

Effect of Cellular Phone SMS as Health Education Media About HIV and AIDS on Health Service Search Behavior of Women Sex Workers

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Abstract Human Immunodeficiency Virus (HIV) is a virus that attacks white blood cells (lymphocytes) that cause the decline of human immune. High risk groups such as Female Sex Workers (FSWs) tend not to access health services because of the discrimination they face in society. Health promotion is still an important strategy in increasing self-awareness of FSWS to perform Voluntary Counseling and Testing (VCT) examination, one of them is through the utilization of cellular phone technology. This study aims to determine the effect of cell phone Short Message Service (SMS) as a media health education about HIV and Acquired Immune Deficiency Syndrome (AIDS) to health seeking behavior of FSWS. Pre-experimental design one group pre-test post-test design was conducted at 33 FSWS at Terminal Pesiapan, Tabanan District. The results of pre-test and post-test showed an influence on behavior (knowledge, attitude and action) after SMS based health promotion intervention ($p < 0,05$), knowledge ($p = 0,039$), attitude ($p = 0,003$), and action ($p = 0,000$). After the intervention there was an increase in behavior that is on knowledge 30,3%, 36,4% attitude and 63,6% action. Mobile phone SMS media proves to be effective in conveying health information so as to raise awareness of FSWS in conducting HIV and Sexually Transmitted Infections (STIs). An innovative, short, easy-to-understand message on HIV and AIDS should be provided with simple language and regular use of cellular-based information technology by healthcare workers.

Index Terms— Behavior, FSWS, Health Education, Mobile Phone SMS

I. INTRODUCTION

Human Immunodeficiency Virus (HIV) is a virus that attacks white blood cells (lymphocytes) which results in a decrease in human immunity. The National AIDS Commission (2017) states that people with HIV can transmit HIV to others through risky sex, through HIV-infected needles, exposure to blood infected with HIV and transmission from HIV-infected mothers to their babies during pregnancy, labor, and breastfeeding [7].

The World Health Organization (WHO, 2016) estimates that 36.7 million people live with HIV in the world at the end of 2016 [17]. The number of HIV cases in Bali Province in 2016 was 14,583 people and the number of AIDS cases was 6,803 (Provincial Health Office of Bali, 2016) [3]. The HIV case was first discovered in Bali in 1987 and since then HIV cases have spread rapidly to all districts in Bali Province (Purwaningsih, 2013) [15].

Tabanan is a district in Bali which also has an increase in cases because there are many places to conduct sexual transactions such as cafes, hotels, bungalows, coffee shops,

and terminals. One place that is often used to carry out sexual transactions in Tabanan is in the Terminal Pesiapan.

The Terminal Pesiapan is a stopover terminal for truck drivers who come from Java before entering Denpasar. They rest in coffee shops that provide services for female sex workers (FSWs). Until finally, not only the driver used FSWs services but also other men who liked to use FSWs services. The results of the HIV survey by the Tabanan District Health Office in 2016 found that of the 20 FSWs who were willing to be tested for HIV, two were tested positive for HIV.

Prevention of HIV transmission is the focus of action to cut off HIV transmission (Permenkes RI, 2013) [12]. Level and Clark (in Notoatmojo, 2010) say there are five levels of disease prevention, one of which is health promotion. Health promotion activities can be carried out with health education. Intensive information giving to FSWs can increase FSWs awareness to conduct Voluntary Counseling And Testing (VCT) (Wulandari, Cahyo, Syamsulhuda, & Widagdo, 2015) [19].

Information about HIV and AIDS can be obtained from various media both mass media and electronic media such as newspapers, magazines, television, radio, cellular phones and the internet. The use of cellular phones in Indonesia is approximately 140 million or 58% of the population in Indonesia (Herlina, Sanjaya, & Emilia, 2013) [5]. Cellular telephone technology is expected to maintain confidentiality and increase their comfort in accessing health information about HIV and AIDS (Catalani, Philbrick, Fraser, & Israel, 2013)[2].

The general public and FSWs have different behaviors in accessing health services. FSWs decision making in accessing services is hampered due to inadequate access to HIV information and services for target groups with job characteristics such as FSWs (Indrawati, 2013) [6]. The results of a preliminary study at Terminal Pesiapan of ten FSWs interviewed, eight people said they did not come to service because they were still sleepy considering the service was open in the morning and felt ashamed of coming to service because it had been discriminated against by the community. Information from the Tabanan District AIDS Commission that it is very difficult to collect FSWs for counseling. Information from officers of the Sub-district Health Center, in the past two years there were no female sex workers who had VCT or sexually transmitted infections (STIs). All FSWs included in the preliminary study had cell phones and said they did not receive health information about HIV and AIDS.

