Telemedicine: Patient Satisfaction, Barriers, And Outcomes.

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Abstract

Telemedicine is the use of electronic information to communications technologies to provide and support healthcare when distance separates the participants. In This study, we assessed the satisfaction of the patient's using telemedicine, the barriers faced by them during the consultation, and its outcomes. A prospective study was carried out via Survey through various online platforms, and the responses were recorded for 6 Months. In this study, consenting participants of either sex were enrolled and the data required was obtained. A total of 200 responses were recorded, among which 187 responses are according to our inclusion criteria. The results obtained for patients' satisfaction while eConsultation and the responses were mostly neutral. Overall, the major Barrier is not understanding doctors well while consulting through telemedicine. We analysed that the Telemedicine's Major outcomes are that the system was easy to use and navigate with Quick access during pandemics. Telemedicine is most beneficial during the pandemic. A Majority Of responses reported suggest that telehealth interventions produce positive outcomes, and patient satisfaction in an account of technology and experience for mental health during the pandemic, yet has barriers such as internet connectivity, cost, and audio-visual disturbances.

Keywords: Telemedicine, Telehealth, Pandemic, eConsultation.

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1. Introduction

Telemedicine is defined by the World Health Organization as "the delivery of healthcare services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information for the diagnosis, treatment, and prevention of disease and injuries, research and evaluation, and continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities." [1]

The use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health education, public health, and health administration is defined as telehealth. other applications in education, training, and management in the health sector.

Tele-pharmacy is defined as a method of delivering pharmaceutical products and care to various patients via telecommunication. [2]

Teleconsultation is a synchronous or asynchronous consultation that uses information and communication technology to eliminate geographical and functional distance. [2]

One of the most significant challenges confronting humanity in the twenty-first century is giving high healthcare available to all. In its health-for-all strategy for the twenty-first century, the World Health Organization (WHO) has a vision. This vision will be difficult to realise due to the burdens imposed on a growing global population by old and new diseases, rising health-care expectations, and socioeconomic conditions within countries. Part of the difficulty in achieving equitable access to health care has been the requirement that both the provider and the recipient be present at the same time and place. Recent developments in information and communication technology. In its health-for-all strategy, the WHO recommends that the WHO and its member states integrate the appropriate use of health telematics in policy and strategy for achieving health for all in the 21st century, thus fulfilling the vision of a world. [3]

Telemedicine is rapidly expanding to serve millions of the public and private sector. Telemedicine includes phone- and video-based consults between doctors and patients, remote monitoring of patient status via phone lines, image-based "store and forward" analysis and diagnosis, team-based collaborations between practitioners conducting surgeries and other complex treatments, communication via secure email and instant-messaging, messaging, mobile phone health applications, and more. These applications have expended dramatically in recent years. [4]

Telemedicine can be used to provide a wide range of health-care services. A primary care doctor may use telemedicine to treat the following common conditions: Allergies, arthritis, respiratory tract infection, and sports injuries Rashes, Asthma, Bronchitis, and Flu, Diarrhoea, Infections, Sprains and Strains, Bladder Infections, UTIs. [6]

Patient Satisfaction

Patient satisfaction can be considered different from general consumer satisfaction, patient satisfaction with telemedicine is also distinct. While there are a variety of studies on the effects of technology on health care, a patient's perspectives can vary based on the type of system and services use. Unlike other forms of information systems that might be used in healthcare, telemedicine services are highly reliant on communications technology. For example, medical services that use videoconferencing cannot function without the video services. In many cases this reliance on technology and its implications are not entirely understood.

Satisfaction is measured as a means of evaluating the success of telemedicine services.

A patient's satisfaction is not a clear indicator on whether they would prefer telemedicine versus alternatives. The patients can be satisfied with a telemedicine service but can reject the idea of using telemedicine to replace face to face consultations.

Studies have provided evidence for the usefulness of telemedicine satisfaction instruments in evaluations. There remains neither a widespread adoption of these instruments nor extensive comparisons of their differences. Even among these instruments there may be differences in the determined dimensions, their meaning and potential value.

