Behavioral Intervention to Prevent HIV/AIDS among Young Adults using Motivational Culture-Based Communication: Protocol for a Research and Development Study

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Abstract

HIV/AIDS is an epidemic in 190 countries, with Indonesia having more than half a million people living with the virus. Risk factors include risky sexual activity and alternating needle usage. The majority of cases are young adults (18-30 yeard old). Effective prevention involves avoiding sex and adopting healthier lifestyles. The Indonesian National HIV/AIDS strategy aims to reduce new cases to less than a thousand per year. This research aims to explore young adults' needs, perceptions, and cultural aspects of HIV/AIDS prevention, develop the intervention model, analyze its effectiveness, and examine its effect on HIV prevention behavior. We will conduct the study in three phases: qualitative research, model development, and quantitative research. In the first phase, we will use descriptive phenomenology and forum group discussion (FGD) to collect data from young adults and stakeholders in Batang and Pekalongan regencies. The second phase will develop a motivation model for HIV/AIDS prevention using culture-based communication (MK-U) through website media. We will design the model in consultation with an IT team and experts to ensure its suitability. The third phase will involve a pre-post-test with a control group quasi-experiment involving young adults aged 20–30 in Batang and Pekalongan districts. The intervention group will receive culture-based motivational interviewing, while the control group will receive standard counseling. We will analyze the data using a generalized linear model and multivariate analysis of variance. We expect to develop the MK-U model for HIV prevention behavior among young adults. In 2025, we will implement a community-based nursing research program for the MK-U model to prevent HIV/AIDS. : In this research, we will compare the results with similar studies, which will benefit program implementers and policymakers in both regions and enhance the effectiveness of HIV prevention programs.

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Behavioral Intervention to Prevent HIV/AIDS among Young Adults using Motivational Culture-Based Communication: Protocol for a Research and Development Study

Abstract

Background: HIV/AIDS is an epidemic in 190 countries, with Indonesia having more than half a million people living with the virus. Risk factors include risky sexual activity and alternating needle usage. The majority of cases are young adults (18-30 yeard old). Effective prevention involves avoiding sex and adopting healthier lifestyles. The Indonesian National HIV/AIDS strategy aims to reduce new cases to less than a thousand per year.
Objective: This research aims to explore young adults' needs, perceptions, and cultural aspects of HIV/AIDS prevention, develop the intervention model, analyze its effectiveness, and examine its effect on HIV prevention behavior.
Methods: We will conduct the study in three phases: qualitative research, model development, and quantitative research. In the first phase, we will use descriptive phenomenology and forum group discussion (FGD) to collect data from young adults and stakeholders in Batang and Pekalongan regencies. The second phase will develop a motivation model for HIV/AIDS prevention using culture-based communication (MK-U) through website media. We will design the model in consultation with an IT team and experts to ensure its suitability. The third phase will involve a pre-post-test with a control group quasi-experiment involving young adults aged 20–30 in Batang and Pekalongan districts. The intervention group will receive culture-based motivational interviewing, while the control group will receive standard counseling. We will analyze the data using a generalized linear model and multivariate analysis of variance.
Results: We expect to develop the MK-U model for HIV prevention behavior among young adults. In 2025, we will implement a community-based nursing research program for the MK-U model to prevent HIV/AIDS.
Conclusions: In this research, we will compare the results with similar studies, which will benefit program implementers and policymakers in both regions and enhance the effectiveness of HIV prevention programs.

Keywords: HIV/AIDS prevention; motivation; behavior; culture; young adults

Introduction

Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) has become an epidemic in nearly 190 countries around the world. The prevalence in the last 40 years has reached more than 80 million people worldwide.[1] The estimated number of people living with HIV/AIDS (PLWHA) in Indonesia from 2005 to 2021 reached 543,100. The three highest risk factors for HIV/AIDS transmission in Indonesia are risky sex in heterosexuals and homosexuals, as well as the use of alternating needles in IDUs. The age range of 25–49 years

accounts for the majority (68.1%) of HIV/AIDS cases. This is associated with the window period of HIV/AIDS (8–10 years), so it is likely that HIV transmission occurs in the age range of 20–30 years. The number of HIV/AIDS cases in the young adult group also increased by approximately 1% compared to 2021.[2] This figure will continue to rise if no serious efforts are made to stop the transmission of HIV/AIDS in Indonesia, particularly in reaching the young adult age group.

