The Benefits of Implementing the Android-Based iDentist Application as an Alternative outside the Government's Public Health Service Program

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Abstract

The purpose of this study to discuss about the benefits of implementing the android-based identist application as an alternative outside the government's public health service program. This type of research design is qualitative using case studies. This study involved 2 types of data sources, namely primary sources and secondary sources. In collecting data, the number of samples used is in the range of 4-10 informants to see if the data is regulated, if the sample is less than 10, it has reached the saturation point, then stop the search for samples. Data analysis techniques were carried out by means of data reduction, data presentation, and drawing conclusion. The research results show that implementation of the android-based iDentist application can provide information on dental and oral health so that it can provide accurate dental and oral care. Implementation of the android-based iDentist application can overcome public complaints so that it can speed up dental and oral care.

I. Introduction

Dental and oral health is a part of body health that cannot be separated from one another because it will affect the overall health of the body. Approximately 80% of Indonesia's population has damaged teeth due to various reasons, but the most common are caries or cavities. Dental and oral health in Indonesia is still a matter that needs serious attention, the high prevalence of dental and oral diseases suffered by Indonesian people, including children.

The main cause of health problems is people's behavior. Therefore, the community must be able to solve these problems with guidance and direction from the government. The government has limited resources in dealing with increasingly complex health problems in society. However, the community has considerable potential to be mobilized in prevention efforts in their area. The potential of the community includes: leadership, organization, costs, knowledge, technology, and decision-making in the community in an effort to improve health so that this potential needs to be optimized.

The community's need for health care demands quality health services. The quality of health services can be assessed or assessed. Service standard is a benchmark as a reference for evaluating health services. One of the dimensions that can be used to assess the quality of health services is responsiveness, namely the ability to provide quickly and accurately or the length of service time.

Dental emergencies are potentially life-threatening situations that require immediate treatment to stop ongoing tissue bleeding, relieve severe pain or infection, including

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uncontrolled bleeding, cellulitis or bacterial tissue infection causing swelling in the mouth or mouth area, and trauma to the facial bones.

Excellent service is the demand of society, in line with the increasing need and awareness in the life of the state as a result of technological advances (Adiwidjaja and Dhuhaniyati, 2012).

Teledentistry is the use of health information technology and telecommunications for dental care, consultation, education, and public awareness in improving dental health (Daniel and Kumar, 2014). Teledentistry is part of telemedicine that provides convenience in dental health services, such as diagnosis, action plans, consultations and follow-up via electronic transmission from remote locations. Telemedicine has long been a solution to meet the needs of health services for very remote locations (Estai et al., 2016). The lack of medical personnel, long distances, financing, and increasingly cheap, increasingly sophisticated technology, has increased interest in the application of telemedicine. Telemedicine or telehealth utilizes telecommunications networks to provide health and medical education services to people in remote locations. Teledentistry itself can have significant implications for dental health services in remote locations, among others by providing consultation recommendations and supporting services in each area. Thus reducing travel costs, waiting time, and unproductive time.

The purpose of this study to discuss about the benefits of implementing the android-based identist application as an alternative outside the government's public health service program.

II. Review of Literature

2.1 Teledentistry

Teledentistry is an alternative service that combines dentistry with technology and telecommunications involving the remote exchange of clinical information and images for dental consultations and treatment planning. Teledentistry has the ability to increase access to dental and oral health, and lower costs and has the potential to eliminate disparities/equality in oral health care between rural and urban communities. Teledentistry can also be used for education and outreach to increase public awareness of dental and oral health (Astoeti and Widyarman, 2020).

Telemedicine is defined as the use of advanced information technology and electronic communication tools to exchange medical information. This facilitates consultation with patients, specialists and/or healthcare providers remotely to provide optimized medical services in the patient's physical absence. The original concept was developed to equip healthcare providers with a communication method for obtaining a detailed history and clinical observations, including images for diagnosis and guidance. This concept has evolved over the last few years and is becoming an important component of healthcare delivery worldwide.