The perception of appointment scheduling, travel time, and patient involvement are important parts of user satisfaction with telemedicine. Satisfaction can also be influenced by perceptions of privacy and comfort, not only for themselves, but how they perceive their provider's comfort as well.

Other research shows accessibility, reduced travel and waiting times, cost savings, medical outcomes, personalized care and alleviation of cultural barriers as playing a role. While these dimensions may be a part of satisfaction The most common dimensions that are evaluated in research are professional-patient interaction, the patient's feeling about the consultation, and technical aspects of the consultation.

Even when dimensions are considered there remains a lack of consistency in terms of what dimensions of satisfaction are measured. There remains a need for standardizing methodologies due to difficulties in comparing results and the results should indicate. These difficulties are in part due to the challenges in interpreting what is meant by satisfaction.

A major issue with measuring telemedicine satisfaction is determining what is being measured by satisfaction instruments, Because of the wide variety of different telemedicine systems and services and lack of universal measures it is important that researchers provide more guidance on how to evaluate satisfaction and its different dimensions. [5]

Barriers of Telemedicine

The following may be considered as a barrier of telemedicine:

- Lack of direct interaction between the physician and the patient.
- High cost of communication and data management equipment and its maintenance, which may not be easy for older people living alone.
- Necessity to train personnel technically to handle communication and data management equipment.
- Possibility of error when health care is delivered in the absence of a trained health professional.
- Possibility of misuse of patient data through electronic transmission.
- In certain instances, time taken to provide health care through telemedicine may actually be longer than traditional consultations because of increased time taken to assess and treat patients through virtual interactions.
- Poor quality of records or images made available to the physician at the receiving end and relevant clinical information might affect the quality of health care delivered.
- Accessing of proper legal regulations for some of the telemedicine practices.
- Difficulty in claiming insurance or reimbursements in certain fields. [7]

Telemedicine Outcomes:

More face-to-face time:
Because telemedicine happens outside of the busy office environment and it is very focused on the present concern, there is often more face to face time spent discussing the patient's

complaint. It is more effective than the telephone for communicating complex information and conveying the empathy and understanding that gains trust.

More Focused One-On-One Conversations:

A video chat is more effective means of communication than the telephone. The patient and the provider can focus on the present concern.

Fewer Obstacles to Treatment:

Transportation can be expensive and time-consuming. It may be difficult to get time off from work. Many people have child or elder care responsibilities that are not easy to offload. Another barrier to treatment is the lack of specialty providers, especially in rural or underserved areas. Telemedicine eliminates all of these barriers by making it easy for patients to get care from wherever they happen to be.

A Broader Approach to Treatment:

The option of video visits makes it easier for the provider and patient to make a treatment plan that do not always met in an office setting. Appointments can be made to discuss medication management or review test results. Lifestyle coaching can be part of the plan for patients working to manage their weight or stop smoking.

Providers can take an approach to care without a negative impact on office administration.

Reduced Risk of Exposure:

A person with a contagious illness goes to the doctor, there's a risk that the illness will spread to others in the office. During a video visit, a contagious person can be assessed without exposing other patients or office staff to the ailment. Patients who don't have a communicable condition also benefit by being seen remotely because they don't come in contact with contagious people who must be seen in the office.

Follow-up Visits:

Following up after a visit for an acute condition is an important part of recovery in many situations. They give the provider the chance to verify that the diagnosis was correct and that the treatment plan is working. They also give patients the opportunity to voice any concerns or report new or worsening symptoms. Unfortunately, all of the barriers to treatment that we mentioned earlier often keep people from following through with follow up. That's why telemedicine has become a popular alternative to office visits for follow-up care. [8]

Materials and Methods

A Prospective study was conducted for a period of six months via online platforms, community based in population who has undergone teleconsultation recently. The Survey Forms were prepared and circulated using various social networking platforms. Patients of both genders and more than 18years of age and knowledge of telemedicine in community was eligible for survey.