In the absence of a core vaccine for HIV infection, effective HIV prevention involves avoiding vaginal, anal, and oral sex.[3] This prevention effort is better known as the program with Abstinence, Be Faithful, and Condom Use (ABC). Behavior change approaches are HIV prevention methods that allow people to change their behavior and adopt healthier lifestyles. One form of behavior change intervention is community outreach and mentoring. Components in PMTS with community outreach can include motivational promotion to avoid casual sex through health education, problem-solving skills development, and counseling.[4,5]

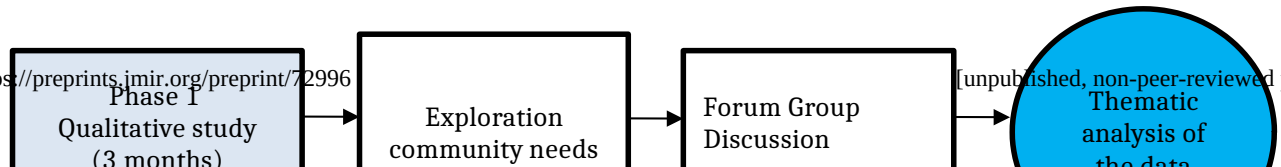
One of the objectives of the Indonesian National HIV/AIDS Strategy is to reduce new HIV infection cases to less than 1,000 per year. To achieve this target, it can be done in stages. Reaching young adults (20–30 years old) who are vulnerable to HIV/AIDS transmission at the district or city level, as a district-based intervention, is one of the strategies.[2] However, the results of preliminary surveys in two regions, namely Batang and Pekalongan Districts, Central Java, are still not optimal for reaching this age group. This can be seen from the fact that the highest number of new HIV/AIDS cases are at the age of 25–49 years (65.4%), mobile Voluntary Counseling Test (VCT) activities only focus on reaching key populations and have also never yet utilized internet media (websites) with an e-Health approach, the lack of active youth organizations that care about HIV/AIDS, and the role of AIDS commission (KPA), which is hampered by the post-Covid-19 pandemic budget.