Teledentistry is a combination of telecommunications and dentistry involving the exchange of clinical information and clinical images at different distances. Teledentistry is the use of communication technology (in the form of electronic medical records, videos, digital photos, smartphones/tablets/laptops/computers supported by webcams) as supporting media in sending treatment plans, diagnoses, consultations, and providing information and education from doctors to patients thus becoming a liaison between patients and dental health service providers, such as doctors and nurses.

III. Research Method

This type of research design is qualitative using case studies. Case studies are a method of knowing and understanding someone using inclusive and comprehensive or comprehensive practices (Octiva et al., 2018; Pandiangan, 2018; Pandiangan, 2022). This study involved 2 types of data sources, namely primary sources and secondary sources. Sources of data obtained directly from informants are called primary sources (Asyraini et al., 2022; Octiva, 2018; Pandiangan, 2015). Secondary data sources were not directly obtained from informants but from documents and literature books (Jibril et al., 2022; Pandiangan et al., 2018; Pandiangan, 2022). Secondary data collection is carried out through internet media, books, and journals.

In collecting data, the number of samples used is in the range of 4-10 informants to see if the data is regulated, if the sample is less than 10, it has reached the saturation point, then stop the search for samples. By paying attention to the adequacy of the data and adjusted to the ability of researchers. Even so, researchers still optimize informants as research objects to collect data. Sample criteria include inclusion criteria and exclusion criteria, where these criteria determine whether or not a sample can be used (Octiva et al., 2021; Pandiangan et al., 2021; Pandia et al., 2018).

Data analysis is the process of systematically searching for and compiling data obtained from interviews, field notes, and documentation, by organizing the data into patterns, choosing which ones are important and which will be studied, and making conclusions so that they are easily understood by oneself and others. others (Pandiangan et al., 2022; Tobing et al., 2018). Data analysis techniques were carried out by means of data reduction, data presentation, and drawing conclusion.

IV. Result and Discussion

4.1 Description of Research Locations

The Gianyar Regency is one of the 9 regencies/cities in the Bali Province of the Gianyar Regency consists of 7 districts, 64 villages, 6 wards, 504 Banjars/Dusun, and 42 Neighborhoods. The Gianyar Regency is divided into two regions with different characteristics, the northern part is a undulating area while the southern part is lowland and coastal areas. Geographically, the location of the Gianyar Regency area with the following boundaries:
1.North: The Bangli Regency.
2.East: The Klungkung Regency and the Bangli Regency.
3.South: The Badung Strait and the Indonesian Ocean.
4.West: The Denpasar City and the Badung Regency.

The Gianyar Regency has an area of 368 km² or about 6.53% of the total area of the Bali Province. The widest part of the Gianyar Regency (45.70%) is located at an altitude of 100 to 500 meters above sea level. There are 12 rivers that cross the Gianyar Regency and most of the water is used for irrigation of rice fields and water tourism.

The population in the Gianyar Regency itself reaches 515,344 people or 11.94% of the total population of the Bali Province. The total population in the Gianyar Regency, 50.15% are male while 49.85% are female with a ratio of 101. The rate of population growth in 2020 reached 0.90% which is experiencing a slowdown compared to population growth in the period 2000 to 2010 namely 1.80%. The productive age population (15 to 64 years) in the Gianyar Regency reaches 71.40%, while the percentage of the elderly population (60 years and over) reaches 13.87%.

Health service facilities in the Gianyar Regency include: 7 hospitals, 19 Public Health Centers, and also private practice of other health workers, such as: doctors, dentists, nurses, midwives, dental therapists, and others.

4.2 General Characteristics of Respondents

Before the author describes the results of the analysis regarding implementation of the android-based iDentist application which takes place from July to October 2022 in the Gianyar Regency, the author presents respondent data as informants and primary data sources in this study first. The author then conducted interviews with respondents directly which were carried out several times to strengthen the results of the interviews to become valid research data. In this study there were 15 respondents, namely the community.

