YAYASAN AKRAB PEKANBARU
Akrab Juara : Jurnal Ilmu-ilmu Sosial
Volume 10 Nomor 2 Edisi Mei 2025 (580-595)
https://doi.org/10.58487/akrabjuara.v10i2

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TELEMEDICINE: DIFFUSION OF HEALTH COMMUNICATION

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(Naskah diterima: 1 April 2025, disetujui: 28 April 2025)

Abstract

The period of the Covid-19 pandemic demanded the Government to limit social activities or what is known as PSBB to the public. Including urging the public to postpone visits to the hospital. As a substitute, the Government implemented the telemedicine concept, namely the concept of long-distance treatment so that people could continue to consult their health problems without having to come to the hospital. The research method used is qualitative - descriptive by means of observation and literature study. Then analyzed descriptively by describing the results of the study in the form of a qualitative research report.
Keyword: *health communication, Covid-19,telemedicine*

Abstrak

Masa pandemi covid-19 menuntut Pemerintah untuk melakukan pembatasan aktivitas sosial atau yang dikenal dengan istilah PSBB kepada masyarakat. Termasuk menghimbau masyarakat untuk menunda kunjungan ke Rumah Sakit. Sebagai gantinya Pemerintah menerapkan konsep *telemedicine* yaitu konsep pengobatan jarak jauh sehingga masyarakat dapat tetap berkonsultasi masalah kesehatan merekat anpa harus datang ke Rumah Sakit. Metode penelitian yang dilakukan adalah kualitatif – deskriptif yang dilakukan dengan cara observasi dan studi pustaka. Kemudian dianalisis secara deskriptif dengan menggambarkan hasil penelitian ke dalam bentuk kualitatif laporan penelitian.
Kata Kunci: komunikasi kesehatan,Covid-19,*telemedicine*

I. INTRODUCTION

At the end of 2019, the world was shocked by the presence of a new type of virus that was still in the same subgenus as the previously existing SARS virus, this virus was named Severe Acute Respiratory Syndrome Corona Virus-2 (SARS-COV-2) or better known as Covid-19 (Corona Virus Disease-19). This virus was first confirmed at the end of 2019 in the city of Wuhan, China. Starting from there, the SARS virus continued to infect the world. The Covid-19 virus attacks the human immune system or human immune system and is spread from human to human through droplets or saliva that comes out of the mouth of a person infected with the Covid-19 virus when coughing or sneezing (1)

World health experts at that time said that the Covid-19 virus was a newly discovered disease so that no cure had been found, so the key to preventing Covid-19 was through isolation, early detection and basic protection. Therefore, WHO as the World Health Organization recommends carrying out basic protection to prevent the transmission of Covid-19 by maintaining cleanliness, namely washing hands with soap and water for 20 seconds, because in fact this virus will die with soap because soap can lift and break down hydrophobic compounds such as fat or oil, then in addition to soap, you can also use alcohol-based hand sanitizer or hand rub because the ethanol content in it can reduce the infectivity of the virus. Soap can be used when hands look dirty, while hand sanitizer or hand rub can be used when hands do not look dirty (1). In addition, implementing a healthy diet by always consuming nutritious food, using a mask when having to go out of the house and what is not to be missed is that WHO also recommends social distancing or maintaining a social distance of at least 1 meter and not gathering.

Social restrictions in all aspects of people's lives are no exception in the health sector. The public is advised to avoid visiting the hospital as much as possible, even though in fact communication or consulting with a doctor directly has a significant influence on the recovery of outpatients. If a doctor has a good interpersonal relationship, good information exchange and good decision making, the patient's recovery rate (difference between doctors and patients and situational factors) will be higher in outpatient care. (2) However, due to the restrictions on social distancing, including the appeal to reduce or even not visit the hospital during this pandemic, therefore, as a substitute for direct communication or consultation with a doctor, the government has replaced it with remote consultation or known as telemedicine.