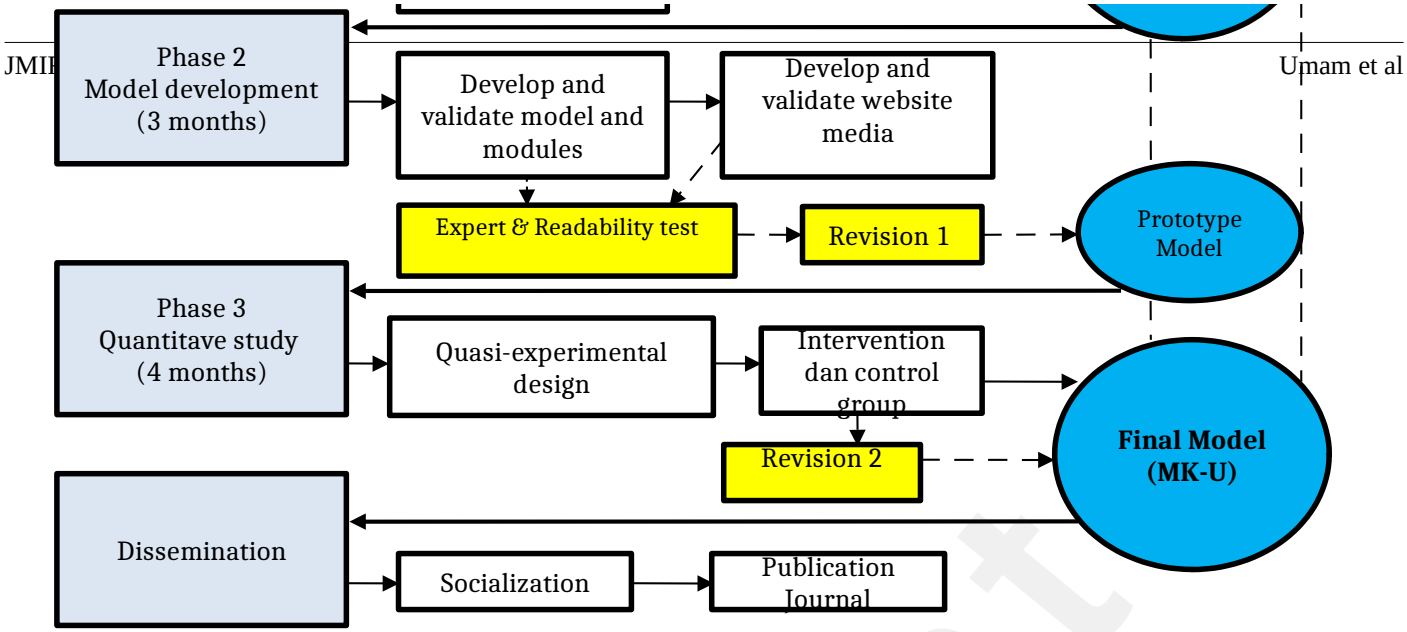
Based on this background, researchers are keenly interested in developing an outreach model for website-based young adult groups to conduct HIV/AIDS prevention, with the aim of reducing the number of HIV/AIDS cases in Indonesia. Therefore, the the objective of this research are as follows: (1) to explore the needs and perceptions of young adults in improving HIV/AIDS prevention behavior; (2) to investigate the programs and cultural aspects of local stakeholders in HIV/AIDS prevention among young adults; (3) to develop the MK-U model, module, workbook, and evaluation, as well as website media for outreach and intervention with young adults in HIV/AIDS prevention; (4) to analyze the effectiveness of the MK-U model to increase self-awareness and intention in HIV/AIDS prevention among young adults; (4) to examine the effect of MK-U model intervention on HIV/AIDS prevention behavior among young adults.

Methods

Study Design

This study uses the research and development (R&D) method to develop a motivational culture-based communication (MK-U) model. This method is used to create specific products/model and to evaluate their effectiveness (Bright & Gideonse; Sumarni, 2019; Silalahi, 2017). Three phases will comprise the research process: qualitative research, model development, and quantitative research, in order to produce specific product or model. The duration of phases is described in the study outline (see Figure 1).





Phase 1: Qualitative Study

Study Setting

The research will be conducted in a community setting in Pekalongan and Batang Regencies, Central Java, Indonesia. The primary objective of the first phase of the research will explore the perceptions and needs of young adults in order to enhance their HIV/AIDS preventive practices. In addition, exploration needs to be done with stakeholders, namely nurses as program implementers, the Health Office, the District AIDS Commission, and non-governmental organizations (NGOs), to explore cultural aspects and programs that have been carried out for HIV/AIDS prevention in Pekalongan and Batang Districts. The research approach that will be carried out in this study is descriptive phenomenology with Forum Group Discussion (FGD) as a data collection method. This approach is very effective for studying, better understanding, and describing important phenomena from human experience or participants (Chesnay et al., 2015). The results of this study will be used as material to develop a motivational culture-based communication (MK-U) model by utilizing website media.

