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Overview of Telemedicine Services for Orthopedic & Traumatology Cases during the Second Wave of Pandemic Covid-19 in Indonesia.

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ABSTRACT : *All countries in the world are currently facing one of the biggest non-military threats, Pandemic Covid-19. It not only has an impact on health and the economy but also disrupts the stability of a country. From July to August there was a second wave of Covid-19 in Indonesia, this condition forced policymakers in the health sector to be able to adapt in carrying out health services, one of which was through telemedicine. Purpose: This study was to find the characteristics of telemedicine services in orthopedic & traumatology cases during the second wave of the Covid-19 pandemic in Indonesia. Method: This study was descriptive quantitative research with data obtained from electronic medical records application Halodoc. Inclusion criteria were orthopedic patients who consulted on the halodoc application. Exclusion criteria included: not orthopedic cases and incomplete data due to interrupting consultations. Results: This study showed that 304 female respondents were 69.4 percent with an average age of 34.1 years and an average consultation time of 32 minutes 18 seconds, mostly during the day (29.28%) and their favorite day was Monday. The most common type of disease was chronic disease (63,49%) like arthritis (39,4%) and emergency cases in the orthopedic field reached 14.8 percent. Conclusion. Telemedicine services have helped to reduce the risk of spreading Covid-19 infection due to face-to-face consultation health services.*

KEYWORDS - *Telemedicine, Orthopaedic & Traumatology, Covid-19*

I. INTRODUCTION

The preamble to the 1945 Constitution mandates that one of the tasks of the Indonesian state government is to protect the entire nation and the entire homeland of Indonesia. To realize this, a national defense system is needed (1). This national defense system is held to uphold the sovereignty of the state, territorial integrity, and the safety of the entire nation from all threats. Based on its can be in the form of military and non-military threats (2,3). The biggest non-military threat facing the world today is the Covid-19 pandemic (4,5). It has become a global problem in various aspects of the life of the world's people. Currently, Indonesia is ranked in the top 20 in the world with more than 4.24 million people who have been confirmed positive for Covid-19 with a death rate of 3.8 percent (6–9). This non-natural disaster does not only have an impact on health and the economy, it can even disrupt the stability of a country (10).

From July to August 2021 there was a second wave of Covid-19 cases in Indonesia and infected around 2.5 million people and 94,000 of them were reported to have died and the highest weekly positivity rate was at 30.72. percent, which is six times the standard set by the World Health Organization (11). The six highest provinces in Indonesia that have been affected by Covid-19 are; Jakarta, West Java, Central Java, East Java, East Borneo, and Yogyakarta are densely populated areas with the highest incidence of Covid-19. DKI Jakarta

is ranked first by contributing about 862,000 people exposed to Covid-19 out of a total population of 10.55 million people in DKI Jakarta (6.12). This condition forces policymakers in the health sector, both at the central and regional levels to be able to adapt in carrying out health services, one of these policies is through telemedicine services (13).

One of the adjustments to health services, namely telemedicine services, is regulated in a Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07/MENKES/4829/2021 concerning Guidelines for Health Services Through Telemedicine during the Corona Virus Disease 2019 (Covid-19) Pandemic. This guideline was created to reduce the transmission of Covid-19 infection because the people most at risk of contracting Covid-19 are health workers, including doctors, nurses, midwives, and other health workers who provide medical care and other health care services in health care facilities. Because people infected with Covid-19 have various symptoms, both asymptomatic, mild symptoms, moderate symptoms, severe symptoms, and critical, all of which require a NAAT laboratory examination including RT-PCR or a negative rapid test to be declared not infected with Covid-19, so direct or face-to-face consultations between doctors as health care providers and patients as recipients of health services are vulnerable to the spread of Covid-19 infection, both spread from patients to doctors and spread from doctors who have been previously infected as close contact with patients with probable and suspected cases. confirmed cases to other patients. This will have a fatal impact especially if the person suffers from comorbid diseases such as diabetes and cardiovascular disorders (7,13,14).