The purpose of this study was to find out the effect of cell phone SMS as a media for health education about HIV and AIDS towards FSWs health service search behavior in the Terminal Pesiapan.

II. METHOD

A. Research Design

This type of research is quantitative research. The method used in this study was pre-experimental with one group

pretest posttest design.

B. Population and Samples

Were in the Terminal Pesiapan in the period of November 2017. The sampling technique used was a non probability sampling type of purposive sampling. The number of samples is at least 30, plus the possibility of dropping 10% of the sample is minimal, so the number of samples taken in this study is 33 people.

C. Research Instrument

The instrument used was a questionnaire about the respondents' knowledge and attitudes towards HIV, AIDS, STIs, HIV and STI care centers, the distance between VCT clinics and STIs from the Terminal Pesiapan, and the cost of HIV testing. The instrument consisted of a knowledge questionnaire (15 items) and attitudes (12 items) compiled by the research team based on a number of references. Based on the validity and reliability test, all items of knowledge and attitude questionnaires were declared valid (> 360) and reliable (> 0.60). Data on FSWs actions were obtained by looking at records regarding the visit of the research subjects in the patient's medical record at the VCT and STI clinics.

D. Data Collection and Analysis Procedure.

Data retrieval of this research was carried out by the main researcher facilitated by Field Officers of the Tabanan AIDS Management Commission. The selection of respondents according to the inclusion criteria is being able to read and write, be willing to be a respondent, have a cell phone that can be used, and understand Indonesian. While the exclusion criteria are not following activities from beginning to end. Respondents were given an explanation of the aims and objectives of the study. This research has obtained ethical feasibility permits and research permits from related parties.

Retrieval of pretest data was carried out before the intervention at the Terminal Pesiapan. The provision of health education interventions through cell phone SMS to respondents was conducted for two weeks, where messages were sent four times a day, three times a week on Mondays, Wednesdays, and Saturdays on a weekly basis. The SMS contains information about HIV, STIs, health care facilities, inspection schedules and fees at the VCT and STI clinics. Taking posttest data was done after the intervention was completed. Action data were obtained through looking at the respondent's visit data on the patient's medical record on the Dauh Peken Sub-district Health Center VCT and IMS services on 7 December 2017.

III. RESULT AND ANALYSIS

A. Result

TABLE I
RECAPITULATION OF RESPONDENT DATA

Characteristics of Respondents	Amount (N)	Percentage (%)
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Age		
22-29 age of years	6	18,2
30-37 age of years	10	30,3
38-45 age of years	15	45,5
46-53 age of years	2	6,1
Total	33	100
Education		
Primary school	22	66,7
Junior high school	11	33,3
Total	33	100
Marital status		
Single	2	6,1
Married	5	15,2
Widow / divorce	26	78,8
Total	33	100
Length of work		
1 - 11 month	12	36,4
12 - 22 month	8	24,2
23 - 33 month	3	9,1
34 - 44 month	6	18,2
45 - 55 month	1	3,0
56 - 66 month	3	9,1
Total	33	100

Table 1 shows that the majority of respondents are over 30 years old, of which 15 people (45.5%) in the age range of 38-45 years. More than half of the respondents in this study (22 people or 66.7%) were educated in elementary school. Twenty-six respondents (78.8%) had widowed marital status due to divorce. Based on working period, 12 respondents (36.4%) only worked as FSWs in the Terminal Pesiapan for less than a year (1-11 months).

TABLE II
OVERVIEW OF RESPONDENTS' BEHAVIOR IN HEALTH SERVICE SEARCH ABOUT HIV AND AIDS BEFORE INTERVENTION (N = 33)

Behavior	Amount (N)	Percentage (%)
Knowledge		
Lack of knowledge	3	9,1
Enough knowledge	16	48,5
Good knowledge	14	42,4
Total	33	100
Attitude		
Lack attitude	1	3,0
Enough attitude	13	39,4
Good attitude	19	57,6
Total	33	100
Action		
Not visit	33	100
Visit	0	0
Total	33	100

Table 2 shows that before the intervention most of the

respondents in this study had sufficient levels of knowledge (16 people or 48.5%). More than half of the respondents in this study were in the category of good attitude (19 people or 57.6%). Pretest data states that all respondents in this study never visited VCT and STI services.

TABLE III
OVERVIEW OF RESPONDENTS' BEHAVIOR IN HEALTH SERVICE SEARCH ABOUT HIV AND AIDS AFTER INTERVENTION (N = 33)

Behavior	Amount (N)	Percentage (%)
Knowledge		
Lack of knowledge	0	0
Enough knowledge	13	39,4
Good knowledge	20	60,6
Total	33	100
Attitude		
Lack attitude	0	0
Enough attitude	3	9,1
Good attitude	30	90,9
Total	33	100
Action		
Not visit	12	36,4
Visit	21	63,6
Total	33	100

Table 3 shows that after being given counseling through cell phone SMS there were no respondents whose knowledge was in the less category. Respondents' attitude scores increased where most were in the good category (90.9%). This study resulted in cell phone SMS able to increase the number of visits of respondents to check STIs and VCTs to Dauh Peken Community Health Centers.

