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Providing a Cancer Referral Service Application for Village Communities

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ABSTRACT

Cancer is one of the main causes of death in the world, including in Indonesia. Rural communities often face significant challenges in accessing adequate cancer health services, such as distance to health facilities, lack of transportation, and limited trained medical personnel. The research aims to explore the need and potential benefits of providing a cancer referral service application in rural Indonesian communities. The research method used is qualitative with data collection through in-depth interviews and surveys of rural residents. The research results show that rural communities urgently need innovative solutions to overcome gaps in access to cancer health services. Respondents stated that traveling to health facilities in big cities requires significant costs and time so providing a cancer referral service application could be an effective solution. This designed application provides information about nearby health facilities, mobile health service schedules, and allows patients to make appointments and obtain referrals directly through their devices. The results of this research found that the cancer referral service application can increase efficiency and effectiveness in providing cancer health services in rural areas. This application not only facilitates easier and faster access to health services but also increases public awareness regarding the importance of early detection and timely treatment. Active participation of local health workers and support from government and non-government organizations are critical to the successful implementation of this application. It can be concluded that providing a cancer referral service application is an urgent need in rural communities in Indonesia. The app is expected to reduce disparities in access to cancer care and potentially save many lives through early detection and timely intervention. Health policies are needed that support the development and dissemination of this application, taking into account local wisdom and the specific conditions of each region.

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1. INTRODUCTION

Cancer is one of the main causes of death in the world, including in Indonesia [1], [2]. This disease causes a huge burden both in terms of health and the economy. The high death rate from cancer is often caused by delays in diagnosis and treatment, especially in rural areas where there is limited access to adequate health services. Rural communities often face various obstacles, such as long distances to health facilities, limited transportation, and a lack of medical personnel and equipment needed for cancer diagnosis and treatment [3], [4].

In rural areas, this problem is exacerbated by the low level of public awareness and knowledge about cancer [5]. Many villagers do not recognize the early symptoms of cancer and do not realize the importance of early detection. Rural communities often face various obstacles, such as long distances to health facilities, limited transportation and

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a lack of medical personnel and equipment needed for cancer diagnosis and treatment [3], [4].

In rural areas, this problem is exacerbated by the low level of public awareness and knowledge about cancer. Many villagers do not recognize the early symptoms of cancer and do not realize the importance of early detection [6]. Additionally, social stigma and traditional beliefs may also prevent individuals from seeking medical care. These limitations emphasize the importance of innovative and effective approaches to improving access and quality of cancer health services in rural communities.

One solution that can be implemented to overcome this problem is the provision of a cancer referral service application. This application is designed to help rural communities gain faster and more efficient access to necessary health services. By using information technology, this application can provide accurate information about cancer symptoms, the location of the nearest health facilities, as well as necessary referral procedures. Apart from that, this application can also connect patients with competent medical personnel to provide consultation and further assistance.

Providing a cancer referral service application has great potential to overcome the various barriers faced by rural communities in obtaining cancer care [7]. By increasing access to information and simplifying the referral process, this application is expected to help increase early detection rates, speed up diagnosis, and increase the chances of cure for cancer patients in rural areas [8]. Therefore, this research aims to explore the need, design and implementation of an effective cancer referral service application for rural communities, as well as identifying key factors that can support its success.

In this research, various aspects will be analyzed, including the needs of rural communities, technological infrastructure readiness, as well as challenges and opportunities in implementing cancer referral service applications. Thus, it is hoped that the results of this research can make a significant contribution to the development of technology-based health solutions that can improve access and quality of cancer health services in rural areas.

2. RESEARCH METHOD

This research uses a qualitative and quantitative descriptive approach to examine the need, design and implementation of a cancer referral service application for rural communities. This approach was chosen to gain a deep understanding of community needs and perceptions, as well as to measure the effectiveness and feasibility of the application being developed. The population of this research is village communities in several rural areas in Indonesia. Samples were taken using a purposive sampling technique, where participants were selected based on certain criteria, such as geographic location, access to health services, and involvement in village health programs. A total of 200 respondents were taken as samples consisting of patients, health workers and related stakeholders.

Data collection was carried out through the first several techniques, a questionnaire survey which was used to collect quantitative data from village communities regarding their needs and perceptions of cancer health services. The questionnaire included questions about cancer knowledge, healthcare access experiences, and attitudes toward the use of technology applications in healthcare. Second, in-depth interviews were conducted with a number of key informants, including cancer patients, patient families, medical personnel and village health officials. This interview aims to gain deeper insight into the barriers faced in accessing cancer health services and expectations regarding the application of referral services. The third focus group discussion was to collect opinions and suggestions from various stakeholders regarding the design and features desired in the cancer referral service application. The FGD involved participation from village communities, health workers, and technology developers. Field observations were carried out to understand the geographical and social context of village communities that could influence application implementation. These observations include technological infrastructure, health facilities and community living conditions. Based on findings from surveys, interviews, FGDs and observations, the cancer referral service application was developed taking into account user needs and preferences.

Application development involves collaboration between a team of researchers, technology developers and medical personnel. The development process follows the following stages: requirements analysis, identifying the main features required in the application based on the data collected. Prototype design, creating an initial prototype of the application that includes key features. Prototype testing, conducting prototype trials with a number of users from village communities to get feedback and make improvements. Implementing the improved application in selected villages and providing training to users on how to use the application.

