

# Decision making for people living with HIV/AIDS using the theory of innovation diffusion model at the Western Provident Association Turen Foundation

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## ABSTRACT

**الأهداف:** وصف كيفية اتخاذ القرارات للأشخاص المصابين بفيروس نقص المناعة البشرية/الإيدز باستخدام نموذج نظرية نشر الابتكار. يتم اتخاذ القرارات عندما يتخبط صنع القرار الأفراد في الأنشطة التي توجه الخيارات لتبني أو رفض ابتكار معين.

**المنهجية:** أجري بحث وصفي تحليلي باستخدام المنهج المسحي. جمعنا البيانات باستخدام استبيان اتخاذ القرار. عينة هذا البحث هي مرضى فيروس نقص المناعة البشرية / الإيدز (PLWHA) في تورين، إندونيسيا. بلغ عدد المرضى 36 مستجيباً حصلنا عليهم باستخدام تقنية أخذ العينات الهادفة في يناير 2023.

**النتائج:** استخدم تصميم البحث أسلوب الارتباط مع النهج المقطعي والاختبار الإحصائي لمعامل ارتباط سبيرمان. تظهر نتائج البحث أهمية إحصائية (ثنائي الذيل) تبلغ  $0.934$  ( $p < 0.05$ ). نتائج معامل الارتباط سلبية. حيث أظهر اتجاه الارتباط علاقة ضعيفة جداً بقيمة  $0.014$  كما أن نتائج التحليل بين المتغيرات ليست واحدة. وذلك لأن مرحلة الإقناع لم يتم اختبارها في التحليل. تظهر الأبحاث أن 8 (22.2%) من المرضى رفضوا اتخاذ القرار بشأن فيروس نقص المناعة البشرية/الإيدز باستخدام نموذج نظرية الابتكار المنتشر في مؤسسة تورين التابعة لجمعية بروفيدنت الغربية، تورين، إندونيسيا، في حين قبله 28 (77.7%) مريضاً. يمكن أن نستنتج أن غالبية القرارات التي يتخذها مرضى فيروس نقص المناعة البشرية/الإيدز في مؤسسة ADIS Turen Peduli Warga مقبولة.

**الخلاصة:** معرفة مرضى فيروس نقص المناعة البشرية/الإيدز في مستوى جيد، واتخاذ قراراتهم مقبولة في الغالب، وهناك علاقة ذات معنى بين المعرفة واتخاذ القرار في استخدام ابتكار روبوت الدردشة. الاقتراح من البحث هو أن ابتكار روبوت الدردشة هذا يمكن أن يكون مصدراً لمزيد من البحث ويساعد في توفير التعليم لمرضى فيروس نقص المناعة البشرية/الإيدز في الحياة اليومية.

**Objectives:** To describe how people living with HIV/AIDS (PLWHA) make decisions using the diffusion of innovation theory model. Decisions occur when individual decision makers engage in activities that guide choices to adopt or reject a particular innovation.

**Methods:** This is a descriptive analysis research using a survey method. Data collection was carried out using a decision making questionnaire. The subjects in this research were HIV/AIDS sufferers (PLWHA) who lived in Turen, Indonesia. The number of research subjects was 36 respondents obtained using the purposive sampling technique on January 2023.

**Results:** The research design used the correlation method with a cross sectional approach and the Spearman correlation coefficient statistical test. The research results show significance (2-tailed) of 0.934 ( $p > 0.05$ ). The correlation coefficient results are negative. Where the direction of the correlation produces showed a very weak relationship with a value of 0.014 and the results of the analysis between variables are not the same. This is because the persuasion stage was not tested in the analysis. Research shows that 8 (22.2%) patients rejected the decision making of PLWHA using the diffusion of innovation theory model at the Western Provident Association Turen Foundation, Turen, Indonesia, while 28 (77.7%) patients accepted it. It can be concluded that the majority of decisions made by HIV/AIDS patients at the ADIS Turen Peduli Warga Foundation are accepted.

**Conclusion:** Knowledge of HIV/AIDS sufferers is at a good level, their decision making is mostly accepted and there is a meaningful relationship between knowledge and decision making in using a chatbot innovation. The suggestion from the research is that this chatbot innovation can be a source of further research and help provide education for PLWHA patients in everyday life.

