Voluntary Counseling and Testing (VCT) Application for HIV/AIDS Counsellors

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ABSTRACT

Introduction : Many cases of HIV/AIDS have not been reached by the program (unreached population) such as clients who visit independent practice health services, clients who seek treatment themselves with alternative medicine or buy drugs at pharmacies that are not in accordance. This study aims to design a model that can help the government in HIV case through counsellors aiming to reduce the spread of the infectious diseases. **Methods:** The type of research conducted is applied research. This research designed and built a model to help counsellors and clients during the treatment period. The study was conducted in Palu city with a number of samples scattered in 8 Voluntary Counseling and Testing (VCT) clinics. **Results:** The model developed resulted in an Electronic HIV Voluntary Counseling and Testing (E-VCT) application that can help counsellors dealing with large numbers of clients and are private. Applications built have three levels, in which the first level is as a super admin (government), the second level is an admin (counsellor) and level three is the client. **Conclusion:** This app is very helpful for counseling HIV-AIDS counsellors and clients based on application testing. It is known that the E-VCT application counsellor's assessment of the total percentage value of the five variables tested was 80.10% with a very good acceptance rate from the user of the E-VCT application.

1. Introduction

Based on data from the Joint United Nations Program on HIV and AIDS (UNAIDS) in 2018, there were 36.9 million people in various countries living with HIV andAIDS in 2017. Among the total sufferers, 1.8 million of them are children under 15 years old. The rest are adults, which was by 35.1 million sufferers. Indonesia becomes one of the countries included in the Asia Pacific Region. This region is ranked thirdas the region with the most HIV/AIDS sufferers worldwide with atotal of 5.2 million people. Indonesia accounts for 620,000 out ofa total of 5.2 million people in Asia Pacific who have contractedHIV/AIDS[1].

Many cases of HIV/AIDS that have not been reached by the program (unreached population) such as clients visiting independent practice health services, clients who seek treatment themselves with alternatives or buy drugs atpharmacies that do not meet client standards[2]. This is a challenge in the HIV/AIDS control program before it is resistant and the treated HIV/AIDS client can complete treatment to completion. Therefore, direct assistance is provided to clients who suffer from HIV transmitted diseases that will be done by health workers and non-health workers[3].

Many programs carried out by the government, one of them is the Voluntary Counseling and Testing (VCT) program, which is one of the effective public health strategies for prevention as well as an entry point for case management services and care, support, and treatment for people with HIV-AIDS (PLWHA)[4]. However, there are still many obstacles forits use in the field. The study results from several studies found some of the same problems in VCT services, namely logistical problems which include insufficient counsellors, poor counselling quality and communication between counsellor and client which only goes one way, the queue is too long, counsellor knowledge and counsellor quality, clients are shame to meet, inadequate clinical facilities and lack of privacy. This has become a number of reasons why people are reluctant to come to VCT Clinic[5], [6].

Therefore we need the right electronic-based health communication media (E-VCT) for counsellors, who can help and optimize the efforts of the Palu city government to reduce the transmission of HIV-AIDS and to reach services for all levels of society in Palu city. One of the health media that can reach the whole society is a web application.[7]. Penetration of information technology, especially web applications, has reached the layers of society. This underlies the authors are interested in using the media as an appropriate means for health services through web applications (E-VCT).
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2. Method

The stages of system development carried out in this study are using the System Development Life Cycle (SDLC) development method with a prototype model. Prototype is the part of the product that expresses both the logic and the physical external interface that is displayed [8]. The main stages in the prototype are shown in Fig. 1.
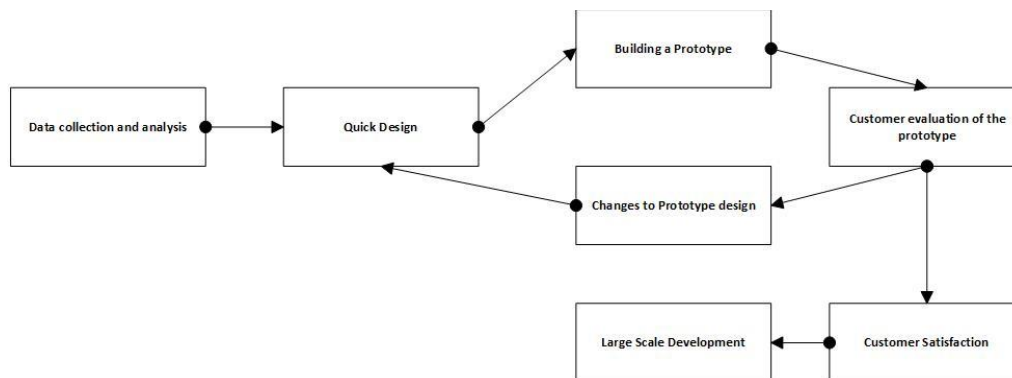

Fig. 1. Application Development Model

Stages carried out in accordance with the Fig. 1. The first stage is Data collection and analysis, customers and developers together define the format of the entire software, identify all requirements, and an outline of the system to be made; 2. Design quickly, the developer immediately designs the stages that will be worked on; 3. Building prototyping, by making temporary designs that focus on serving customers (for example, making input and output formats); 4. Customer evaluation of prototyping, this evaluation is carried out by the customer, if it is appropriate then the next step will be taken; 5. Change the prototype design, if the design is not in accordance with the wishes of the customer, the prototyping is revised by repeating the previous steps; 6. Large scale development, if the customer is satisfied with the prototype design, the next step is to develop a prototype in large numbers.