The existing global health crisis which is characterized by limited resources, including health workers, has encouraged the adoption of telemedicine and telehealth, especially in the post-pandemic era. The COVID-19 pandemic has accelerated the adoption of this technology, and as the world navigates out of the crisis, it is important to assess the level of utilization of telehealth and telemedicine (3). Telemedicine is a health consultation concept that requires special attention. This is because the concept of telemedicine is a concept that contains a new value in it, where the level of society as patients is not yet known how they accept this new innovation, whether they accept or reject this telemedicine concept. It crossed the author's mind regarding the application of this telemedicine concept is how the relationship between patients and doctors in the future that has been built and created the comfort of

communication that is carried out directly if replaced with the concept of telemedicine? Then are there any obstacles in the application of this telemedicine?

This paper discusses from a theoretical perspective the application of telemedicine as a new concept in the health sector using the theory of innovation diffusion proposed by Everett M. Rogers (1983). In general, this theory is focused on the dissemination of new knowledge and new products in society which includes innovation, communication channels, time span of dissemination and social systems. Referring to Rogers' theory of innovation diffusion, this paper will focus on the application of the concept of telemedicine as a new innovation for society in the health sector.

II. THEORETICAL STUDIES

2.1 Health Communication

Health is one of the most important aspects of human life, because a person's quality of life is influenced by their level of health, both physically and mentally. Solving health problems is not only about how to carry out treatment and healing, but also how to prevent disease and live healthily. Therefore, health problems are not only the realm of health science disciplines, but also involve communication science.

Good and correct information is very likely to be obtained from the communication process between doctors and their patients, drug manufacturers, and health service providers by promoting their services through various communication media. Communication in the right way in various health activities can be an important part of achieving health activities.

Health communication studies how to use communication strategies to disseminate health information that affects individuals in the community with the aim of making decisions related to health care (4).

Socio-Cultural Influences in Health Communication

One form of effort to improve professional medical services to the community is to improve the communication skills of medical personnel. Good communication is communication that is a bridge of tolerance, therefore an understanding of socio-culture is also needed. Some socio-cultural factors that must be understood include:

a. Communication skills are not innate, meaning that every medical personnel must learn them, especially doctors because their "ethnocentric" position in society makes these doctors feel that they do not need other skills except diagnosing diseases, giving medicine, and providing medical actions that are considered necessary.

b. Health communication is still greatly influenced by the beliefs and knowledge of the communication participants.

c. In developing countries, many people still trust "alternative" medical personnel such as shamans. Then there is low knowledge about health such as maintaining cleanliness or eating nutritious food.

d. Communication between doctors and their patients also includes non-verbal communication. For example, in Indonesia, a patient nods his head when the doctor says to see him again next week, not meaning that the patient agrees but often only as a form of politeness from the patient to his doctor. (5).

By understanding socio-culture, it is hoped that both medical personnel and patients or the community can create effective health communication so that information about health can be received well.

Scope of Health Communication

The scope of Health Communication includes:

1. Disease Prevention

a. Disease prevention efforts (preventive)

b. Treatment efforts (curative efforts)

c. Promotive efforts

d. Rehabilitative efforts

2. Rehabilitation

Rehabilitation is an effort to return former sufferers to society, so that they can function again as members of society who are useful for themselves and society, rehabilitation consists of:

a. Physical rehabilitation

That is so that the patient obtains maximum physical rehabilitation.

b. Mental rehabilitation

That is so that former patients can adjust themselves in individual and social relationships.

c. Vocational social rehabilitation

That is so that former patients occupy a job/position in society with maximum work capacity according to their abilities.

d. Aesthetic rehabilitation

That is rehabilitation efforts that need to be done to restore a sense of beauty, although sometimes the function of their own body parts can no longer be restored.

According to Littlejhon (6) health communication is a deep and complex study because it involves various elements ranging from individual communicators, messages, personal relationships, relationships with health experts, organizations, media, culture and also society. Health communication contributes and becomes part of disease prevention efforts and health promotion. Health communication is also considered relevant to several contexts in the health sector, including 1) the relationship between medical experts and patients, 2) the reach of individuals in accessing and utilizing health information, 3) individual compliance with the treatment process that must be undergone and compliance in carrying out medical advice received, 4) forms of delivering health messages and health campaigns 5) dissemination of information about health risks to individuals and populations, 6) an overview of the health profile in the mass media and culture, 7) education for health service users on how to access public health facilities and health systems and 8) the development of program applications such as tele-health. (7)

2.2 TELEMEDICINE

Telemedicine or tele health is a new health concept which is a convergence between health and Information and Communication Technology (ICT) which offers health services for patients to overcome their health problems. Telemedicine is believed to be able to provide a variety of effective and efficient health solutions in all aspects of health services ranging from clinical care, improving quality, equality, and accessibility of care.