Participants

The study will consist of two distinct groups of participants: young adults and stakeholders from the Batang and Pekalongan regency areas. The young adult group will consist of a total of 20 participants, separated into two subgroups. Specifically, there will be 10 male young adults and 10 female young adults from each Regencies. The stakeholders group will consist of a total of 20 participants as well, separated into two subgroups. Specifically, there will be 10 participants from health workers and 10 participants non-health workers from each regencies. The health workers include the healthcare provider at the public health office (Dinas Kesehatan) and nurses at public health centre (Puskesmas). This group consisted of 2 participants from public health office and 8 participants from public health centre (Puskesmas) in each regencies. In addition, the non-health workers include the district AIDS commission (KPA) coordinator, the NGO coordinator, and community leaders from Batang and Pekalongan districts. This group consisted of 3 participants from KPA, 4 participants from NGOs, and 3 participants from community leaders in each regencies.

The FGD procedure will conclude upon achieving data saturation in each group.

Participants Recruitment

The research will use purposive sampling as the sample technique. The participants will focus on the specified inclusion requirements, which require them to be young people between the ages of 20 and 30, unmarried, and eager to actively participate. The exclusion criteria pertain to young individuals who have mental illnesses. Non-governmental organizations (NGOs) will be engaged to facilitate the recruitment of key informants in both areas. Meanwhile, stakeholder participants will be invited through agency leaders to represent them in the research process.

Data Collection

The researcher will recruit a research team consisting of four people to assist in the research process. Semi-structured interview guidelines will be used to perform FGDs. Each focus group discussion (FGD) group will have a session that lasts roughly 90–120 minutes. Throughout the FGD process, the research team will transcribe and record participants' names and comments. The seating arrangement will be based on the attendees' preferences. Researchers will record the whole FGD session, capturing the process from the beginning to the end, using a voice recorder and digital camera. If one of the informants is absent, the researcher will confirm the reason for not being able to attend and then record it in the field notes. The FGD process will proceed based on the number of participants present. The research team will summarize and analyze each FGD session, then present a written and/or oral report to the participants. All comments and grammatical mistakes will be reviewed and fixed as necessary.

Data Analysis Plan

A content and thematic analysis will be used for data analysis using four steps, including bracketing, analyzing, intuiting, and describing.[9,10] Then, the credibility technique will be used to explain the degree or truth value of the data generated, including the data analysis process from the research conducted. We will implement two strategies to ensure data validity: the first involves the researcher, who will also use FGD discussions and participant observation to ensure the data is truly accurate. The second strategy is member check, which involves anyone who participates in the research in checking the findings to ensure that they are consistent with their experience. We will also use descriptive validity and interpretative validity techniques to ensure the validity of the data. Descriptive validity refers to the report's factual accuracy, whereas interpretive validity refers to the report's interpretation. The report will be based on the participants' language and rely as much as possible on their own words and concepts. When summarizing the results, the researcher will be cautious because there are jumps from the participants' words and actions that affect the conclusions. The entire FGD process will be in Bahasa Indonesia.

Phase 2: Model Development

Study Procedures

The goal of phase II research is to develop a motivation model for HIV/AIDS prevention among young adults using culture-based communication (MK-U) through internet media. Following the obtaining of findings from the first phase of research, researchers will proceed with reviewing literature derived from textbooks and previous articles published in scientific journals. This literature review will focus on the examination of HIV/AIDS preventative behavior among young adult populations, using a cultural framework facilitated by online

media or telehealth platforms. Thus, the present study will ascertain and establish the development of this model by analyzing the findings of phase 1 research and three conceptual models, namely the Information-Motivation-Behavioral (IMB) Model[11], the Integrated Change Model (ICM)[12], and the Johnson Behavioral System (JBSM) Model[13] which were used in this study.

Subsequently, the researchers will collaborate with an Information Technology (IT) team to design a website that aligns with the objectives. Following this, the researchers and the IT team will scrutinize the website's requirements, pinpointing the system's users and defining its functional and non-functional needs, in order to offer a preliminary outline of the system's construction during its implementation. Researchers will also form a content creation team to create website materials and media tailored to user needs. Finally, using reference sources that align with the topic and needs, researchers will form a team to prepare a draft module that integrates with the MK-U model. We will then subject the draft modules and workbooks to expert and readability tests to ensure their suitability for use.

