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The Effectiveness of Community Development Model by Using Whatsapp toward Old Women Behavior in Early Detection of Cervical Cancer

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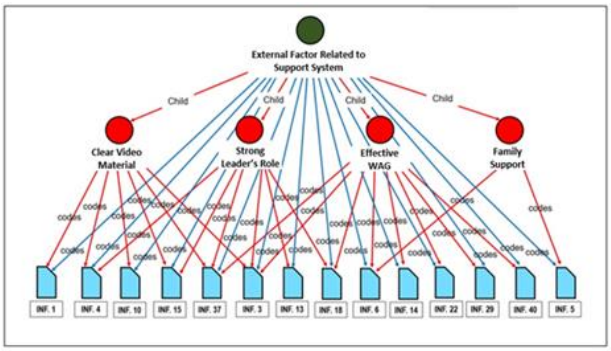
ABSTRACT

The aim of this research was to describe the effectiveness of the community development model for health promotion using WhatsApp toward old women behavior in doing an early detection of cervical cancer through the examination of visual acetic acid. The kind of this research was the mixed method and sequential strategy. The model of the mixed sequential method is a procedure of research when the researcher combines the qualitative and quantitative data by mixing in different time. The research of design used sequential explanatory; did the collection and analysis the quantitative data first, then followed by collecting the qualitative data based on the result of quantitative data. The research was conducted on December 2019 to May 2020. The research location was in Bantul District, Special Region of Yogyakarta. The partcicipants in this research were elderly women that had followed the process of quantitative research. The determination of the participants number in this research was undertaken sequentially; determining the limit of the increase until reaching the data saturation to obtain the number of participants which consisted of 15 participants, while for quantitative section, 40 participants were employed. The technique of data collection used in this research was in-depth interview, observation and study documentation. Data analysis was conducted quantitatively and qualitatively. The results indicated that from 87.5 percent of participants (35 participants), 97.5 percent did the early detection of cervical cancer. Based on the results, it was indicated that the community development model for health promotion using WhatsApp was effective in encouraging changes in the behavior of the elderly in early detection of cervical cancer through the examination of visual acetic acid in Bantul District.

GRAPHICAL ABSTRACT



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Introduction

Cervical cancer is the kind of cancer that attacks woman's reproductive organ in the cervical part, it is caused by the virus of human papilloma [1]. In Indonesia, cervical cancer is the second highest case after breast cancer. The number of new cases occurs in 2012 was 20.928 of cases with an incidence of 17 per 100.000 of women and the number of deaths was 9498 cases [2].

The national cervical cancer prevalence is 0.8 percent while in Special Region of Yogyakarta Province has the prevalence of cervical cancer is 1.5 percent (Center for Data and Information of the Ministry of Health of the Republic of Indonesia, 2015). Based on the data from Public Health Office of Special Region of Yogyakarta in 2016, a new case has emerged and it is called as cervical cancer malignant neoplasm with 18 outpatients and 9 inpatients. In 2017, the number of outpatients was 486 patients and the number of inpatients was 194 patients. Several factors of cervical cancer risk are sexual activity in young age, changing partner, smoking, oral contraception pill in more five years, family history of cervical cancer, high parity of more three children birth [3]. Poor immunity caused by malnutrition or another systemic disease can encourage the cause of cervical cancer [4].

The coverage of early detection of cervical cancer by the examination of visual acetic acid (IVA) method in Special Region of Yogyakarta Province in the last three years (2015-2017) is 52.478 (2.02 percent). The coverage of early detection in Bantul District in 2018 was 1.31 percent of 141823 of women in the age of 30 to 49. The lack of public awareness and knowledge about cervical cancer and the way of prevention is one of the causes of the low early detection of cervical cancer and the behavior of women who do not want to get checked up because of they are afraid of the examination result, the fear of pain during examination, shame [5,6].

One of the innovations and technological advances that can be used in community development by health promotion can reach all society by using communication media and handphone is close to the community [7], in the subsequent developments, most people use the smartphone. In Indonesia, the smartphone user is used by some community both in high and low level [8]. The user of Multi Media Messaging Service has been replaceable with WhatsApp media [9]. WhatsApp is one of popular applications by utilizing the text message, picture and video, therefore it makes the communication easier [10]. The use of information technology both handphone and smartphone have a potential to improve the accessibility, innovation and cost effectiveness in health service and health promotion treatment [7].