Telemedicine comes from the Latin Greek, "tele" which means "distance" and "medical" which means "medical in nature" so that it can simply be interpreted as a form of medical service that uses an electronic communication system to provide medical services or support from a distance apart. (15–17). Telemedicine is not a new form in the field of health services, where telemedicine has been started since the mid-19th century to facilitate doctors in making diagnoses and providing treatment instructions which initially started with the use of radio and telephone, but with the development of technology and changes in analog communication tools to become Digital has a great impact on telemedicine services where the use of television and satellite has helped overcome the limited resources of expert doctors, completeness of facilities, medicines and the availability of health facilities in remote areas, as well as saving health costs so that telemedicine has finally developed not only teleconsultation and tele-education, but telemonitoring. , telepharmacy, teleradiology, and telesurgery (15,18–23).

The Indonesian government through the ministry of health has collaborated with 11 telemedicine platforms that are included in virtual health consulting services to provide health services during the Covid-19 pandemic, these telemedicine platforms such as KlikDokter, Alodokter, Getwell, Good Doctor, Halodoc, KlinikGo, Link Sehat, MilvikDokter, ProSehat, SehatQ and YesDok (24–27). According to the type, telemedicine is implemented in two ways, namely real-time (synchronous) and store-and-forward (asynchronous), where the basic difference between the two is the presence or absence of the presence of health workers and patients. In store-and-forward telemedicine, the presence of both parties is not required at the same time, while in real-time telemedicine, the presence of health workers and patients is required at the same time through liaison media (17,18,28).

Orthopaedics & traumatology surgery is a branch of medicine that deals with acute, chronic, and trauma injuries and other disorders of the musculoskeletal system (29,30). Orthopedic surgeons & traumatology specialists deal with most of the minor musculoskeletal ailments such as arthritis, trauma, and congenital defects using surgical and non-surgical treatment. Currently, there are 1,150 orthopedic specialists in Indonesia, this number is considered insufficient to serve 250 million Indonesians, and ideally, there should be 3,500 specialists (31,32). Almost half of this number is over 50 years old and some have comorbid diseases such as diabetes mellitus and cardiovascular disease which will be fatal if infected with Covid-19 (14) so it feels appropriate if telemedicine services are implemented in addition to reaching remote areas as well as reducing risk. the spread of Covid-19 infection and prevent mortality in vulnerable groups (33,34).

Based on this background, the authors intend to examine how the description of telemedicine services in orthopedic & traumatology cases during the second wave of the Covid-19 pandemic in Indonesia.

II. METHOD

This study uses a quantitative research type using a descriptive approach to quantitative data. Creswell (35) mentions that quantitative research is one type of research that decides what to do, arranges questions, limits questions, collects data from participants, analyzes numbers using statistics, conducts impartial investigations, in different ways. objective (36).

The sampling technique used was purposive random sampling (36) against one of the accounts of an orthopedic & traumatology specialist who provides telemedicine services with Halodoc application. The inclusion criteria were orthopedic patients who consulted on the halodoc application. Exclusion criteria included: not orthopedic cases and incomplete data due to interrupting consultations. This research was conducted for one month, from 1 to 31 July 2021.

The data collection procedure in this study has obtained permission from the Faculty of National Security, University of Defense of the Republic of Indonesia, and the owner of the Halodoc application. The data was collected in the form of primary data and secondary data obtained from the electronic medical record application Halodoc.

The data are presented in quantitative statistics which are used to analyze the data by describing the data that has been collected without any conclusions that apply to the public or generalizations (36,37).

III. RESULT

The Halodoc telemedicine application is a real-time (synchronous) type of telemedicine service that requires the presence of health workers and patients at the same time through a liaison medium. The connecting media is in the form of communication technology that allows the transfer of data in the form of video, sound, and images in an interactive and real-time manner by integrating it into video-conferencing support technology (17,28).

When the second wave of Covid-19 occurred in Indonesia from July 1 to July 31, 2021, 305 respondents were found, one respondent was excluded because they did not respond, so data were obtained for 304 respondents. When viewed from the data on the use of telemedicine services before the occurrence of the second wave of Covid-19, there is an increase when compared to the previous months, as shown in Figure 1.

