explains that the role of vulnerability perception as a mediating variable does not eliminate the direct influence of knowledge about the dangers of HIV on people's clean and healthy living behavior. However, the existence of the perceived vulnerability (perceived susceptibility) is effective in influencing people's clean and healthy living behavior.

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