According to Kemm & Closse [11] and Orji et al., [12] in Health Promotion Theory and Practice) propose the opinion about Health Belief Model (HBM) that health behavior is determined by individual perception toward health problem faced. There are four factors related to the HBM, such as: 1) individual awareness toward the vulnerability in herself, 2) the problem faced is felt serious enough, 3) the belief toward the prevention effort or treatment done, and 4) the availability of health service.

Referring to the theory of HBM, the community development model in early detection of cervical cancer is done through selecting the target for women that have a risk, and the target are spirituality group in the community of Bantul District. In this case, the target selected are the elderly women in recitation group that can be used for health promotion of cervical cancer activity and early detection. Recitation group consist of various members that come from certain group such as integrated servant post committee, Empowerment of Family Welfare, Dasawisma and Dharma Wanita with various different backgrounds such as education, job and social economy status. Recitation activity which is held routinely in every month and generally they seldom discuss the material relating to the health. Moreover, it is proposed that Islam is the source of motivation in various life aspects, in order human always improve their life quality including in health field. The selection of this community

group was undertaken to facilitate the socialization, implementation, monitoring and evaluation activity that all this time discussed the health problem related to the reproduction health including the risk of developing uterine cervical cancer.

World Health Organization [7] defines the health promotion as "the process of enabling people to control over and improve their health". The definition is interpreted as "the process of community development to maintain, improve and protect their health". From the definition above, it can be concluded that the health promotion is the process encouraging the community to do the control toward their health through promotive effort prevention and curative effort to reach healthy life as a life style.

Health promotion is an approach that is planned for a population in order to change behavior and maintain a healthy behavior that has been committed before, therefore, it can improve their health both individual and group or society. By giving the health information in this health promotion, it is expected that there is an improvement of knowledge and behavior and attitude change [13].

Health promotion is conducted as an effort to improve the knowledge and change attitude and behavior so that lifestyle changes to be more positive to improve the health of individuals or communities themselves [14]. Health promotion is an effort directed to improve the quality of health and well-being of individual, family, community and or state through strategy involving a supportive environment, coordination of all necessary resources and respect for personal choice and value [15].

Cervical cancer ranked in fourth in 2012 according to the Global Burden of Cancer (GLOBOCAN) among all women and the second most in women are in aged 15-44 years [2]. In 2012, it was estimated that there were 527,624 new cases of the cervix with 266,000 cases of death [16]. According to GLOBOCAN data, 80 percent of cervical cancer deaths occurred in developed countries in 2002 and 88 percent in 2008, with an estimated 98 percent of cervical cancer deaths occurring in developing countries by 2030 [17]. Cervical cancer is a major public health problem in Central and Eastern European countries, with a high prevalence compared to western Europe [18].

Indonesia is included in the group of developing countries. It is estimated that there are 38 new cases every day and 21 women die from cervical cancer [19]. In developing countries, the prevalence of cervical cancer is 15.7 per 100,000, indicating a higher number, which is 14 per 100,000 people, compared to the global incidence of cervical cancer [15]. It is estimated that there are 38 new cases every day and 21 women die from cervical cancer [19], it means that one woman is estimated to die every hour, while every two minutes is estimated in the world itself.

Every woman has a risk of cervical cancer. To reduce the incidence of cervical cancer it is necessary to increase the coverage of early detection. The effort committed is health promotion with community development model using Video media sent to WhatsApp. The expected results of health promotion activities are increased knowledge, motivation, positive attitude, willingness to do early detection and increased behavior of early detection of cervical cancer so that the coverage of early detection increases and has an impact on the decrease in morbidity and mortality of cervical cancer.

Material and methods

The type of this research was mixed methods and sequential (gradual) strategies. The research was conducted from December 2019 to May 2020. Research location was in Bantul Regency, Yogyakarta Province. The selection of research location was based on the consideration that the prevalence of cervical cancer in the area is quite high at 1.5 percent while the prevalence of cervical cancer nationally is 0.8 percent. The average achievement of early detection of cervical cancer with visual inspection of acetic acid in the Special Region of Yogyakarta area (covering 4 districts 1 municipality) was 17.1

percent. For Bantul District obtained an achievement rate 9.03 percent which was the lowest figure in SRY [20].