The type of research conducted wasapplied research. This research designed and built a model to help concerts and clients during the treatment period. The study was conducted in Palu city with samples spread across 8 VCT clinics located in Palu City Health Office, Birobuli Health Center, Kamonji Health Center, Pantoloan Health Center, Singgani Health Center, Talise Health Center, Anutapura Public Hospital, and Undata Hospital. The type of data needed in this study is divided into 2 (two) categories, which care primary data in the forms of client data, VCT counsellor data, VCT program process flow, and problems faced in the field by VCT counsellors and clients. Secondary data in this study are theoretical literature from various book and internet sources as well as articles and journals related to research. Researchers conducted observations by interviewing 8 VCT counsellors.

3. Results and Discussion

3.1 Data Collection and a analysis

The initial stage in the design of the system using the prototype model is the initial data collection for needs analysis. This stage is carried out by conducting interviews with relevant sources. The interview results are as follows:
a) Implementation of the old system of consultation activities is still done manually and arranges meetings between counselor and client.
b) There is no computer-based application in terms of online consultation that can help Counsellors to manage test and consultation results.
c) Effective and efficient applications are needed in helping Counsellors to be able to provide information and services to clients quickly, precisely and in real time.

3.2 Quick Design

After collecting the initial data and analyzing the needs of the research object, the next stage based on the prototype model is the quick design stage in this study. The design is carried out with at least two stages, namely designing the network topology (hardware) and designing the E-VCT application itself (software).

3.3 Building E-VCT

The design of the system to be made in this study can be divided into 3 parts, namely: the design of data flow diagrams (DFD). Next is the database table design, Next is the interface design / system interface design.

3.4 Customer Evaluation (Testing)

The TTF method is a formal construct known as TTF, which is the suitability of technological capabilities for the needs of the task at work, namely the ability of information technology to provide supportfor work. The TTF model has five key constructs namely task characteristics, technology characteristics, task technology fit constructs, performance impacts and utilization.This study adopted several constructs and added constructs of user satisfaction and perceived usefulness. These results are obtained from a questionnaire that has been given to counselors and clients. The following are the results of testing using the TTF model:

Table 1. Counselor Assessment Results

No.	Variable	SD 1	D 2	N 3	A 4	SA 5	Total	Index
1		0	0	0	24	10	34	
2		0	0	0	24	10	34	
3	Task Characteristics	0	0	9	16	5	30	83%
4		0	0	0	24	10	34	
5		0	0	6	24	5	35	
							33,40	
1	Technology	0	0	3	32	5	40	85%

No.	Variable	SD 1	D 2	N 3	A 4	SA 5	Total	Index
2	Characteristics (TEC)	0	0	9	12	10	31	
3		0	0	0	24	10	34	
4		0	0	3	20	10	33	
5		0	0	0	24	10	34	
6		0	0	0	28	5	33	
							34,17	
1	Task-Technology Fit (TTF)	0	2	12	12	5	29	
2		0	3		24	10	34	
3		0	0	12	8	10	30	
4		0	3	15	4	10	29	78%
5				6	16	10	32	
6				3	20	10	33	
7					24	10	34	
							31,57	
1	Usefulness			12	12	5	29	77%
2				6	20	5	31	
3				9	12	10	31	
4				6	20	5	31	
5				6	16	10	32	
							30,80	
1	User Satisfaction			3	20	10	33	
2				9	12	10	31	
3				3	20	10	33	77,5%
4				12	12	5	29	
5				12	8	10	30	
6				12	8	10	30	
				Index Average				**80,10%**

Notes: Strongly Disagree (SD); Disagree (D); Neutral (N); Agree (A); Strongly Agree (SA)

Based on Table 1, it can be seen that the majority ofcounsellors' assessment of E-VCTtask characteristicsanswered strongly agree with the percentage of 83%.Furthermore E-VCTtechnology characteristics explains thatthe majority of Counsellors answered strongly agree with apercentage of 85%. The E-VCT task-technology fitassessment was 78% and the usefulness construct was 77%,which means that the majority of counsellors agreed. Likewisewith the assessment of user satisfaction by 77.5%, themajority of Counsellors answered agree.

