The Development of an Application Model System for Adequate Nutrition and Nutrition of Dental Health (SUKINIKEGI) for Pregnant Women

Sukini[1*], Irma Haida Yulia Siregar[2], Rita Hernayanti[3], Angga Sugiarto[4]

[1,2,3,4] *Health Polytechnic of Semarang*

ABSTRACT: There are many risks that threaten the fetus in pregnant women who experience malnutrition, it is necessary to develop an application with the aim of preventing oral cavity diseases that often occur in pregnant women, especially in the first trimester. Where oral cavity diseases in pregnant women that are not handled properly can result in the birth of babies with low body weight and other consequences. The SUKINIKEGI application serves as an educational medium and reminder for cadres in accompanying pregnant women.In connection with the presence of oral cavity diseases in 9 of pregnant women, it is necessary to expand the use of the SUKINIKEGI application not only to control nutritional adequacy related to stunting prevention but also to prevent oral cavity diseases. The method of data collection with observation is pre- and post-examination of assistance to pregnant women by cadres using OD Set and status cards and providing information through the SUKINIKEGI application. The results of the analysis of the application of the System for Adequate Nutrition and Nutrition of Dental Health (Sukinikegi) to the reduction of oral cavity diseases were carried out by the SPSS analysis test with the Wilcoxon test obtaining a p-value of 0.000. The use of the SUKINIKEGI application as an education and remender tool is an effort to optimize the role of cadres in accompanying pregnant women to nutritional adequacy to prevent oral cavity diseases in pregnant women..

KEYWORDS: dental health; pregnant women; SUKINIKEGI application

I. INTRODUCTION

Community Empowerment in the Health Sector, hereinafter referred to as Community Empowerment, is a process to increase knowledge, awareness and the ability of individuals, families and communities to play an active role in health efforts which are carried out by facilitating the problem-solving process through an educational and participatory approach and paying attention to local potential and socio-cultural needs [1]. The Ottawa Charter emphasizes that community participation is a key element in community empowerment in the health sector[2]. Furthermore, the 7th International Conference on Health Promotion in Nairobi, Kenya, reaffirmed the importance of community empowerment in the health sector by agreeing on the need to: build health promotion capacity, strengthen health systems, partnerships and cooperation across sectors, empower communities, and be aware of health and healthy behaviors [2].

Collaborative practice is described by the WHO as a comprehensive service provided by two or more health workers from different professional backgrounds, through cooperation with patients, families, caregivers, and the community to provide the highest quality of service in various situations.

Talking about community empowerment is inseparable from the role of cadres, is everyone who is chosen by the community and trained to mobilize the community to participate in community empowerment in the health sector. This cadre is from the community for the community, so it is easy to accept and has enough potential to influence the way of thinking and behavior of the people it represents [1]. Therefore, cadres are often role models as well as long-handed programs aimed at the community, both individually and in groups. Cadres are trained to master many things, especially ways to influence the community and along with the development of the times they are trained to master science and technology or certain applications in accordance with the purpose of making the application. One of them is an application called SUKINIKEGI which stands for "System for the Adequacy of Nutrition, which has been used previously in assisting the nutritional adequacy of pregnant women in reducing stunting rates. This research is the development of the SUKINIKEGI application that has been previously

implemented in the National Superior Community Service, where this application is one of the instruments for cadres in accompanying pregnant women in preventing stunting in the Gemawang District Area. Given the many risks that threaten the fetus in pregnant women who experience malnutrition, this application needs to be developed for broader purposes such as efforts to prevent oral cavity diseases that often occur in pregnant women, especially in the first trimester. Where oral cavity diseases in pregnant women that are not handled properly can result in the birth of babies with low body weight and other consequences. The SUKINIKEGI application serves as an educational medium and reminder for cadres in accompanying pregnant women.

Subjective data on the examination of pregnant women as targets of National Superior Community Service activities in the Healthy Village Development Program (PPDS) in the Gemawang District area showed that 7 out of 42 pregnant women in the first trimester and 1 out of 8 pregnant women in the second trimester complained of feeling uncomfortable and even sick when eating and brushing their teeth. In objective data, the presence of stomatitis from mild to severe and gingivitis in the oral cavity was recorded.

With the lack of comfortable conditions related to oral cavity diseases in 9 of the pregnant women targeted by the PPDS program, we feel the need to expand the use of the SUKINIKEGI application not only to control nutritional adequacy related to stunting prevention but also to prevent oral cavity diseases. For this reason, we want to research the development of the SUKINIKEGI application for the prevention of oral cavity diseases in pregnant women.