Figure 1: Research Design

Quantitative research sample were 38 respondents. It indicated that 8 percent (2 respondents) were added as a backup when there were respondents dropped out, therefore the number of respondents was 40 respondents. Qualitative research subjects were determined by purposive sampling. The determination of the number of informants in this research was through sequential i.e. the limit was determined until it reached the saturation of data and obtained 15 people / informants. The data collection techniques used in this study were in-depth interviews, observations, and documentation study. On the research to assess the changes obtained before and after health promotion about cervical cancer and early detection in the treatment group by using video media that sent to WhatsApp by comparing changes in early detection behavior before and after treatment.

Result and Dissection

After 2 to 4 weeks of conducting the health promotion, the result is presented on Table 1 below:

Table 1: Early Detection Behavior

Willingness		**Early Detection Behavior**	
Willing	**Not willing**	**Committed**	**Not Committed**
35 (87,5%)	5 (12,5%)	39 (97,5%)	1 (2,5%)

Source: the result of primary data

Based on Table 1, the group treatment of 35 (87.5 percent) that are willing, increase to 39 (97.5 percent conducted the early detection of cervical cancer).

In-depth interviews were about the behavior of participants conducted early detection of cervical cancer and those conducted in the treatment group and it had done early detection of cervical cancer with 15 participants. Most participants that had done early detection of cervical cancer felt motivated as they felt they were at risk. Besides, we observed the motivation of participants to do early detection of cervical cancer because they wanted to know their health so they were willing and do early detection of cervical cancer, and another motivation that encouraged them to do early detection of cervical cancer was to maintain health.

The result of Pearson Correlation Coefficient in software Nvivo 12 plus is presented below:

Table 2: External factor related to the suppoprt system encouraging participant to do early detection of cervical cancer

No.	**Support System**	***Pearson Correlation Coefficient***
1	Effective WAG	0, 581007
2	Strong role of leader	0, 556868
3	Clear video material	0, 220669
4	Family support	-0, 288944

Based on Table 2, Pearson Correlation Coefficient values in the category of strong leader role are the supporting factor of participants conducting early detection of cervical cancer. The existence of effective WAG has the highest value which is 0.581007, compared with the effective leadership

role which is 0.556868. While the clear video material category has a value which is 0, 220669 and family support has a value by -0, 288944.

To find out which participants have an effective WAG support system, the role of a strong leader, video content message and family support for cervical cancer detection, are revealed in the form of project map using Nvivo 12 Plus software as follows:

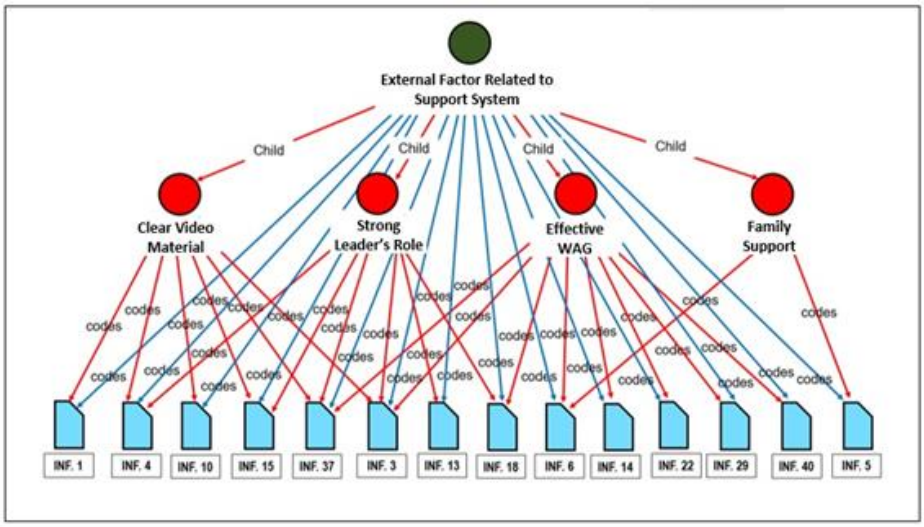

Figure 2: Project map of external factors related to support system that encourages early cervical cancer detection

Based on Figure 2, it can be concluded that external factors related to the support system that encourage participants to detect cervical cancer early because the effective WAG is participant 3, participant 6, participant 9, participant 14, participant 18, participant 22, participant 29, participant 37 and participant 40. While the support system that encourages participants to do early detection of cervical cancer because the strong leadership role are participant 3, participant 4, participant 9, participant 13, participant 15, participant 18 and participant 37. Furthermore, support system of the role of a strong leader make participants do early detection of cervical cancer.