According to Soegijoko (2010) "As one of the fields in the scope of biomedical engineering, telemedicine can be interpreted as the use of information and communication technology (including electronics, tele-communication, computer informatics) to transfer (send and / or receive) medical information, in order to improve clinical services (diagnosis and therapy) and education. In addition, WHO defines "Telemedicine is one of the means that can be used to meet basic health needs. In addition, it is also to overcome geographical barriers, and increase access to health services, and is very useful especially for rural communities in developing countries who have less access to health services (WHO, 2010).

The earliest recorded use of telemedicine was on February 7, 1906 when Einthoven transmitted an electrocardiogram (ECG) tracing over a telephone line. Furthermore, in 1988, the United States proposed the concept of a telemedicine system, which includes remote consultation, information services and distance learning through computer communication and multimedia technology, especially for medical data (text data, images, audio-visual information). In Indonesia itself, telemedicine has been implemented since the 90s, as stated

in the Circular of the Minister of Health HK.02.01/MENKES/303/2020 that telemedicine services are health services carried out by Doctors using information and communication technology to diagnose, treat, prevent, and/or evaluate the health condition of patients in accordance with their competence and authority, as evidenced by a registration certificate (STR) while still paying attention to the quality of service and patient safety. The results of telemedicine services are recorded in digital or manual records used by Doctors as medical record documents and are the responsibility of the doctor, must be kept confidential, and used in accordance with the provisions of laws and regulations.

Telemedicine has the potential to address various health service issues and revolutionize public health in Indonesia. The main problem experienced in health services in Indonesia is the limited number of doctors and their uneven distribution. The number of doctors per capita has only reached 4 per 10,000 people, still far below the WHO recommendation of 10 per 10,000 people or one per 1,000 people in each country. The ratio of doctors in Indonesia is the second lowest in Southeast Asia after Cambodia. The three countries with the highest ratio of doctors in the ASEAN region are Singapore with a figure of 2.3 per 1,000 people, Brunei Darussalam 1.8 per 1,000 people, and Malaysia 1.5 per 1,000 people. (8)