We created the questionnaire in Google forms and sent a bulk invitation using social networks such Gmail, WhatsApp etc. to all participants with a direct link to the online questionnaire. We optimised the survey for mobile browsers and sent two reminders, both as text messages and emails, with a direct link to the questionnaire. These reminders were sent after the first week and on the last day of the survey. We also assured confidentiality and included a statement of kindness to those who responded in the reminder messages. Data was gathered on telemedicine on a daily basis during the study period, as well as the collected data were recorded in data

collection forms designed for the recording of only those factors/parameters vital to establish the objectives of the study.

We surveyed people who had scheduled telemedicine appointments with their doctors in both urban and rural areas. The resulting pool included 200 patients. All respondents gave informed consent, and data was stored was secured.

The questions were divided into 3 sets.
1.   Related To Patient Satisfaction
2.   Barriers Faced During TM
3.   Outcomes Of TM.

The complete designed form was then circulated through various platforms to the participants. The results were obtained after filtering for the required data, figures and percentages.

Ethical Consideration

The study got approved by Institutional Ethics Committee of Shadan Institute of Medical Sciences, Teaching Hospital & Research Centre, Hyderabad.

Statistical Analysis

The data were analysed using descriptive statistics. Microsoft Word and Microsoft Excel were used to create the graphs and tables. To arrive at to our study's findings, we employed basic percentage calculations

Results

A total of 200 responses were received during the data collection. The results obtained are presented using simple graphical representation.
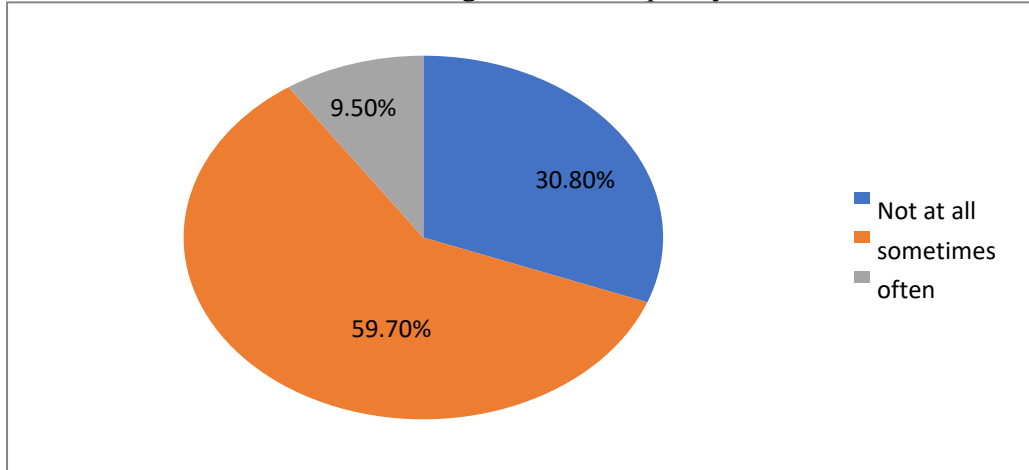1.   The major barriers faced during teleconsultation
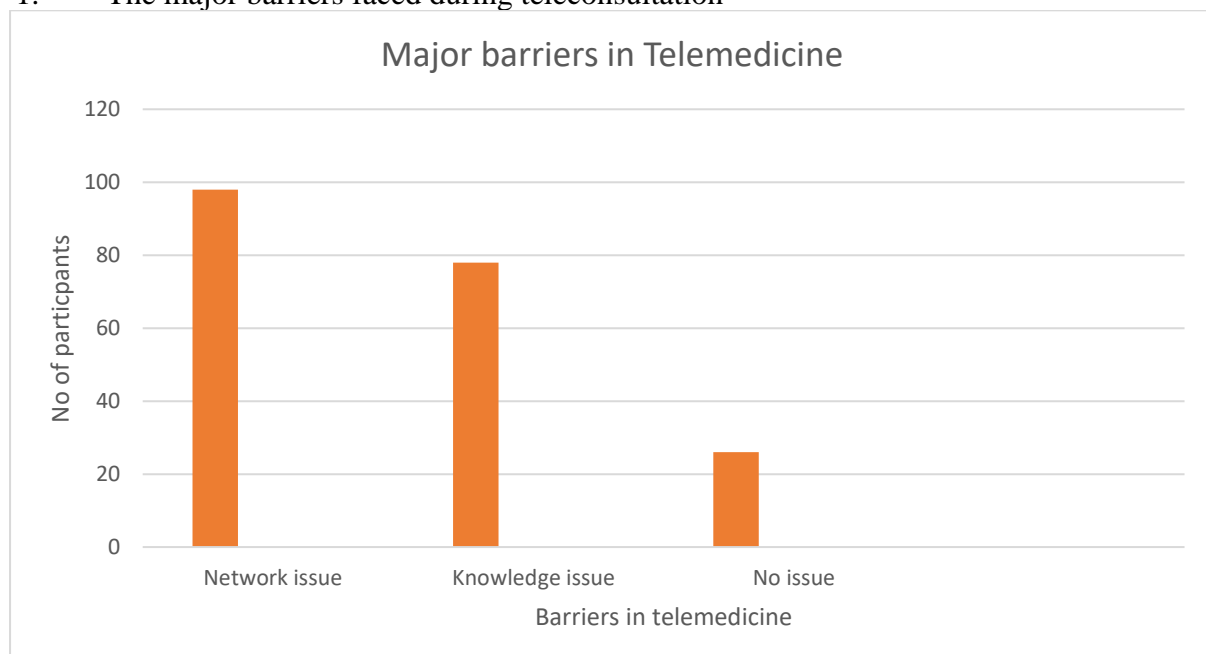
Figure 1. Major Barriers in Telemedicine