3.5 Implementation

Implementation is an embodiment / application of the system design that has been made into a program so that the function of each process will be seen [9]. Discussion of the results of research on the application of E-VCT obtained is presented in the form of a theoretical description in a qualitative manner. The results and discussion of the E-VCT electronic application at the Palu city Health Office based on design evaluation can be seen as follows:
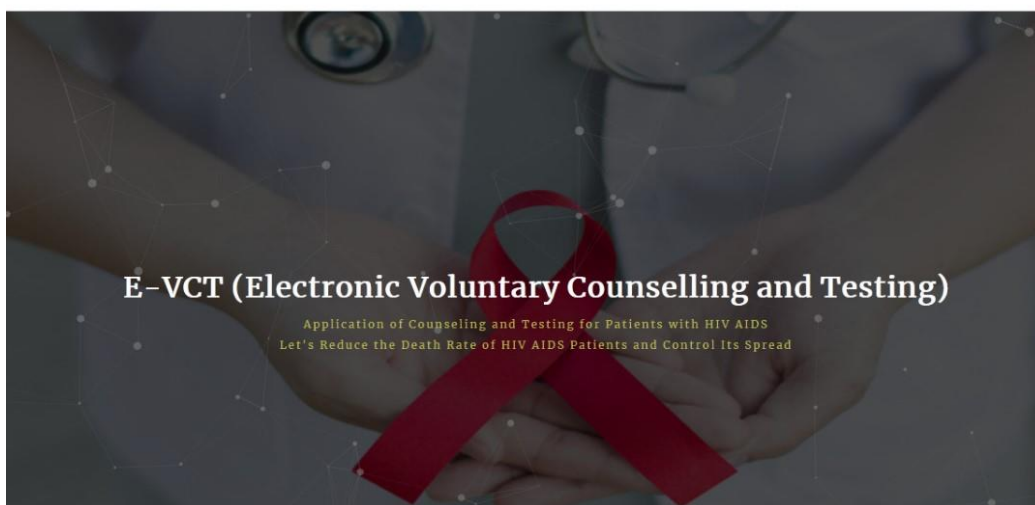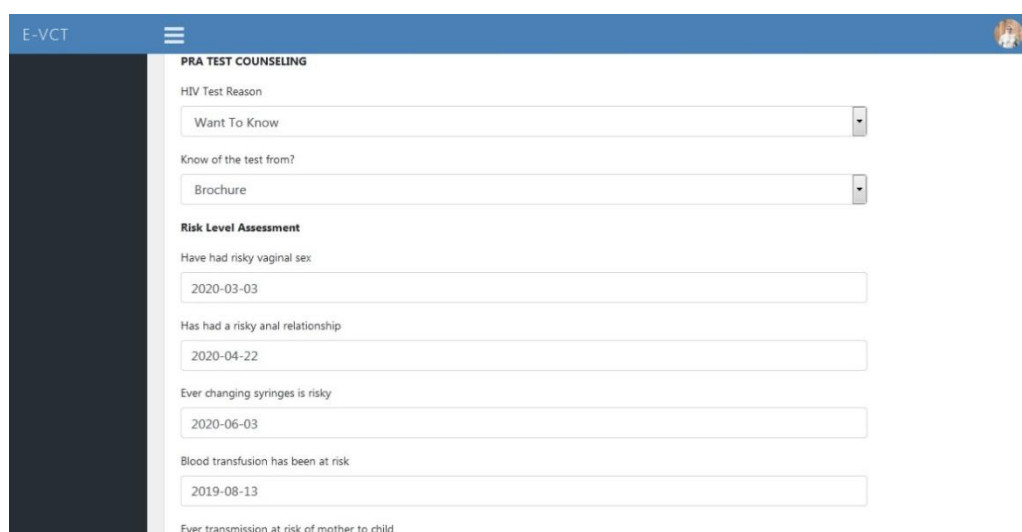
Fig. 2.E-VCT

The model that was designed to produce an Electronic HIV/AIDS Voluntary Counseling and Testing (E-VCT). Application has many features that can help counsellors and clients communicate effectively. The application comes with client data according to the counselor when they first came for consultation. Thus, there is no more client who face or consult with several counsellors. This is to anticipate data redundancy because client data exists in several counsellors. Existing data in the system besides personal data is also a client's health.

Fig.3. E-VCT Service Features

The application also features a live chat that can connect between the client and the counsellor so that it can help the counsellor control the client online and the history of client complaints can be well differentiated. This application can accommodate if there is a counsellor who changes assignments so that his client can be moved to another counsellor easily and quickly. Emergency features are also provided in the application so that if something dangerous happens with the client, the counsellor can immediately makea decision to help the client by contacting the next of kind who has recorded data on the system. A forum is also provided toex change information among counsellors so that they can exchange information about VCT services but not to the client's situation because it is confidential. The application alsohelps clients to takedrugs in the hospital, because the client'srequirements can take or add drugs to the counselor.

4. Conclusion

This application is very helpful for counseling HIV-AIDS counsellors and clients based on application testing. It is known that the majority of counsellors' assessment of E-VCT task characteristics answered strongly agrees with a percentage of 83%. Furthermore, the E-VCT technology characteristics of the majority of counsellors answered strongly agree with a percentage of 85%. The E-VCT task-technology fit assessment was 78% and the usefulness construct was 77%, which means the majority of counsellors agreed. Likewise with the assessment of the variable user satisfaction by 77.5% the majority of counsellors answered agree.

Acknowledgment

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