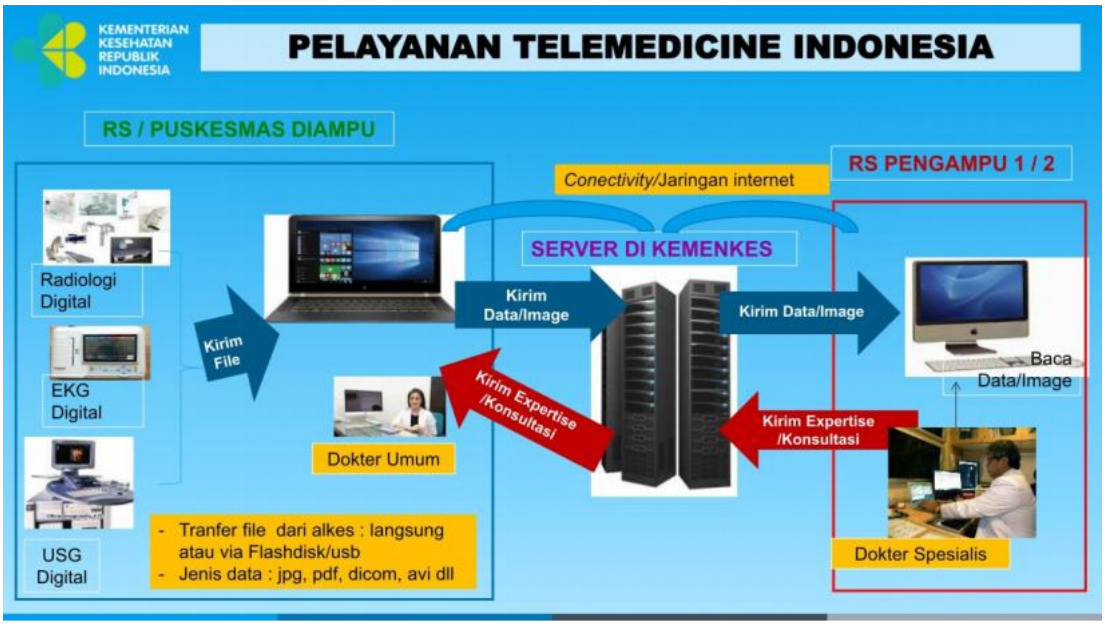

Figure 1. Source: www.sisrute.kemkes.go.id

2.3 SISRUTE (Integrated Referral System)

The development of various Information and Communication Technology (ICT)-based telemedicine system applications in Indonesia has made it easier to solve real problems faced in improving public health services. The concept of telemedicine in Indonesia is also

strengthened by SISRUTE. SISRUTE is a communication and information media that connects patient data from a lower level of service to a higher or equivalent level of service (horizontal or vertical) with the aim of facilitating and accelerating the patient referral process. Or in other words, the government presents SISRUTE as an effort to strengthen the implementation or application of the telemedicine concept in Indonesia, especially at the referral FASYANKES (Health Service Facilities) level.

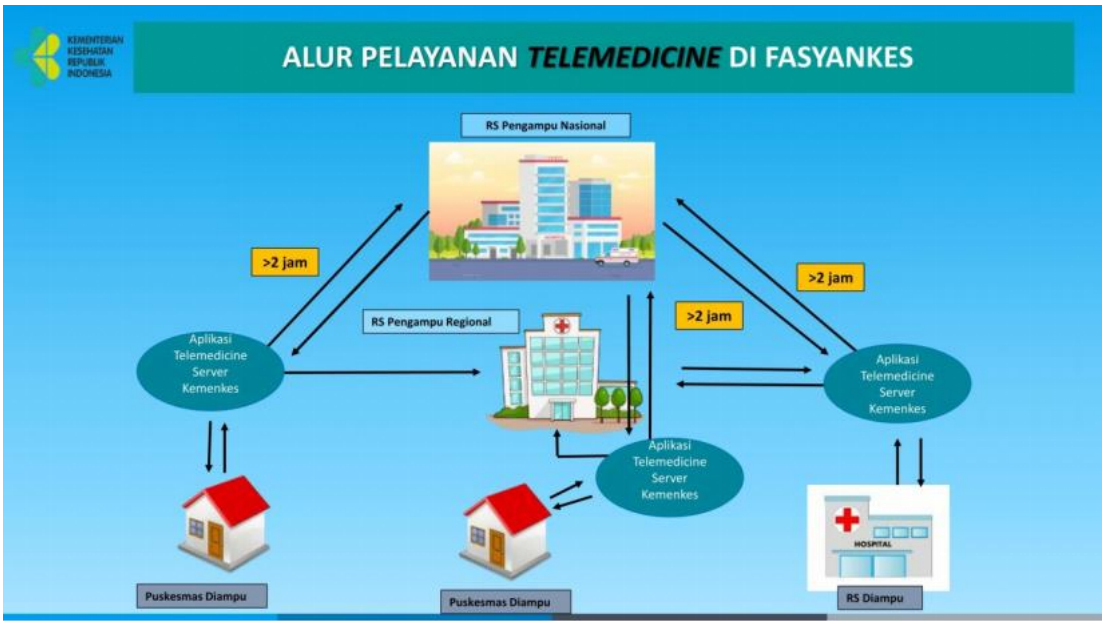

Figure 2 source www.sisrute.kemkes.go.id

The referral process in SISRUTE begins with communication between the FASIANKES before receiving the referral, then getting feedback from the referral receiving hospital regarding the willingness to accept the referral. This is also related to the completeness of the facilities and infrastructure and human resources that handle it, including treatment rooms, medical teams, etc.