Meanwhile, the support system is obtained because of the existence of clear video material that encourages the participants to do early detection of cervical cancer namely participant 1, participant 4, participant 10, participant 14, participant 15 and participant 37. While the support system comes from the family, it encourages participants to do early detection of cervical cancer, namely participant 5, participant 6 and participant 9.

The results showed that the number of the respondents who had done early detection of cervical cancer was (87.5%) and the number of informants that had done early detection of cervical cancer was 97.5%. Based on the characteristics of the research subjects, according to age, it could be seen that the majority of the informants were in the age of 30 to 40 years (75%). Age is a natural factor in cervical cancer in women which is over the age of 40. The older a woman is, the higher risk of cervical cancer [21]. The peak of cervical cancer development occurs at the age of 47 years old. About 47% of women with invasive cervical cancer were under the age of 35 at diagnosis. Approximately 10%, cervical cancer occurs in elderly women (> 65 years old) and tends to die of advanced diseases when it is diagnosed [22]. Most of women's job are the housewives (67.5%). In general, working mothers have more time to access information from a variety of sources, either with WA social media or the internet. The same thing is also

conveyed by the informant that to get information informants access it also from the internet. One's work can provide experience, either directly or indirectly [23].

Seeing from the history of birth control, most of them use hormonal birth control (62.5%). Women who use oral contraceptives (birth control pills) for 5 years or more have a greater risk of developing cervical cancer than women have never used oral contraceptives. The higher risk is after 10 years of use [19]. Most of them are willing to do early detection and have done early detection of cervical cancer, there is only one respondent who does not do early detection. Women who have known the benefits of cervical cancer screening as well as visual examination of acetic acid tend to behave 3 times more obediently and routinely in conducting visual inspections of acetic acid [24]. The more often we get health information, especially about the benefits of early detection of cervical cancer, the more knowledge we have about cervical cancer prevention [25].

Qualitative findings show that external factors related to support system which is the encourager in conducting early detection of cervical cancer and the most dominant is the presence of effective WAG. The use of Multi Media Messaging Service (MMS) has been replaced with WhatsApp media [9]. Health promotions and education programs through picture message with WhatsApp application are effective in increasing knowledge and satisfaction of learning about type 2 diabetes in cadres [26].

WhatsApp or SMS can be used as an innovation in health services especially in health promotion [27]. The results of the study conducted by Mehta et al., [28] stated that people with HIV-AIDS (ODHA) obtained results who prefer to receive a short SMS or WhatsApp besides a phone call to take medication in the health service. The role of the leader in this case, the head of the study and or community leaders, among others, health cares, village officials (Dukuh) or health workers play a role in encouraging early detection behavior of cancer services. In the informant treatment group conducts early detection of cervical cancer, besides the interaction in WAG, the role of the leader contributes in encouraging early detection of cervical cancer. The role of the leader as a motivator plays a role in encouraging participants to act [29]. Leaders know the benefits of early detection of cervical cancer and it will also provide support and encourage others by conveying information. Social support from community leaders is an important factor for mothers in making the decision about early detection of cervical cancer [30]. Women will decide to conduct a visual inspection of acetic acid if they get motivation or support from people around them [31]. With the support of the community, it will make it easier for mothers to take the advantage of health care facilities, one of which is early detection of cervical cancer [32].

The involvement of the husband will affect the mother in conducting early detection of cervical cancer. Women who get the support from their husbands will feel happy and get more attention, so they tend to do early detection of cervical cancer [33]. There are inhibitory factors such as the absence of social support such as family or friends in motivating women to conduct examinations or early detection of cervical cancer [34]. From the interviews of 14 informants, there are obstacles in conducting early detection of cervical cancer both internally and externally. Internal barriers associated with the most dominant motivation are feeling healthy, then being ashamed to do the examination, fear of the results of the examination and lack of knowledge.