The major barriers of telemedicine were found to be a network issue which accounts for 48.5% followed by Knowledge issue i.e., 38.6% and 12.9% faced no issues while using telemedicine.

2. The technical difficulties that might affect the quality of telemedicine service.

Figure 2. Technical Difficulties Affecting Quality of Telemedicine Services

The percentage of technical difficulties that affected the quality of telemedicine service was reported to be Majority 59.7% faced for sometimes. Minority 9.5% faced often 30. 8% is not at all.

3. The barriers faced during teleconsultation.
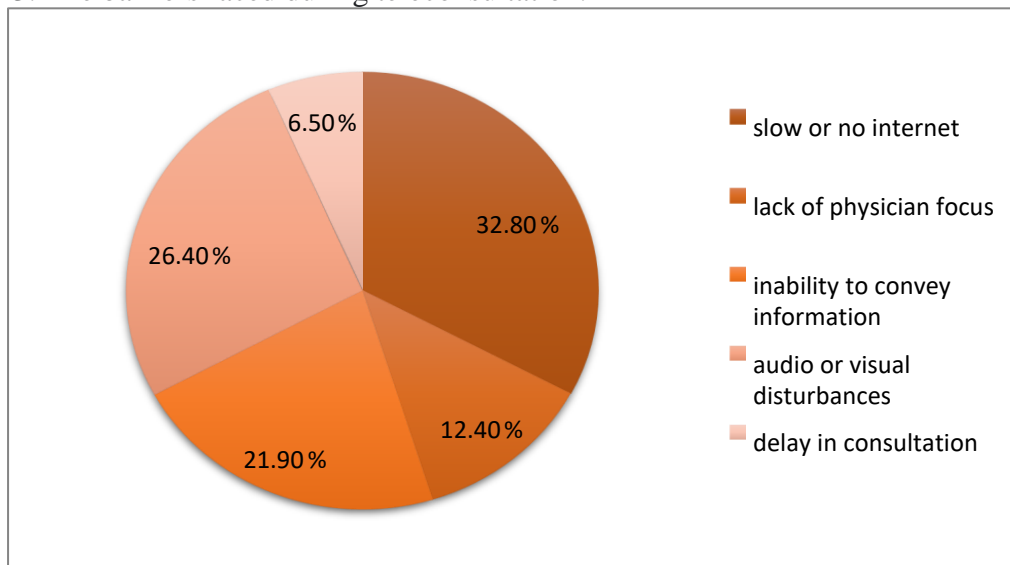
Figure 3. Barriers Faced during Teleconsultation

The barriers faced during teleconsultation was reported to be
32.8% with slow or no internet and 26.4% with audio or visual disturbances followed by
    21.9% with inability to convey information.12.4% with lack of physician focus.