II. METHOD
The type of research used in this study is a quasi experiment (pseudo-experiment). The design of this research is one group pretest posttest, to find out the media education of the SUKINIKEGI Application on the occurrence of oral cavity diseases during pregnancy. The determination of the sample in this study used the purposive sampling technique, namely pregnant women who came for the first examination at the Gemawang Health Center with and without indication of oral cavity disease during the examination of 50 people during the study month.Data analysis was carried out based on the results of the pretest and posttest. Data analysis using the Wilcoxon test.

III. RESULT

Research on "Empowerment of Ukgm Cadres Through the Development of an Application Model "System for Nutrition Adequacy and Nutrition of Dental Health (Sukinikegi)" as a Nutrition Companion for Pregnant Women Towards the Prevention of Disease" has been carried out at the Gemawang Health Center, Gemawang District, Temanggung City. The study involved 50 pregnant women who were examined at the Gemawang Health Center.

In this study, an examination was carried out at the beginning of the week of every month, by Gemawang cadres, in addition to that the cadres also monitored and reminded pregnant women to always maintain their dental and oral health through the application of the System for Adequate Nutrition and Nutrition for Dental Health (Sukinikegi).

a.   Examination by Companion Cadre
This research was carried out through cadre empowerment. Previously, cadres helped to assist pregnant women's nutrition only, now it has been developed with cadres who also assist pregnant women's dental and oral health.

The debriefing of cadres was carried out on the first day of the dental examination of pregnant women before being given a reminder of dental and oral health through the application of the System for Adequate Nutrition and Nutrition of Dental Health (Sukinikegi), thus cadres are equipped with knowledge about the task of assisting dental and oral health in pregnant women through several namely, Whatssapp, booklets/modules, and the application of the System for Adequate Nutrition and Nutrition of Dental Health (Sukinikegi).
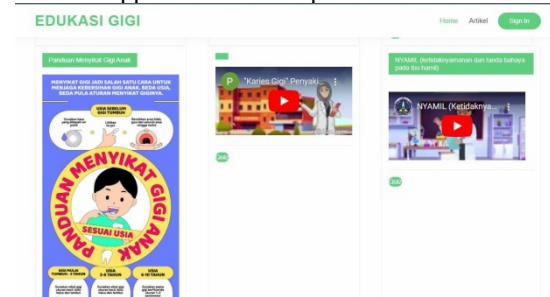
b.   Application Development

Figure 1. Sukinikegi Application

The Sukinikegi application contains 8 video materials and power points regarding children's dental health, children's dental growth period, nutrition for pregnant women, and dental caries.

c.   Results of Dental and Oral Health Examinations Before and After Being Given the System Application for Nutrition Adequacy and Nutrition of Dental Health (Sukinikegi)

1)   Frequency Distribution of Gig Health Examination Results Before Being Given the Sukinikegi Application

It	Disease Score	n	%
1	Score 1	1	4
2	Score 2	10	40
3	Score 3	14	56
	Total	25	100

Table 1. Frequency distribution of the results of the Dental Health examination of pregnant women before being given the Sukinikegi application

Based on the table, it shows that 56% of pregnant women have 3 types of dental and oral health diseases, namely dental caries, stomatitis, and gingivitis.

2)   Frequency Distribution of Gig Health Examination Results After Being Given the Sukinikegi Application

It	Disease Score	n1	%	n2	%	n3	%
1	Score 1	2	8	10	40	16	64
2	Score 2	18	72	15	60	9	36
3	Score 3	5	20	0	0	0	0
	Total	25	100	25	100	25	100

Table 2. Frequency distribution of the results of Dental Health examinations for pregnant women after being given the Sukinikegi application

Based on the table, it was found that 72% of pregnant women respondents had 2 types of dental and oral health diseases in their oral cavity in the first month of examination, then in the second month of examination it was found that 60% of pregnant women respondents had 2 types of dental and oral health diseases, and in the third month it was found that 36% of pregnant women respondents had 2 types of dental and oral health diseases in their oral cavity.

3)   Wilcoxon Test Analysis Results

Application	P-Value	Interpretation
Pre_Pemeriksaan	0.000	There is an Influence
Post_Pemeriksaan		

Table 3. Wilcoxon Test Results

Based on table 4.4, it shows that the p-value in the pre-examination and post-examination of the application is the same magnitude of 0.000 where <0.05, it is concluded that there is an influence of the application on the results of the dental health examination of pregnant women

IV. DISCUSSION

Pregnancy is a natural process, involving physiological, anatomical and hormonal changes. The effects of hormonal changes will affect almost all organ systems, including the oral cavity [3]. Oral mucosal lesions in the oral cavity are more common in pregnant women than in non-pregnant women [4]. This is because the hormonal and vascular changes that accompany pregnancy will aggravate the gingival response to bacterial plaque. However, maintaining dental and oral health will reduce the incidence of gingivitis during pregnancy. Pregnant women's awareness of the importance of maintaining dental and oral health is very important. In addition, the health behavior of pregnant women also has a very big influence on herself and the fetus (baby) [5]. In fact, pregnant women recognize the symptoms of illness and play a role in maintaining health. The knowledge, attitude and behavior of pregnant women towards dental and oral health will determine the health status of their oral cavity.