Expert and Readability Tests

We conduct the first expert consultation to gather input, suggestions, and approval for the draft website, module, and workbook. Then, we compiled before the trial. The instrument for the expert consultation will be a questionnaire. The researcher will present a series of statements and ask the expert to clearly assess their appropriateness for the young adult age group. We will use these statements as content on the website, develop modules, and source workbooks from several relevant pieces of literature. Regarding the website draft, it will be consulted with technology experts who are experienced in making websites. Experts in content creation will also provide advice on incorporating content like videos and photos into the website.

Then, specifically for the nursing training module, an expert test was conducted to determine the training materials for counseling with a culturally based motivational interviewing approach or communication style for health care nurses. We will ask experts to review the list of materials deemed important and incorporate materials not included in the list. Following the revision, the researcher conducted a second expert test, asking the experts to rank the materials 1–4 based on their importance for the training module. The higher the score, the more important the material is. The purposive sampling technique will select experts based on the inclusion criteria, which include panels and experts actively involved in HIV/AIDS prevention efforts at both national and regional levels for a minimum of 5-10 years. Additionally, we included technology experts who have accumulated at least 5–10 years of experience in IT and e-health website development.

Phase 3: A Quasi-Experimental Study

Study Design

After the draft model is developed in the second stage of research, the next stage of research is to test the effectiveness of the model. In R&D research, we use quantitative research methods to test the model's effectiveness. The research design in this study is a pre-post-test with a control group quasi-experiment design.

Study Population and Eligibility Criteria

Young adults aged 20-30 years, residing in Batang and Pekalongan districts, possessing internet-

connected gadgets, and not married, meet the inclusion criteria. Young adults with a history of mental disorders and HIV/AIDS infection meet the exclusion criteria.

Sample Size

The formula's sample calculation indicates that this study includes 109 samples for both the intervention and control groups. To anticipate dropout, the sample was increased by 20%.[14] Therefore, the total sample in this study was 130, consisting of 65 for the intervention group and 65 for the control group.

Recruitment

We will utilize simple random sampling as a sample technique, adhering to the following sequence: (1) Prospective respondents will register as members on the provided website; (2) after becoming members, they will be asked to fill out a willingness to participate in the study; (3) we will randomly select respondents who meet the inclusion and exclusion criteria to participate in the research process; (4) respondents can refuse at any time if they do not wish to participate.

Data Collection Methods

- Researchers obtained research permits from the governments of Pekalongan and Batang Regency to conduct research in these areas.
- The study will span four months, with the research secretariat based in Pekalongan Regency and the University of Pekalongan managing the website server.
- Researchers make sure that the website, media content, and MK-U model materials used in the research process are suitable for use in accordance with the procedure, based on the findings from the first and second stages of research.
- Researchers will recruit 20 public health nurses who will serve as counselors during the research process; 10 nurses will become control group counselors, and 10 nurses will become intervention group counselors.
- For three days, nurses who will serve as counselors in the intervention group will receive training in one type of MK-U model intervention, specifically counseling with a culture-based motivational interviewing (MI) approach.
- Researchers prepare research tools such as questionnaires, modules, workbooks, training modules, and counseling process forms.
- Researchers will prioritize respondents from the Batang and Pekalongan Regency areas who access the study's website.
- Researchers and their team will conduct research activities with respondents in 13 weeks for the intervention group and 5 weeks for the control group (See Table 1).

Outcomes

The intervention group conducted a pre-test before initiating the MK-U Model intervention action, followed by two post-tests: one after the intervention was completed, and another three months later. The intervention group received the MK-U model intervention, which included access to HIV/AIDS information on the website, modules, and a counseling process using a culture-based motivational interviewing communication approach by nurses. Conversely, the control group experiences the standard counseling process from nurses. The objective is to ascertain the variation in the average of variables among the participants before and after the implementation of the intervention program.