4. Barriers in well developed countries?
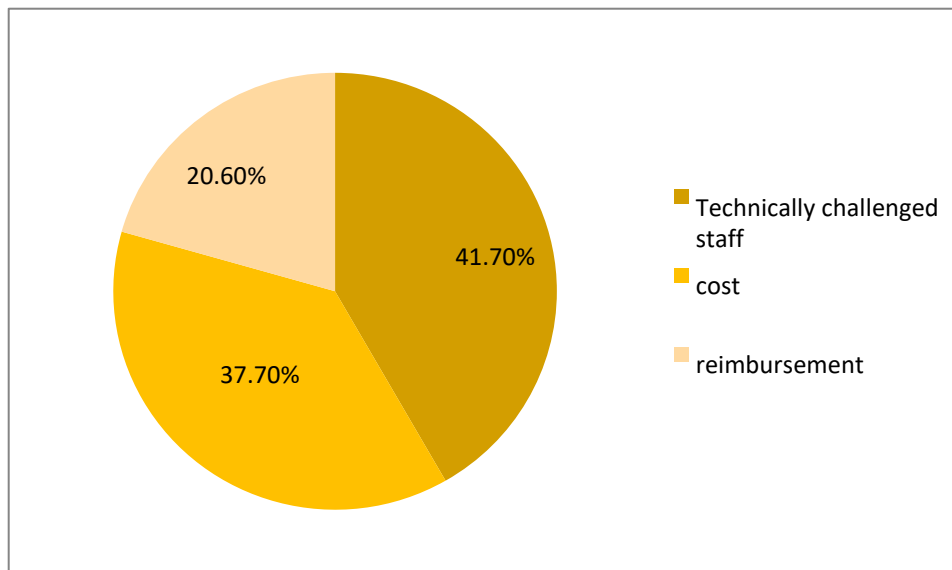
Figure 4. Barriers in Developed Countries

Majority 41.7% with technically challenged staff. 37.7% faced cost barrier. Minority of 20.6% faced reimbursement. Technically challenged staff with 41.7% was major barrier in well developed countries.