**Keywords:** decision making, PLWHA, theory of diffusion of innovations

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**H**uman immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) is a disease caused by the human immunodeficiency virus. This virus reduces the body's immunity by infecting and damaging the human immune system. Adherence to taking medication can increase the expectation and quality of life of people living with HIV/AIDS (PLWHA). People living with HIV-AIDS have powerlessness in living their personal lives.<sup>1</sup>

Diffusion can be defined as one of the meanings of the act of sowing, scattering, and mingling. It is also known as the spread of social institutions from one society to another.<sup>2</sup> Diffusion is a special form of communication in providing new ideas. Apart from that, diffusion can also be interpreted as a type of social change, namely the process of changing the structure and function of a social system. It is understandable that the term diffusion cannot be separated from the word innovation. The main goal of the diffusion process is the adoption of an innovation by members of a particular social system. Members of a social system can be individuals, informal groups, organizations or subsystems. Innovation is defined as the entire process of creating and offering services or goods that are new, better or cheaper than those previously available. This understanding concludes that innovation is an activity (process) of discovery. The discovery process consists of the diffusion of innovation, persuasion, decision-making, communication, and implementation.<sup>3</sup>

Making appropriate treatment decisions can have a good effect on the health of PLWHA.<sup>4</sup> Compliance with treatment means that PLWHA will experience a good quality of life so that the life expectancy of PLWHA will increase.<sup>5</sup> Based on a research carried out by Giddens et al,<sup>6</sup> making the right decisions will improve the health of PLWHA, this is because of managing their disease, the disease they suffer from does not get worse.

Persuasion also has an impact on information diffusion.<sup>7</sup> Decisions occur when individuals/units make decisions in activities that guide choices to adopt or reject an innovation. Therefore, an innovation diffusion theory approach is needed which plays an important role in determining the penetration of innovations or products in the future by understanding their characteristics.<sup>8</sup>

This study aims to describe how the decision making of PLWHA using the theory of innovation diffusion model at the Turen WPA Foundation, Turen, Indonesia. The specific aim of this study is to determine the theory of diffusion of innovation and how knowledge and persuasion impact the decision to adopt or reject innovation.

**Methods.** This research is a descriptive research with a survey method. The research was carried out in January 2023. Data collection was carried out using a decision-making questionnaire which validity was tested with value > T table of 0.4973, which was considered valid and a reliability test value with a Cronbach's alpha value of 0.943 > R Table of 0.4973, and a questionnaire value knowledge > T table of 0.4973 is considered valid and the Cronbach's alpha reliability test value is 0.960 > R table of 0.4973.

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The subjects in this research were PLWHA who live in the Turen, Malang, Indonesia. A total of 36 patients were taken using purposive sampling technique and research subject selection techniques using certain characteristics that are appropriate to the research to answer the research problem. Researchers also determined inclusion criteria, namely PLWHA who had been diagnosed for more than one year, PLWHA who could read and write, PLWHA who were willing to be respondents, and used exclusion criteria, namely PLWHA who could not read and write. As well as PLWHA who are hospitalized and cannot attend the research. In this research the independent variable is knowledge and the dependent variable is decision making.

**Statistical analysis.** Data processing is carried out using the Statistical Package for the Social Sciences (SPSS), version 20.0 software program (IBM Corp., Armonk, NY, USA), namely using descriptive analysis techniques and bivariate analysis which will only produce a relationship between the 2 variables concerned (dependent variable and independent variable). Spearman Rho test analysis is used to analyze the relationship between the independent variable and the dependent variable.

**Results.** The results of the research revealed that PLWHA in WPA Foundation Turen were mostly aged 25-49 years (n=31, 72.8%), followed by ≥50 years old (n=3, 16.6%), and only a few were aged 20-24

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years ( $n=2$ , 13.6%). In the gender data, there were 29 (88.2%) female and 7 (11.8%) male respondents. In the occupation data, it was found that one (2.1%) respondent worked as a government employee, 7 (25.1%) were entrepreneurs, 20 (42.3%) were housewives, and 8 (30.5%) respondents did not work.

The results showed that 8 (22.2%) decision making of PLWHA using the diffusion of innovation theory model were rejected while of 28 (77.7%) decision making of PLWHA using the diffusion of innovation theory model were accepted.

The results of the SPSS analysis in decision making for PLWHA using the theory of innovation diffusion model showed that the total of 36 respondents' knowledge had an  $R = -0.014$ , with a  $p$ -value of 0.934.

**Discussion.** Knowledge is the result of someone knowing a problem or object that is being seen or heard from various sources. Knowledge can be generated from how far away the person can get the information obtained. Indicators of knowledge include 'awareness-knowledge' (a person's knowledge regarding whether or not the innovation is known), 'how-to-knowledge' (knowledge regarding how to apply an innovation), and 'principles-knowledge' (the function and benefits of an innovation). Another knowledge indicator that is used as a benchmark is assessing previous knowledge of the chatbot innovation that will be introduced to someone. In this study, it is found that 91.6% ( $n=33$ ) of PLWHA lack previous knowledge of chatbot introduction. On average they say chatbot is something foreign to their ears. The remaining 8.33% ( $n=3$ ) said that they had previously heard of this innovation, how the system works, and how to use it. Insufficient knowledge can be caused by various factors that influence the ability to capture information on new innovations. According to Ariani et al,<sup>9</sup> when a person gets older, the mind works harder because of experiences in searching and capturing information. In this study, most of their ages were 36-45 years. That generation is called the millennial age which is entering a new era. Therefore, high competition in various sectors, especially those related to information and knowledge, requires people to be able to adapt by utilizing technology. Meanwhile, generations before millennials were not strong enough to introduce technology. Meanwhile, generations before millennials were not strong enough in introducing technology.<sup>9</sup>

Another thing that can influence a person's lack of knowledge is education. According to Ibrahim et al,<sup>10</sup> education can make a person behave and motivate him to participate in improving the welfare of society.