4.3 Implementation of Teledentistry Through Development of the Android-Based iDentist Application

The research results show that the implementation of the android-based iDentist application can provide information on dental and oral health so that it can provide accurate dental and oral care. With the rapid development of technology and the use of smartphones in Indonesia which continues to increase, this can be an opportunity to offer various kinds of Android-based applications to the public. Several studies in both developed and developing countries state that the use of Android-based applications can improve knowledge, attitudes and practices for the better (Perdana et al., 2017). Diagnosis of dental disease is usually made by a dentist based on the symptoms the patient is suffering from and the form of visible tooth decay. Therefore, we need a way for patients to understand their dental disease effectively and efficiently. Diagnosing dental disease should not be done haphazardly, because it can be very dangerous if an error occurs in the treatment and handling, so consultation regarding dental disease must be done with a specialist or expert. This system is an expert system for diagnosing dental disease. An expert system is a branch of artificial intelligence that learns how to adopt the way an expert thinks and reason in solving a problem and making an accurate decision from a number of existing facts. To help overcome dental disease, technological developments can be used in the form of disease diagnosis applications or expert system applications. This application will help users to make an initial diagnosis of their dental health conditions based on the symptoms they are experiencing and provide advice on how to treat them as needed (Zhou et al., 2014). From the results of research conducted using direct interview methods with informants and triangulators, it was found that the average community has different dental complaints. There are cavities from small to large, there is tartar, teeth are not neat or loose, the growth of wisdom teeth which often causes unbearable pain. So that immediate dental care is needed in order to reduce their complaints. Experienced dental care can sometimes help relieve toothache, but that's only temporary. From interviews, informants often used previous methods or experience treating teeth, such as gargling salt water, pain relievers, cold compresses, but after that the teeth hurt again. This was due to improper dental care being carried out because the cause of the toothache was not removed. Some people who migrate or don't come from Bali don't know the location of the dentist in the vicinity. So they don't have dentists. As for those who do not understand the prevention of dental disease so that they take the wrong way to care for their teeth, this is caused by a lack of public knowledge. Such complaints result in inappropriate treatment and inappropriate dental services. As for those who are afraid of the dentist, so it's better to endure the pain. Besides fear, there is also a feeling of laziness

and can be caused by not knowing about dental health, then being confused about going to a good dentist and sometimes looking for the nearest one.

Implementation of the android-based iDentist application can overcome public complaints so that it can speed up dental and oral care. This android-based application that will be implemented is called iDentist application, there are complete menus such as complaints experienced by patients, where patients can match the complaints they are experiencing. Then there is the treatment, after the patient knows the disease he is experiencing, the patient goes to the treatment menu which directs the treatment that can be done at home or at the dentist. The dental health menu contains dental health knowledge. And the last one is the location of the nearest dentist who can streamline the time for dental treatment. The increasing use and development of information and communication technology has made a significant impact on various aspects of human life. One of the important aspects of human life is health, which requires fast, practical, efficient, accurate and reliable information. One of the uses of technology is the use of the web to access information is increasingly being used because it is easy to get the information needed in a relatively short time. According to researchers, many people are not aware of dental health, so many don't care and let their dental disease. Sometimes, indeed, when there are complaints of toothache with one's own experience or getting information from other people, it can indeed reduce tooth complaints, but it's actually only temporary, for the cause doesn't disappear and it even becomes more infected or worse, so the toothache will spread so that it can cause serious dental disease more severe and even other diseases. So with the implementation of the android-based iDentist application, it is hoped that it will make it easier to identify dental diseases, so that it can provide speed and accuracy in optimal dental care.

IV. Conclusion

The research results show that implementation of the android-based iDentist application can provide information on dental and oral health so that it can provide accurate dental and oral care. Implementation of the android-based iDentist application can overcome public complaints so that it can speed up dental and oral care.

Based on the conclusions above, the following suggestions are given:

1. Based on the results of this study it can be suggested to do further research by developing application implementation android-based iDentist application on a wider scale so it can optimize dental and oral health.
2. Based on the results of this study it can be suggested for the results this research is expected to assess satisfaction in use android-based iDentist application that can facilitate dental and oral care.

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