Interventions and Timeline

Table 1. Activities of respondents during research process

Intervention Group Activities	Control Group Activities
Week 1 (Drive) - Respondents fill out the pre-test. - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provided one counseling session with a culture-based MI approach to increase encouragement	**Week 1** - Respondents fill out the pre-test. - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provided one counseling session as usual
Week 2 (Set) - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provides one counseling session with a culture-based MI approach to be able to set a change plan.	**Week 2** - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provided one counseling session as usual
Week 3 (Choice) - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provided one counseling session with a culture-based MI approach to improve the ability to choose.	**Week 3** - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provided one counseling session as usual
Week 4 (Behavior) - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provided one counseling session with a culture-based MI approach to establish positive behavior	**Week 4** - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provided one counseling session as usual
Week 5 - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provides one counseling session with a culture-based MI approach to create an action plan for HIV/AIDS prevention behavior. - Respondents fill out the first post-test.	**Week 5** - Respondents access a website that contains content and materials about HIV/AIDS. - The nurse provided one counseling session as usual - Respondents fill out the first post-test.
Week 6 - 8 Allocate time if a process remains unfinished.	
Week 9-12 Respondents perform activities independently. **Week 13** - Respondents in the intervention group complete the second post-test.	

Data Analysis Plan

The obtained data will be processed using computer statistical software for the Windows version. We will use a generalized linear model (GLM) with multivariate analysis of variance (MANOVA) to analyze the effect of the MK-U model intervention.

Results

Dissemination Plan

The objective of this study is to develop an adapted web-based outreach strategy that exhibits enhanced efficacy in enhancing HIV/AIDS preventive behavior among young people. Prior

research has used mobile phone apps and chatbots to build this particular intervention modality. Nevertheless, researchers had challenges accessing some programs, as they found significantly delayed response times or even a complete lack of response. Given the equitable distribution of technological progress across the area, it becomes imperative to introduce novel technology-driven solutions in the districts of Pekalongan and Batang in order to effectively address the issue of HIV/AIDS transmission. We will disseminate the findings of this study in both national and international academic journals and conferences, particularly in the fields of public health nursing and HIV/AIDS. Therefore, public health nurses can apply the findings of this research model in their respective work areas.

Study Status*

This research is currently on process at phase 1 data analysis.

Discussion

Ethical Considerations

This research will be conducted by considering the principles of research ethics, including consent, confidentiality, and anonymity, as well as protection from discomfort and harm.[15,16]This study has received ethical approval from the Research Ethics Committee, Faculty of Nursing of Universitas Indonesia (approval number: KET-001/UN2.F12.D1.2.1/PPM.00.02/2024, with an amendment on January 02, 2024).

To obtain consent, the researcher provides information sheets and explains research procedures to respondents. Then the participants fill out and sign the consent form to take part in the research. Participants have the right not to participate in the study. Confidentiality and anonymity: Researchers will maintain the confidentiality of all data collected from respondents, including personal information such as name, address, and other personal details. Meanwhile, protection from discomfort and harm refers to the researchers' measures to ensure that participants are not in danger, are free from harmful actions, both oral and written, and are provided with comfort throughout the research process. The study also did not involve any invasive measures, nursing, or medical treatments. If there is any discomfort or disadvantage during the study, respondents can withdraw from the research process.

A password-protected computer will store data in the form of soft files, and the researcher's office will house all research files for a period of three years. Upon completion of the research activities, we will destroy all documents, information sheets, and consent forms, including those stored on the computer during that period. The research results will be presented in the form of data groups within the research report.

Conclusions

We believe that the results of the study will help provide solutions to prevent the spread of HIV/AIDS, especially among young adults in Pekalongan and Batang. We expect this research to enhance the outcomes of previous studies. The study's findings will be reported by comparing and discussing them with the results of previous similar studies. As a result, HIV/AIDS prevention program implementers and policymakers in both regions can benefit.

Acknowledgements

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Conflicts of Interest

none declared.

Abbreviations

JMIR: Journal of Medical Internet Research
RCT: randomized controlled trial

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