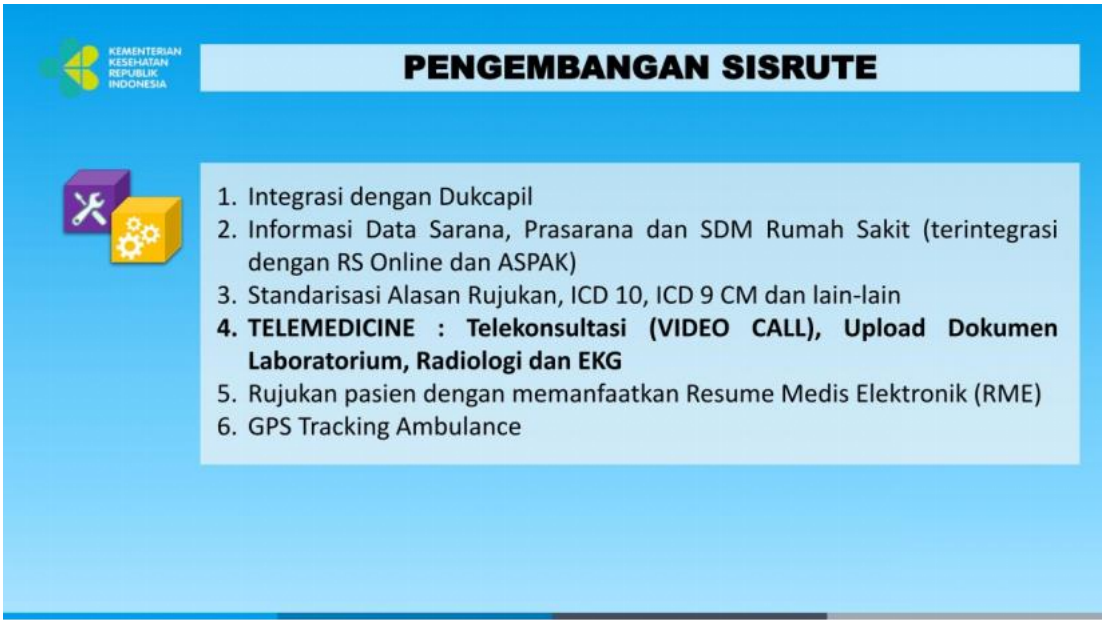

Figure 3 source www.sisrute.kemkes.go.id

2.4 THEORY OF DIFFUSION OF INNOVATION

Diffusion of Innovation consists of two words, namely diffusion and innovation. Rogers defines diffusion as the process by which an innovation is communicated through certain channels over time among the members of a social system. In addition, diffusion can also be considered as a type of social change, namely a process of change that occurs in the structure and function of a social system. Innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. The expression is perceived as new to an idea, practice or object by some people, not necessarily by others. If an idea is perceived as new to an individual then it is an innovation.

The theory of diffusion of innovation is essentially explaining how a new idea and idea is communicated to a social system. This means how a new idea or idea can be adopted by a social system, be it an individual, organization or society. Rogers further said that in the process of innovation diffusion there are 4 (four) main elements, namely:

1. Innovation (ideas, actions or goods) that are considered new by someone. In this case, the novelty of innovation is measured subjectively according to the views of the individual who receives it.
2. Communication channels, are tools for conveying innovation messages from the source to the recipient. If communication is intended to introduce an innovation to a large and widespread audience, then the more appropriate, fast and efficient communication channel is mass media. But if communication is intended to change the attitude or behavior of the

recipient personally, then the most appropriate communication channel is the interpersonal channel.

3. Time, namely the innovation decision process from when someone finds out to deciding to accept or reject it. Confirmation of the decision is closely related to time.
4. The social system is a collection of functionally different units and is bound in cooperation to solve problems in order to achieve common goals.

According to Rogers, the innovation decision-making process is a mental process in which an individual goes through the first knowledge of an innovation by forming an attitude towards the innovation, until deciding to reject or accept, implement new ideas and confirm the innovation decision. The characteristics of innovation are one of the things that determine the speed of an innovation process.