Participants were analysed whether they could understand the doctor well. Majority of participants understood the doctor well.
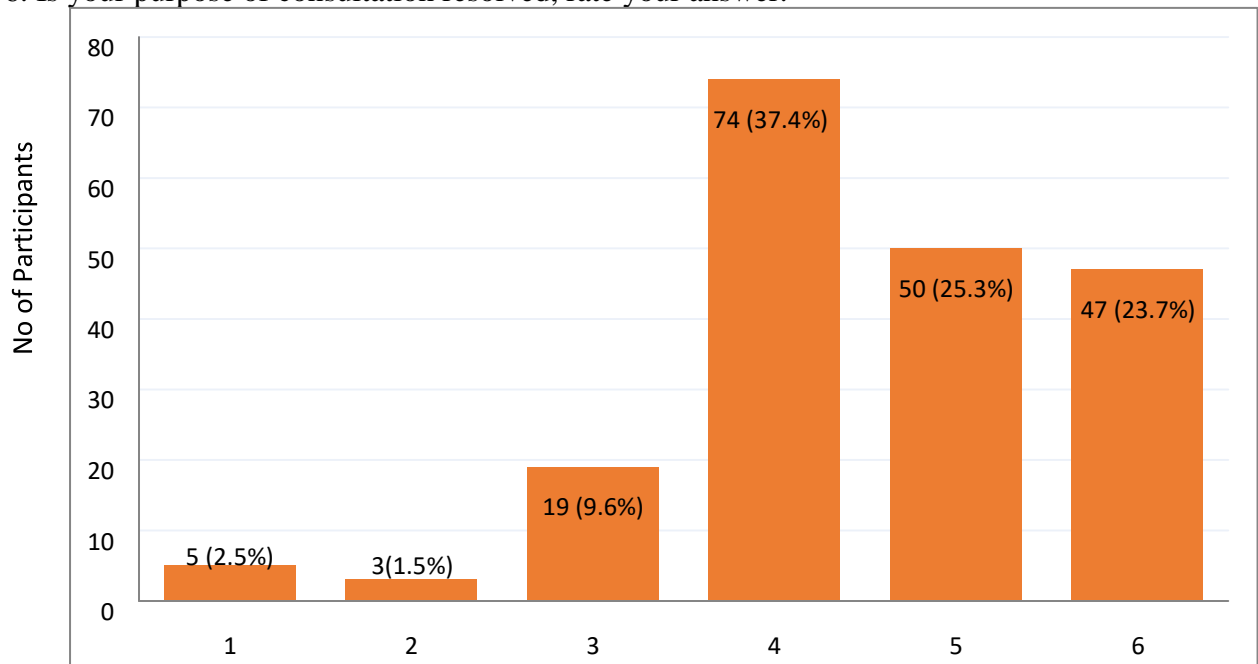
5.Could you understand doctor well?
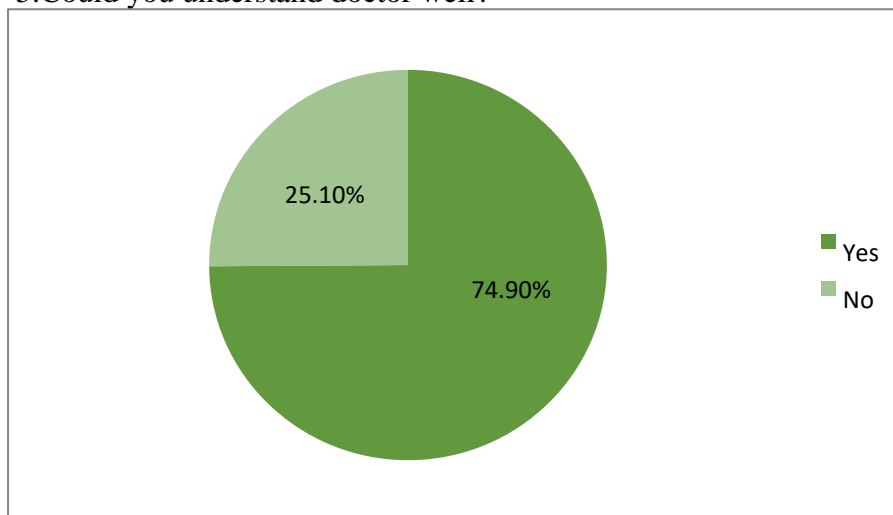
Figure 5. Doctor understanding during Teleconsultation

Majority 74.9% can understand the doctor well and Minority 25.1% were not able to understand doctor.