Feeling healthy is the most dominant factor of informants as the reason for not doing early detection of cervical cancer. Women feel that they have no risk of cervical cancer [35]. Women believe and have a perception that early detection of cervical cancer is necessary if a person is already ill or has complaints about the femininity [36]. Some women argue that they do not intend to do the examination because they do not know the benefits of visual examination of acetic acid, but because of they feel healthy so

they do not intend to be examined and are not a top priority [37]. Women believe that they have adopted a healthy lifestyle so that they will avoid cervical cancer [38]. Women feel that they have no risk of cervical cancer [33].

The results of a study conducted by Yang et al [39] in rural China show that women are ashamed and reluctant to do early detection of cervical cancer because they have to show their female organs. They are not used to the intimate parts seen by others and it is inappropriate to do since it is contrary to the cultural norms of rural Chinese women. Unfortunately, the examination method is not only experienced by women from China, almost all research areas are carried out so that many informants refused to be examined. Research that has been conducted in the regions of Romania and Bulgaria [40], that one of the inhibitions for women to do early detection of cervical cancer is because of embarrassment if at the time of examination there is discomfort with the method of examination. The results of the same study were conducted by Spagnoletti et al [41] that women feel ashamed if an early detection examination of cervical cancer is carried out. The feelings of shame experienced by women occur because the mother does not know more clearly about the benefits of screening supported by the negative attitudes towards early detection of cervical cancer.

The low level of knowledge, not knowing the benefits of early detection of cervical cancer is a factor cause the low early detection of cervical cancer [32]. Women with insufficient knowledge, are 7 times more likely to be unaware of their health problems [42]. According to one informant that stated that the lack of information about cervical cancer early detection and has no idea about early detection is important especially because the person is at risk of getting married at the age of less than 20 years and someone in his family has cancer. Women who are less informed about cervical cancer and early detection have an approximately 52 times chance of showing bad health behavior [43].

Lack of knowledge on early detection of cervical cancer for some women is due to never getting information about the examination, so they do not utilize the health care facilities [50]. The results of a study conducted by Szalacha et al [44], that women who do not get clear information about cervical cancer and early detection do not make them to be passive. High curiosity encourages them to look for information independently through the internet and magazines in hopes of gaining knowledge about cervical cancer and early detection. Some mothers who have done visual examination of acetic acid are motivated both internally and externally.

Knowledge related to education, a highly educated person is more able to find the information about health and can receive the advised to do early detection of cervical cancer through a visual inspection of acetic acid [45]. Low education is a barrier to cervical cancer screening [46]. This case causes the limitation of knowledge about the importance of preventing cervical cancer and became one of the inhibitions of women to conduct visual inspections of acetic acid. The results showed that all highly educated informants had graduated high school-PT. Higher education is not able to guarantee a person behaves obediently to the early detection of cervical cancer. [47]. More than half of women have never heard of cervical cancer and do not know the purpose or benefits of visual inspection of acetic acid [24]. Based on the results of research and discussion found that early detection behavior of cervical cancer there are supporting factors and obstacle factors. Supporting factors that encourage individuals to do early detection of cervical cancer that comes from within the individual is feeling itself at risk, to know its own health and to maintain self-health.

External supporting factors are the existence of an effective WAG, the role of leader in WAG, video message about clear cervical cancer and the existence of family support. Inhibitory factors come from within the individual so that the

person does not do early detection of cervical cancer, namely feeling healthy, feel embarrassed to be examined, afraid of the results of examinations and lack of knowledge. In addition, the inhibition factors sourced from internally, the lack of outside support is the existence of less effective WAG, and the role of the leader is less towards the WAG group. For the follow-up of these findings, it is necessary to improve health promotion especially about cervical cancer and early detection for individuals that have not performed with innovative methods and media that are easily accepted. For individuals who have done early detection of cervical cancer, it is recommended to conduct regular examinations which is appropriate with existing policies and regulations.

Conclusion

This study aimed at health promotion with a model of empowering the community to use WhatsApp effectively in encouraging changes in the behavior of mothers conducting early detection of cervical cancer uteri with visual inspection of acetic acid. Community development to accelerate the decrease in the prevalence of cervical cancer uteri through early detection of visual inspection of acetic acid in Bantul Regency was conducted in an organized group of women (community organization) by involving stakeholders implementing health promotion strategies with innovative and applicative methods, media, and materials.

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Authors' contributions

All authors contributed toward data analysis, drafting and revising the paper and agreed to be responsible for all the aspects of this work.

Conflict of Interest

We have no conflicts of interest to disclose.

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