Rogers stated that there are 5 characteristics of innovation, namely: relative advantage is the level at which an innovation is felt to be better than the existing one, compatibility is the level at which an innovation is felt to be more consistent with previously existing values, past experiences, and the needs of adopters, if the innovation is felt to be incompatible with the values in a social system then the innovation will not be adopted, complexity is the level at which an innovation is felt to be difficult to understand and accept. Some members of the social system may adapt more quickly to an innovation and others may find it more difficult to understand so they will adopt it slowly. This means that an innovation that is easy to understand will be adopted more quickly than an innovation that requires understanding for adopters, triability is the level at which an innovation can be tested with limitations. An innovation can be quickly adopted because it can be tested because testing will reduce the uncertainty of its adopters, and observability is a level at which the results of an innovation can be seen by others, the easier it is for them to see an innovation, the easier it is for them to adopt it. (9) The innovation decision-making process can be seen in the following image (Rogers):

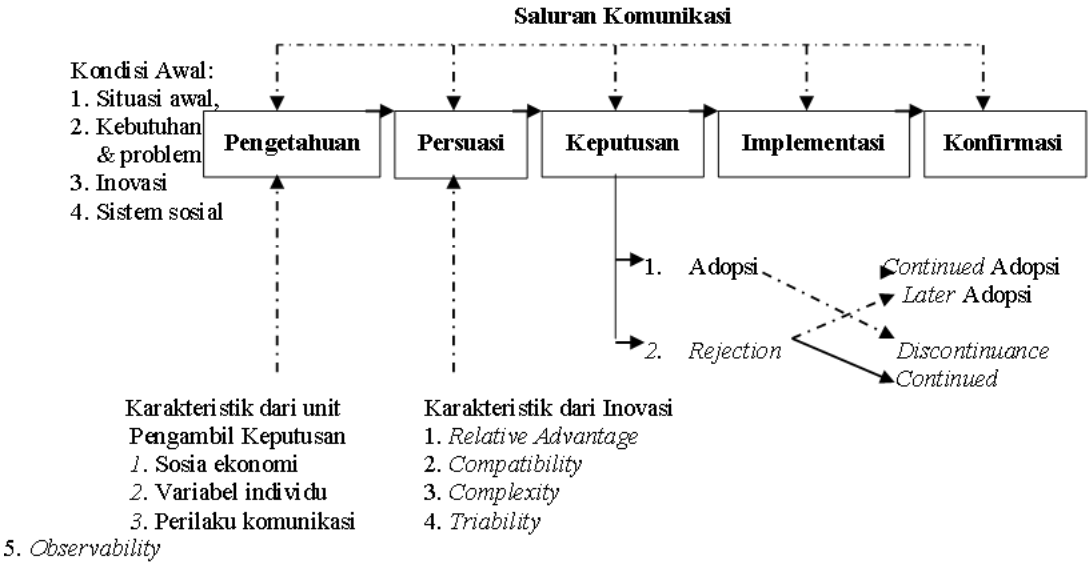

Figure 4. Innovation Decision Making Process Model (Rogers)

In the decision-making process for an innovation, there are 5 steps that influence, namely: 1). knowledge is when an individual is introduced to an innovation and gains knowledge about the innovation, 2) persuasion will shape an individual's likes or dislikes towards an innovation, 3) decision occurs when an individual's attitude leads to a decision to accept or reject an innovation, 4) implementation when an individual has begun to accept and use an innovation, 5) confirmation. However, in the decision-making process, an innovation cannot be separated from the role of opinion leaders who will certainly influence the decision-making process about an innovation carried out by their followers. Innovation also forms a typology of its adopters, namely: Innovators and early adopters This adopter category produces more opinions than other categories, and is always looking for information about innovation. early majority, which is more careful, then there is the late majority and laggard (slow), is a typology of adopters who are slow in adopting an innovation, They are more careful, traditional, and reluctant to try new things. When adopters with this typology adopt new innovations, the public has already adopted other innovations, and considers them outdated. The process of innovation diffusion in relation to the social system is influenced by social structure, social norms, the role of leaders and change agents, types of innovation decisions and consequences of innovation. Diffusion of innovation occurs in a social system. In a social system there is a social structure, individuals or groups of individuals, and certain norms. In relation to this, Rogers mentioned four factors that influence the innovation

decision process. The four factors are: social structure, system norms, the role of leaders and change agents. (9)

III. RESEARCH METHODS

In this study, the author uses a descriptive qualitative method. The author uses this qualitative method in research and analysis consistently from the beginning of the study to data analysis. According to Sugiono, this qualitative research is a study where the researcher is placed as a key instrument, data collection techniques are carried out in a combined manner and data analysis is inductive (10).

The data used in this study are secondary data obtained through literature studies in the form of: books to obtain theories relevant to this study and also scientific journals related to health communication and telemedicine. Other secondary data are obtained from the website of the Indonesian Ministry of Health www.kemkes.go.id.