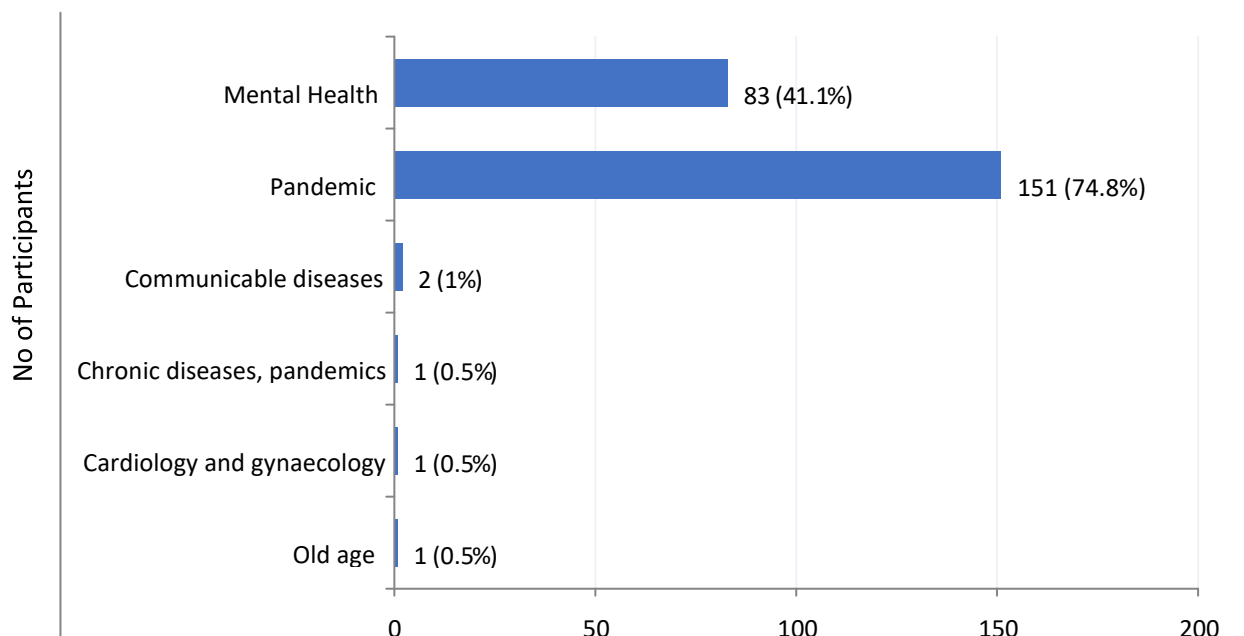6. Is your purpose of consultation resolved, rate your answer.

Figure 6. Rating the Purpose of eConsultation

Was your purpose of consultation resolved.

Majority of consultation with 37.4% is resolved.

Minority with 1.5% is less resolved.

7. In which field of medicine would you think is telemedicine most beneficial?

Figure 7. Benefits of Telemedicine in Different Medical Fields

Ratings of Telemedicine is most beneficial in which field of medicine. Majority of them with 74.8% suggested that it is best for pandemic. Minority with 0.5% found telemedicine beneficial for old age. 41.1% is beneficial for mental health.
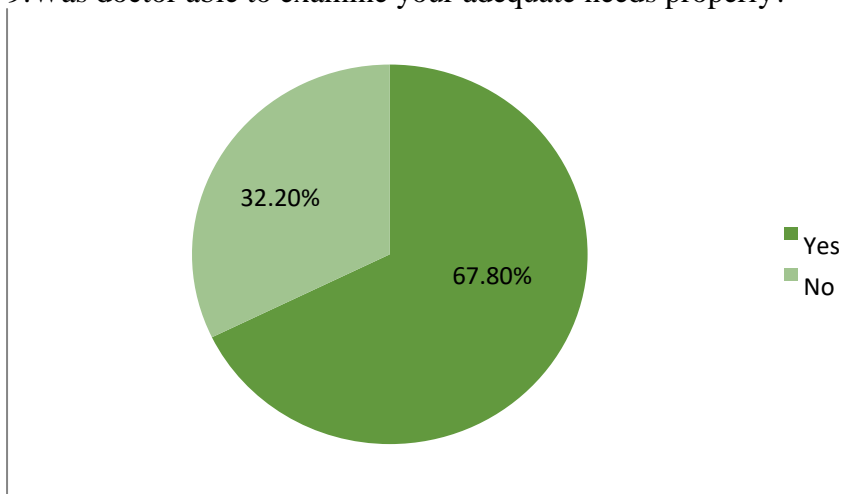
8.Would you continue to use the telemedicine service?
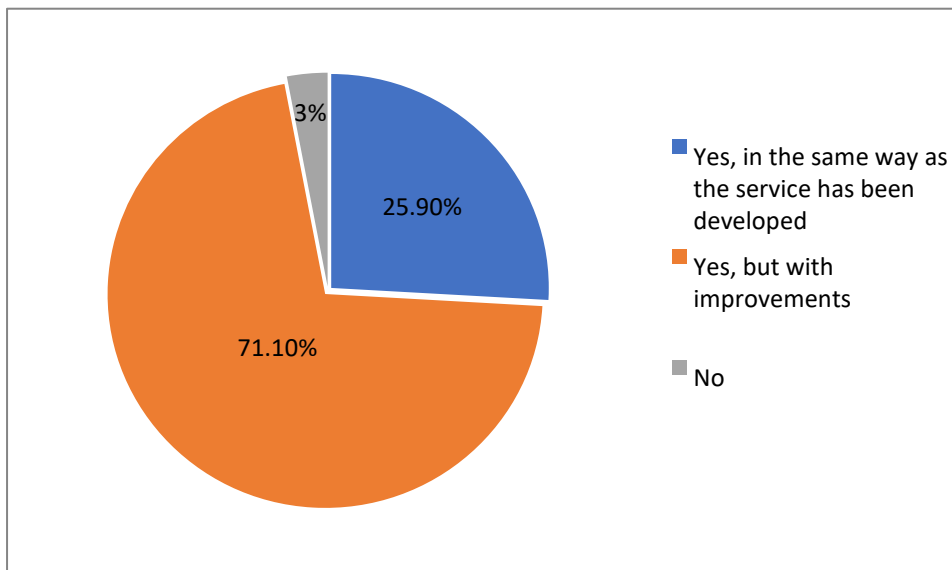
Figure 8. Use of Telemedicine in the Future