Quantitative data from the survey was analyzed using descriptive statistics to describe community needs and perceptions. Qualitative data from interviews, FGDs and observations were analyzed using thematic analysis methods to identify the main themes that emerged regarding barriers and needs for cancer health services. After implementation, an evaluation was carried out to assess the effectiveness of the application in improving access and quality of cancer

health services in the village. This evaluation includes measuring the level of application usage, user satisfaction, and changes in cancer access and treatment. This research has received approval from Palembang Health Polytechnic Health Research Ethics Committee.

3. RESULTS AND ANALYSIS

3.1. Result

The survey results show that the level of knowledge and awareness of village communities about cancer is still low. As many as 65% of respondents did not know the early signs of cancer and the importance of early detection. Many respondents also stated that they felt they did not have enough information about how and where to seek medical help regarding cancer. Most respondents (78%) reported that long distance to health facilities was the main obstacle in obtaining cancer health services. In addition, 70% of respondents stated that transportation costs were a significant obstacle. Other barriers include a lack of trained medical personnel (52%) and social stigma related to cancer (45%).

Interviews with patients and medical personnel revealed that many patients postpone examinations because they are not aware of the early symptoms of cancer. Medical personnel also stated that the lack of medical facilities and equipment in the village made it difficult for them to provide proper diagnosis and treatment. They support the idea of providing a referral service application as a practical solution to overcome this problem. FGD participants proposed several important features for the application, including information on cancer symptoms, location of the nearest health facility, schedule for visits by medical personnel, and an online consultation feature with specialist doctors. They also emphasized the importance of creating applications that are easy to use and accessible even with a limited internet connection.

Application development and testing begins with needs analysis. Based on needs analysis, the application was developed with several main features, namely: providing information about cancer symptoms, the importance of early detection, and preventive measures. Health facility search to find the nearest health facility that provides cancer services. Facilitate patient referrals from village health centers to referral hospitals. Providing online consultations to consult with cancer specialist doctors online.

The application prototype was tested with 50 users from village communities. Test results show that 85% of users find the application easy to use and helps them get the information they need. Some of the feedback received included requests to improve the interface and add a notification feature for inspection schedules. The refined application was implemented in three selected villages. Training is provided to medical personnel and the public on how to use the application. Evaluation after 1 month of implementation showed significant improvements in access and quality of cancer health services: 70% of the target population had downloaded and actively used the application, 80% of users expressed satisfaction with the application and found it easier to obtain health information and services, the number of patients diagnosed in the early stages of cancer increased by 20% compared to before the application was implemented. The referral process is faster and more organized, with 90% of successful referrals made through the app.

3.2. Discussion

This research examines the need, design and implementation of a cancer referral service application for rural communities, with the main aim of improving access and quality of cancer health services. The research results show a number of important findings that are relevant to consider in the development and implementation of the application. With a significant need for cancer health services, rural communities face various obstacles in accessing cancer health services, including long distances to health facilities, high transportation costs, and limited facilities and medical personnel. These barriers result in many patients not receiving timely treatment, which in turn reduces the chances of cure and increases cancer mortality rates in rural areas [9]. This finding is consistent with previous literature which shows that access to health services in rural areas is generally lower than in urban areas (Smith et al., 2019).

Survey and interview results show that the level of knowledge and awareness of village communities about cancer is still low. Many respondents were unaware of the early signs of cancer and the importance of early detection. This indicates an urgent need for more intensive health education programs in rural areas. Increasing awareness and knowledge about cancer can help people be more proactive in seeking medical care and increase early detection rates, which are key factors in successful cancer treatment [10], [11].

The majority of respondents welcomed the idea of providing a cancer referral service application. They consider this application as a practical solution to overcome the various access barriers they face. Prototype testing shows that this application is easy to use and useful for users. These results show that application-based technology has great

potential to be integrated into health care systems in rural areas, providing an efficient and effective alternative in increasing access to cancer health services.

The implementation of the cancer referral service application in three selected villages showed a significant increase in access and quality of cancer health services [8]. App usage rates are high, with positive user satisfaction and improvements in early cancer detection. This shows that this application has succeeded in overcoming several main obstacles faced by rural communities, including limited information and distance to health facilities [12]. In addition, this application also increases the efficiency of the referral process, making it faster and more organized.

Although research results show many benefits from using cancer referral service applications, there are several challenges that need to be overcome. These challenges include limited technological infrastructure in rural areas, such as unstable internet networks, as well as the need for ongoing training for medical personnel and application users. Overcoming these challenges requires close collaboration between governments, healthcare providers, and technology developers to ensure that these applications are accessible to all levels of society and function optimally.

4. CONCLUSION

This research provides important insights into the needs and challenges in the provision of cancer health services in rural areas, and shows the great potential of the application of cancer referral services in overcoming access barriers and improving the quality of health services. With careful planning, adequate training, and strong infrastructure support, this application can be an effective tool in improving access and health outcomes for cancer patients in rural communities. These findings provide a strong basis for further development and implementation of similar applications in other rural areas. Close collaboration between governments, healthcare providers, and technology developers is needed to overcome these challenges and ensure successful application implementation.

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