IV. RESEARCH RESULTS

The COVID-19 pandemic that occurred at that time had 'forced' the health service system to reduce the provision of face-to-face health services. This, as explained above, was done to reduce transmission and break the chain of transmission of the Covid-19 virus. While face-to-face consultation between patients and doctors is indeed a form of health communication that provides a comfortable side for the patient to listen to the information provided by the doctor. However, due to the Covid-19 pandemic, the consultation must be carried out via telemedicine.

The discussion of telemedicine as a form of diffusion of health communication innovation is reviewed from the theory of innovation diffusion which views it as a new innovation that when applied to society can be accepted or rejected. The application of this telemedicine concept focuses on aspects, namely, the characteristics of innovation, communication channels, time and social systems.

Telemedicine as a new innovation in the health sector is a new idea that needs to be applied in society. Apart from the demands of the times and the typology of Indonesia's geographical conditions, telemedicine is considered crucial to be applied to society today because of its broad benefits for society, one of which is by maintaining public health in the midst of Indonesia's geographical conditions which are contoured and wide. An innovation has a character that can be analyzed based on: relative advantage, compatibility, complexity, trialbility, and observability. In the character of relative advantage, telemedicine provides relative advantages compared to direct face-to-face health consultations. Viewed from an

economic perspective as a new innovation, telemedicine offers economic advantages that are more effective and efficient, because by using telemedicine patients do not need to come to the hospital and queue for a long time to consult a doctor which of course will take time and energy. In addition, the application of telemedicine also provides solutions in the health sector for people who live far from the hospital, simply by visiting the nearest FASIANKES they can consult with a specialist doctor at the hospital without having to go to the hospital. therefore telemedicine provides relative economic advantages.

In terms of compatibility, the suitability of telemedicine with the conditions of the Covid-19 pandemic at that time can be said to be appropriate where the Indonesian Ministry of Health appealed to hospitals and other health care facilities to develop and use remote health services (telemedicine) in providing health services to the community. However, there may be difficulties faced in the process of implementing this telemedicine concept related to the values or social norms that apply in society as potential adopters. As is known, most Indonesian people are adopters with a late majority or even laggard typology where they are still conventional, especially people who live in rural areas far from city centers or government centers who are known to have low technology so they are slow to adapt to an innovation so they are reluctant to implement an innovation. Another difficulty that may also be faced is changing the habits of people who prefer to make consultation visits to doctors face-to-face, there is even an assumption in society that "just being held by the doctor is cured even though the medicine has not been taken". Nonverbal communication in the form of touch or haptics is indeed considered difficult to replace for the community as potential adopters, although in accordance with the Regulation of the Minister of Health that Telemedicine Services are the provision of remote health services by health professionals using information and communication technology, including the exchange of diagnostic information, treatment, prevention of disease and injury, research and evaluation, and continuing education of health service providers for the benefit of improving individual and community health (Regulation of the Minister of Health Number 20 of 2019). This means that the community must be able to adapt and 'touch' with information and communication technology and not directly consult with their doctors and this also means that it requires a process of adapting innovation in it. In terms of complexity, telemedicine as a new innovation also has high complexity considering the need for understanding in its application because the application of telemedicine is inseparable from several challenges that can affect the success of its application, such as the confidentiality of patient data that must be stored

digitally and If observed further, the success of this telemedicine also depends on the quality of images and videos. In other words, the effective implementation of telemedicine requires the availability of good infrastructure for patients and doctors. Usually some diagnoses may be difficult to do virtually. Thus, it is also important that the virtual software used for telemedicine must be user-friendly and also provide access to online assistance for patients with low technological capabilities. This is where the function of an agent of change is needed to be able to provide an understanding to the public about the technology in this telemedicine application.

In the character of trialability (can be tested), telemedicine as a new innovation is a form of information and communication technology that certainly will not be free from trial and error in the discovery process before it can finally be applied as it is today. In technology, the trialability process is a must to avoid malfunctions or technical errors that can occur considering that telemedicine is related to a person's health diagnosis, so it is hoped that in its application errors in any form can be minimized.