TABLE IV
ANALYSIS OF THE EFFECT OF SMS ON CELL PHONES AS MEDIA HEALTH EDUCATION ABOUT HIV AND AIDS AGAINST FSWs HEALTH SERVICE SEARCH BEHAVIOR (N = 33)

Behavior	Medi an	Z Value (p)	Ranks
Knowledge			
Before intervention	73,3%	-2,066 (0,039)	
After intervention	80%		
Negatif ranks			9,1%
Positif ranks			30,3%
Ties			60,6%
Attitude			
Before intervention	79,1%	-3,000 (0,003)	
After intervention	87,5%		
Negatif ranks			3,0%
Positif ranks			36,4%

Action	Ties		60,6%
	Before intervention	Not visit (0%)	-4,583 (0,000)
	After intervention	Visit (63%)	
	Negatif ranks		0%
	Positif rangks		63,6%
Ties			36,4%

Table 4 shows the results of the Wilcoxon non parametric test with a confidence level of 95%, $p < 0.05$ obtained an average value of increase in knowledge scores before and after the intervention of 73.3% to 80% with Z count -2,066 greater than Z table -1,645. Ranks analysis showed a comparison of knowledge before and after intervention there were three people (9.1%) with knowledge results after intervention was lower than before intervention, 10 people (30.3%) had better knowledge than before intervention and 20 people (60.6%) his knowledge remains.

Analysis of the average score of attitudes before and after the intervention showed an increase from 79.1% to 87.5% with a Z value of -3,000 greater than Z table -1.645 and a value of $p = 0.003$. Ranks analysis shows comparison of attitudes before and after intervention there is one person (3.0%) with lower attitudes after intervention. Twelve people (36.4%) had a better attitude than before intervention and 20 people (60.6%) had a fixed attitude. Similar results were also found in the pre and post analysis regarding the respondent's actions which resulted in a Z-count of -4.583 greater than Z table -1.645 and a p value of 0.000 ($p < 0.05$). These results indicate that there is the influence of mobile phone SMS as a media for health education about HIV and AIDS towards WPS attitudes and actions. Ranks analysis showed that after being given intervention, 21 people (63.6%) wanted to do VCT and STI examinations and 12 people (36.4%) did not do VCT.

B. Discussion

The results of this study stated that before the intervention most of the FSW had sufficient knowledge and attitudes about HIV, possibly because they had received information from informal sources of information so that the information obtained was incomplete. Before the intervention all respondents had never visited a VCT service. Notoatmojo (2014) said that a positive attitude towards health values does not always materialize in a real action. Wulandari, Cahyo, Syamsulhuda, and Widagdo (2015) emphasized that although respondents had sufficient knowledge and good attitudes towards HIV and AIDS, respondents did not want to come to VCT services. Moreover, if the party does not feel pain (disease but no illness), they certainly will not act anything against the disease. The same author also conducted a study in Tegal Panas Localization in Semarang District which found that

most FSWs stated that knowing HIV was transmitted through unsafe sex, but FSWs did not know when VCT services were conducted (Wulandari, Cahyo, Syamsulhuda, & Widagdo, 2015) [19].

There was a decrease in knowledge scores in three people after the intervention and a decrease in attitude scores by one respondent. This is probably caused by situational factors, because at the time of filling out the questionnaire there was a concern that there would be a sudden inspection from the police of the Civil Service Police Unit. There was an increase in knowledge scores on 10 respondents (30.3%) because they had been regularly informed by SMS. This allows an increase in attitude scores in a number of 12 people (36.4%) so that there is a willingness and awareness to check their health and result in an increase in the score of 21 people (63.6%) because they have clear information about the place of service, time service and inspection fees. Respondents with a fixed knowledge and attitude score of 20 people (60.6%) are likely because most FSWs already have sufficient knowledge and good attitudes about HIV and AIDS. A fixed action score of 12 people (36.4%) is likely due to time constraints due to busy activities so that respondents or FSWs have not yet come to health services. Through the information provided continuously encourages individuals to have a sense of responsibility for personal health and encourage the use of available health facilities (Nona, 2013) [9]. This is in line with the research conducted by Sianturi (2013) which states that the support of health workers through regular and providing periodic information to FSWs make them want to follow the advice of health workers to conduct routine health checks and use condoms during sex [16].