In general, pregnancy is related to the state of the oral cavity, because if oral hygiene is not paid attention to during pregnancy, oral cavity abnormalities will occur, due to the imbalance of female hormones and the presence of local irritating factors in the oral cavity [6]. Oral cavity abnormalities in question such as dental caries or cavities, stomatitis, and ginggivitis. Therefore, there is a relationship between pregnancy and oral health.

Hormonal and vascular changes that occur during pregnancy will affect the health of the teeth and mouth of pregnant women. This is due to an increased response of the gingiva to bacterial plaque. The most common conditions are gingivitis, which 27-100% of pregnant women experience and pyogenicum granuloma which is experienced by 10% of pregnant women

Based on research and examinations that have been carried out on respondents, it was found that pregnant women changed the way they cleaned

and maintained oral health for the better, such as examples of pregnant women becoming diligent to always brush their teeth at night before going to bed, using mouthwash, controlling dental health to dentists and performing dental fillings on cavities in accordance with gestational age.

This can be evidenced by the reduction in the score of dental and oral health diseases found in the oral cavity of the respondents, based on table 1, 5 respondents of pregnant women who had 3 types of oral cavity diseases, 18 respondents of pregnant women who had 2 types of oral cavity diseases, and 2 respondents of pregnant women who had 1 type of oral cavity disease in the first month of examination, Then in the second month of examination, it was found that there were no pregnant women respondents who had 3 types of oral cavity diseases, 15 pregnant women who had 2 types of oral cavity diseases, and 10 pregnant women respondents who had 1 type of oral cavity disease. In the third month of examination, only 9 respondents of pregnant women who had 2 types of oral cavity diseases were found, and 16 respondents of pregnant women who had 1 type of oral cavity disease. This shows that there is a decrease in oral cavity problems that occur in pregnant women.

The maintenance of dental and oral health in pregnant women depends on the knowledge and attitude of pregnant women regarding dental and oral health during pregnancy, because the level of knowledge and attitude is a predisposing factor in a behavior [4].

Knowledge can be influenced by several factors, both internal and external factors. The knowledge and attitude of pregnant women can be improved with the application of the System for Adequate Nutrition and Nutrition for Dental Health (Sukinikegi). This application can be accessed easily anywhere, and anytime by pregnant women on various types of android phones owned by pregnant women. The application contains a cover of material, one of which is health and maintenance of dental and oral health in pregnant women. This application can also be a reminder for pregnant women in maintaining their dental and oral health. The application used in this study is one of the external factors in influencing the knowledge of pregnant women in maintaining their dental and oral health.

Applications themselves are one of the information system technologies that are often used by referring to the interaction between people, algorithmic processes, data, and technology [7]. With this information system, it can facilitate the activities or tasks of the people who use it. Because the information system will usually produce information needed by the user.

Based on the results of the above study, it also showed that there was a change in the score of oral cavity disease in pregnant women after using the System for Nutrition Adequacy and Nutrition for Dental Health (Sukinikegi) application. This application is able to help lower the oral cavity disease score in pregnant women, at the beginning of the examination it was found that as many as 56% of pregnant women had 3 types of diseases in the oral cavity, 40% of pregnant women had 2 types of diseases in the oral cavity, and 4% of pregnant women had 1 type of oral cavity disease. After maintaining dental and oral health with the help of this application, it was found that no pregnant women had 3 types of oral diseases, 36% of pregnant women had 2 types of oral cavity diseases, and 64% of pregnant women had 1 type of oral cavity disease. The results of the bivariate analysis also showed that the p-value was 0.000 which means that there was a significant influence before and after the use of the application on the maintenance of dental and oral health of pregnant women.

This study proves that the material contained in the application of the System for Nutrition Adequacy and Nutrition of Dental Health (Sukinikegi) can be well understood by pregnant women so as to improve the way pregnant women in maintaining dental and oral health in terms of knowledge that can affect the attitude and actions of pregnant women.

This research is in line with research conducted by Somin (2019) which states that there is an influence of counseling using android application media and booklets on maternal knowledge [8]. In addition, research conducted by Parwati (2020) stated that the ABDHI application is effective in increasing maternal knowledge about the maintenance of pregnant women and children under five [9].

V. CONCLUSION

The results of the application analysis of the System for Nutrition Adequacy and Nutrition of Dental Health (Sukinikegi) on the reduction of oral cavity diseases. The application of the System Application for Nutrition and Nutrition of Dental Health (Sukinikegi) as a companion medium for pregnant women and UKGM cadres is evidenced by the cadres who take part in training to understand the application and materials and cadres

who always remind pregnant women every week to maintain their dental health.

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