When referring to the Circular of the Minister of Health relating to the concept of telemedicine, there are several clinical authorities of doctors, namely; conducting anamnesis, certain physical examinations conducted through audiovisual, providing recommendations/advice needed based on the results of supporting examinations, and/or certain physical examination results, establishing a diagnosis, managing and treating patients, writing prescriptions for drugs and/or medical devices given to patients according to the diagnosis, and issuing a letter of referral for further examination or action to the laboratory and/or health care facilities according to the results of patient management. All of these doctor's authorities must of course be supported by optimal technology, so that trialbility or being able to be tested is a must for this telemedicine concept to produce technology as an optimal supporter and reduce uncertainty from the community as adopters.

In the observability character, telemedicine as a new innovation must of course be observable. This is because the concept of telemedicine as a health technology is expected to be applied in all regions in Indonesia. So the concept of telemedicine must be observable or can be seen by the community as its adopter so that the community can easily see it and understand it and ultimately be able to apply it, because the more observable it is, the easier it will be to understand. Assistance from opinion leaders or community leaders who have influence in a social system or in society can be used. Because their position is more accepted by the community, they can provide an understanding that is easier for the community to

understand about the concept of telemedicine because another typology of Indonesian society is feudalism where the position of opinion leaders or influential community leaders can still be relied on for the adaptation process of a new innovation technology. In terms of communication channels, the application of telemedicine uses a combination of two communication channels, namely mass communication where the government as a regulator socializes the application of this telemedicine concept to the community with support from the mass media. In addition, interpersonal communication channels are also used because interpersonal communication channels are more effective communication channels for disseminating information because their personal and persuasive nature is expected to be easier to understand a new innovation.

In terms of time, the concept of telemedicine requires a long period of time to be adopted or accepted by the community. This is related to the typology of Indonesian society which is late majority where it takes time to absorb a new innovation, then another thing is the geographical conditions of Indonesia which are very wide and no less important is the readiness of infrastructure and medical personnel to support this telemedicine concept. This is because medical personnel may need knowledge and increased skills to be able to use technology and health equipment virtually. Therefore, in addition to the community, medical personnel also need to be given training in using this telemedicine concept.

The next aspect is the social system, in this aspect the application of telemedicine in the social system in Indonesian society can be done with the help of opinion leaders or agents of change who have influence in society and are able to provide understanding easily to the community.

V. CONCLUSION

Based on the explanation above, the following conclusions can be drawn:

1. The application of telemedicine as a new innovation in the field of health communication has the characteristics of a new innovation, including relative advantages, where telemedicine offers relative advantages in terms of economy because telemedicine allows people as patients to continue to consult with doctors at the Hospital without having to go to the Hospital. Then seen from the compatibility side, telemedicine is in accordance with existing values and norms. The Indonesian government applies the concept of telemedicine as an innovation for face-to-face consultations at the Hospital, besides that telemedicine is also a solution to Indonesia's geographical conditions which are sometimes difficult for people to reach the Hospital for treatment. The difficulty that may be faced is

how to change people who are more confident in seeing a doctor directly. On the complexity side, telemedicine as an innovation also has high complexity considering the need for understanding in its application because the application of telemedicine is inseparable from several challenges that can affect the success of its application, and if you look at the typology of Indonesian society, the figure of an agent of change can help the process of understanding the community to accept telemedicine as an innovation in the health sector. On the triability side, the concept of telemedicine as a new innovation with technology can certainly be tested so that it can reduce uncertainty from the community as potential adopters. and on the observability side, the concept of telemedicine must be easily observed because the easier it is to see, the easier it is to understand and apply.

2. In communication channels, telemedicine combines two communication channels, namely interpersonal communication and mass communication in socializing telemedicine to the community.
3. In terms of scope, the application of this telemedicine concept does require a long time for the adopting community to understand the concept of telemedicine, considering the late majority typology in some Indonesian communities.
4. In the social system, the application of the telemedicine concept with the typology of Indonesian society, the presence of opinion leaders and agents of change is very important to provide understanding to the community as adopters of new innovations.
5. Telemedicine as an innovation in the health sector, its acceptance by the community as adopters still requires time to transition, therefore in the process of its implementation there are still several obstacles that must continue to be improved and improved until this telemedicine concept can be well accepted by the Indonesian community.

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