Most of the telemedicine consultations were dominated by women (69.4%) compared to men (30.6%), with an average age of around 34.1 years. The average time needed to conduct teleconsultation is 32 minutes 18 seconds, afternoon (29.28%) and Monday (17.76%) are the favorite times to carry out the telemedicine, of which 92.11 percent are doing a consultation for the first time. the illness he suffered from an orthopedic & traumatology specialist, for a description of the perpetrators of telemedicine service users, it is presented in Table 1

Characteristics of patients consulted with an average age of 41.5 years where female patients were more than male (64.14%: 35.86%). When viewed by age category according to the Ministry of Health, the most patients were from the early adult category, around 26.97 percent. Most of the account owners consulted their health (59.21%) and were followed by consultations about their parents' illness by 25 percent. Judging from the types of emergency cases in the orthopedic field, 14.80 percent were emergency cases, most of which were fractures to the bone, while chronic diseases were more consulted than acute diseases (63.49%), arthritis, and rheumatic disorders were the most common types of disease. (39.14%) followed by injury and trauma (31.91%).

IV. DISCUSSION

Data from BPS on the Proportion of Individuals Using the Internet by Gender in 2017-2019 shows that internet users are still dominated by men, although female internet users increase significantly every year (38), from this study it was found that the number of telemedicine in the female sex was higher. This is because there are differences in health behavior in women and men.

Health behavior is an individual, group, and organizational action including social change, policy development, implementation, improving coping skills, and improving quality of life. Health behavior is

influenced by several factors, according to Janz & Beker proposing a Health belief model in which health behavior is influenced by beliefs about being infected with a disease (perceived susceptibility), belief in the seriousness of the disease (perceived severity), belief in benefits (perceived benefits), belief in negative impacts (perceived barriers), triggers for action (cues to action) and self-confidence (self-efficacy), where these six elements are influenced by factors of age, gender, ethnicity, personality, socioeconomic and level of knowledge (39).

There may be several reasons, namely: 1) When compared to men, women have a higher level of concern for their health. This can be seen from his lifestyle which tends not to smoke, not to drink alcohol, to eat healthier foods, and to have his health checked more often on his conscience; It is not uncommon that women find it easier to establish relationships than men. Relationships that make women have the ability to socialize well, even in a new environment though. While most men prefer to keep stress and worry to themselves, women generally prefer to vent and share stories with people they trust. Besides being fun, sharing stories with closest relatives can relieve stress, so that the quality of life becomes better.

Awareness of mental health in Indonesia is not entirely good, especially for women. Women have a higher potential for mental problems than men. Research from Homewood Health United Kingdom shows that 47 percent of women are at higher risk of mental health problems compared to men. Women and girls often face greater barriers than men and boys to accessing health information and services. These barriers include mobility restrictions; lack of access to decision-making power; lower literacy rates; discriminatory attitudes of the public and health service providers; and a lack of training and awareness among health care providers and health systems about the specific health needs and challenges of women and girls (40).

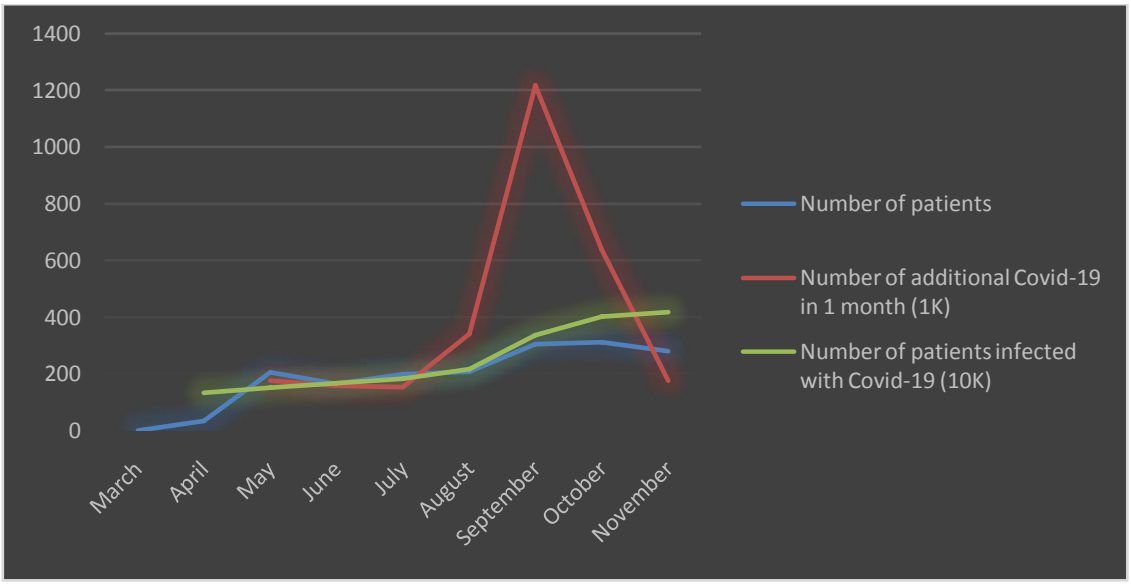
Casl and Cobb define three categories of health behavior: 1) Preventive health behavior, activities carried out by people who believe themselves to be healthy with the aim of preventing or detecting disease in asymptomatic conditions; 2) Illness behavior is an activity carried out by someone who feels sick, to determine his health condition and find the appropriate medicine and 3) Sick role behavior where activities are carried out by someone who thinks he is sick, to recover, including receiving treatment from health services. (39).