The results of this study state that although only a majority of FSWs have a history of elementary school education, there is an increase in behavior after receiving intervention. This indicates that knowledge does not have to be obtained from formal education but can be through information provision or informal education (Wulandari, Cahyo, Syamsulhuda, & Widagdo, 2015). Age of respondents who are mostly over 30 years old and include middle-aged groups have a good reminder function that allows them to receive information well (Prarono, Patty, & Patricia, 2017) [13].

Notoatmojo (2014) states that someone acts to prevent and treat disease so he must feel that he is susceptible [11]. Bock (2009) stated that perceptions of risk affect individuals in utilizing VCT [1]. Marital status affects one's perception of the vulnerable conditions they experience. Research conducted by Purwaningsih, Misutarno, and Imamah (2011) on the use of VCT in high-risk people in Dupak Community Health Center showed that the majority of widowed respondents who felt vulnerable to HIV and AIDS were more motivated to conduct VCT examinations [14]. There is a conformity with the results of this study which shows that most of the respondents are widowed as a result of divorce and most of them want to do an

examination at VCT clinics and STIs in the Dauh Peken Sub-district Health Center.

The results of this study indicate that the awareness of one FSWs who came to the IMS and VCT services was able to become the driving force of other FSWs to check their health, especially HIV and STI tests. This is similar to the research of Wahyuningtyas and Purwaningsih (2014) who obtained results, namely that there were external influences on motivation to conduct VCT that could come from persuasion of close friends, FSWs outreach officers, and health workers [18]. From these results it can be concluded that the influence of the environment or the influence of others also proved effective in encouraging FSWs to carry out HIV and STI examinations.

Research by Lim, Hocking, Hellard and Aitken (2008) in Nigeria about providing free short message service facilities to spread mass messages about HIV prevention found that short message services proved significant in providing positive effects on cognitive changes, attitudes, and even community behavior, where respondents want to test for infectious infections and use condoms consistently [8]. Similar to this study with health education interventions through cell phone text messages that contained information about HIV and AIDS, services, fees, and VCT and STI service schedules in Dauh Peken Sub-district Health Center. This intervention has an impact on behavior (knowledge, attitudes, and actions) of seeking health services related to HIV and AIDS to respondents who in this case are FSWs in the Terminal Pesiapan.

The majority of respondents (96.97%) based on the questionnaire said that health workers were friendly in providing services, free examination fees and VCT and STI services at the Dauh Peken Community Health Center. Research by Widiyanto, Widjanarko, and Suryoputo (2009) found the same conditions that place VCT in Sunan Kuning Semarang Localization that is comfortable and adequate, can increase the number of respondent visits [20]. The data is supported by Green's theory in Notoatmojo (2010) that in addition to predisposing factors manifested in knowledge, attitudes, and beliefs, supporting factors such as the availability of health facilities and motivating factors manifested in health workers' attitudes and behavior also determine that behavior own [10]. Thus, the existence of comfortable and adequate facilities and the attitude of friendly health workers, can increase the willingness of the FSWs to come to do routine checks to health services.

The success of delivering information in this study is able to change the knowledge, attitudes, and actions of the FSWs because the method of delivery can be read at any time at different times and places. This way of delivering information is also very communicative because it can be read on his cellphone, whenever and wherever his cellphone is taken. Providing health education about HIV and AIDS using the SMS reminders method can be used as a way of counseling individually, especially for individuals who are very difficult to reach by health workers such as FSWs. Giving health education messages via cell phone SMS can

protect one's privacy and the possibility of discrimination so that someone can get comfort in getting individual health counseling. In accordance with research conducted by Hitatami, Lestari, Susanto, Judiastiani, & Sunjaya, (2014) that health education provided with short message services or cell phone SMS can influence target behavior so that it can increase knowledge, attitudes and behavior changes [4]. Providing health education via SMS can be a real effort to remind FSWs to check their health regularly and continuously, especially for VCT and STI examinations so as to reduce the risk of HIV and AIDS transmission among FSWs and their customers. Providing health education through regular SMS to FSW is needed so that motivated FSWs to visit have their health checked into VCT and STI services every six months.

IV. CONCLUSION

There is the influence of SMS cell phone as a media for health education about HIV and AIDS towards the search behavior of FSW health services in the Terminal Pesiapan

For the next researcher, because most of the WPS's marital status is a widow due to divorce, it is necessary to do further research on the motivation to become a FSW and its relationship in health care seeking behavior. For public health centers to provide SMS reminders application as a media for health education through financing from Health Operational Assistance to community health centers. For health workers to take advantage of cellular telephone-based information technology as an extension media. FSWs is also expected to be able to forward the information obtained after being given health education, check their health regularly to health facilities and provide and offer condoms to customers to prevent contracting the HIV and STI viruses.

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