A person with higher education will be able to easily understand given information comparing to those who has obtained lower education. The research results obtained showed that, the majority of their education level is junior high school. The results of this study do not show a significant relationship between age and the level of education. This can be explained as they get older. A person's level of maturity and strength will become more mature in thinking and working. However, as stated by Ibrahim et al,<sup>10</sup> there are physical factors that can hinder the learning process, resulting in a decline in the ability to think and work at any time. Therefore through previous knowledge, own experiences, other people's experiences, the environment and other intrinsic factors can shape a person's knowledge.

Work is one of the external factors that influences knowledge. People who work need to interact directly with other people. Meanwhile, internal factors that can influence or shape individual knowledge include the urge to seek information via chatbots. By using chatbots, individuals can gain more knowledge without interacting with other people. Developed workplace learning experiences provide professional knowledge and skills; and workplace learning experiences can develop decision-making abilities that are a combination of scientific and ethical reasoning.<sup>11</sup> In this study, the majority of respondents worked as entrepreneurs, but this did not match the explanation that people who work as entrepreneurs should have innovation in their work. According to researchers, if you look at it from here, it could be that knowledge is lacking due to other factors such as age.

Decision making is a right to accept or reject a statement or introduction of a problem given by someone which may take the form of innovation. Decision making is the same as adopting an innovation, which is the process of starting and releasing ideas from someone, then conveying them to a second party, until the idea is accepted by the second party.<sup>12</sup> The majority of PLWHA decision making regarding chatbot innovation was 77.7% (28 people) choosing to accept this chatbot innovation. It was found that only (22.2%) as many as 8 people chose to reject the chatbot innovation that was introduced. At the time of the research, they said this innovation was simple to use and practical. The features presented make it quite easy to provide innovation and information related to HIV/AIDS knowledge and self-adjustment to PLWHA. Adopting an innovation by making a decision to accept or reject gives a person a choice in considering the innovation information that will be obtained. The need for information occurs because of the gap within humans, namely between

their knowledge and their knowledge of the complexity of the problems they face. The knowledge he has is not yet able to answer confusion or cannot be used to solve problems. Thus, he needs additional information that suits his needs.<sup>13</sup> Decision making is based on someone who previously did not have or already had the knowledge of an innovation being introduced; and will seek information if he or she needs answers to questions, or wants to find facts on a situation of innovation. Information search gradually turns into a need which eventually takes over innovation decisions and using an innovation in everyday life.

**Decision making for PLWHA using the theory of innovation diffusion model at the WPA Turen Foundation.** Based on the results of the SPSS Spearman Rho test, a significance value was obtained or 2-tailed significant of 0.449 because the significant value (2-tailed)  $0.449 > 0.05$ , meaning there is still a significant (meaningful) relationship between the knowledge variable and decision making. This is because there is a relationship but results correlation coefficient produces knowledge variable values and variable values decision making is inversely proportional and produces a value (-). Can this means that the worse the knowledge about the chatbot innovation before it is introduced, the better the decision making in accepting the innovation chatbot after being introduced and vice versa?

Mawn et al<sup>14</sup> said that decision making is different for each individual, which differentiates between individuals based on how they capture information and make decisions from time to time. According to Nursalam et al<sup>15</sup> the way people make decisions can be described through their decision-making style. How one interprets or understands, how one responds, and what one believes is an important means that decision-making style reflects the way a person reacts to situations he faced. Based on the research results, the factor where the respondent's level of knowledge is still lacking is chatbot innovation. Researchers introduce chatbots as a technology that helps in providing knowledge related to HIV/AIDS education and adapting to HIV/AIDS. They have the right to know what the contents of this chatbot innovation are during research. They filled out the questionnaire when the researcher finished explaining the chatbot's performance how and explain the features in the chatbot. From here they take decision. Most said they would apply this innovation in their spare time and read information related to HIV/AIDS education and self-adjustment of HIV/AIDS patients.

**Study limitations.** The limitation of this study is that it uses a survey method, therefore it needs to be developed using a longitudinal study method.

In conclusion, knowledge of HIV/AIDS sufferers is at a good level, their decision making is mostly accepted and there is a meaningful relationship between knowledge and decision making in using chatbot innovation. This is because the persuasion stage was not tested in the analysis. The suggestion from the research is that this chatbot innovation can be a source of further research and help provide education for PLWHA patients in everyday life.

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