Apley & Solomon classified orthopedic and traumatological diseases into seven types, namely: 1) Congenital disorders and their development; 2) infection and inflammation; 3) Arthritis and rheumatoid arthritis; 4) Metabolic and endocrine disorders; 5) Tumors and similar lesions; 6) Sensory disturbances and muscle weakness and 7) Trauma (29,30). When viewed from the type of disease, arthritis, and rheumatic disorders are the most common types of disease, followed by cases of injury and trauma, this is similar to the research conducted by Haukipuro et al (41). Likewise, the number of emergency cases in the orthopedic field shows that fractures are the most common cases compared to other orthopedic emergency cases (42).

Table 1. Characteristics of Telemedicine Services for Orthopedic & Traumatology Cases from Electronic Medical Records .

Characteristics	Mark (n = 304)	Percentage (%)
Account Owner Age	34.1 years	
Account Owner Gender		
Man	93	30.59
Woman	211	69.01
Consultation Time	32.3 minutes	
Telemedicine Consultation		
First time	280	92.11
Repeat	24	7.89
Consultation Time		
Morning (04.00-10.59)	66	21.71
Afternoon (11.00-14.59)	89	29.28
Afternoon (14.00-18.59)	71	23.36
Evening (19.00-03.59)	78	25.66
Consultation Day		
Monday	54	17.76
Tuesday	35	11.51
Wednesday	34	11.18
Thursday	52	17.11
Friday	50	16.45
Saturday	52	17.11
Sunday	31	10,20
Relationship with patient		
Self	180	59.21
Couple	18	5.92
Parent	76	25.00
Child	12	3.95
Family	15	4.93
Others	3	0.99

Characteristics	Mark (n = 304)	Percentage (%)
Patient Age	41.5 years	
Patient Gender		
Man	109	35.86
Woman	195	64.14
Patient Age Category		
toddler	5	16.45
children	6	19.74
Early Teen	1	0.33
Late Teen	49	16.12
Early Adult	82	29.97
Late Adult	37	12.17
Early Elderly	48	15.79
Late Elderly	40	13.16
seniors	36	11.84
Emergency Case		
Yes	45	14.80
Not	259	85,20
Disease Category		
Congenital	17	5.59
Infection & Inflammation	4	1.32
Arthritis & Rheumatic Disorders	119	39.14
Metabolic & Endocrine Disorders	9	2.96
Tumor	4	1.32
Neurological Disorders & Muscle Weakness	54	17.76
Injuries & Trauma	97	31.91



Picture 1. Telemedicine Services in Orthopedic & Traumatology Cases during second wave Covid-19 Pandemic

V. CONCLUSION

During the second wave of the Covid-19 Pandemic in Indonesia, there was an increase in people using telemedicine to consultations their illnesses. Most of the cases are non-emergency cases and arthritis cases in the elderly. This research still has many limitations, therefore a large number is needed to make this research much better.

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