   25.9% of them want to use the telemedicine in the same way as the service has been developed.   Majority 71.10% suggest that telemedicine can be used with improvements.
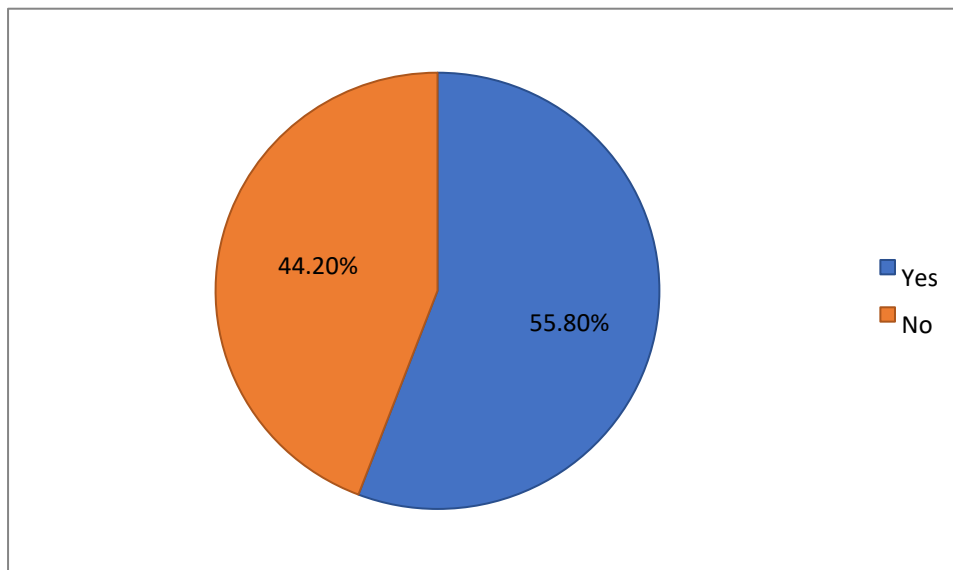
9.Was doctor able to examine your adequate needs properly?

Figure 9. Patient Satisfaction on Doctor eConsultation

   Your needs were adequately examined by doctor. Majority was found to be 67.8%. Minority with 32.2% was not satisfied with the doctor.
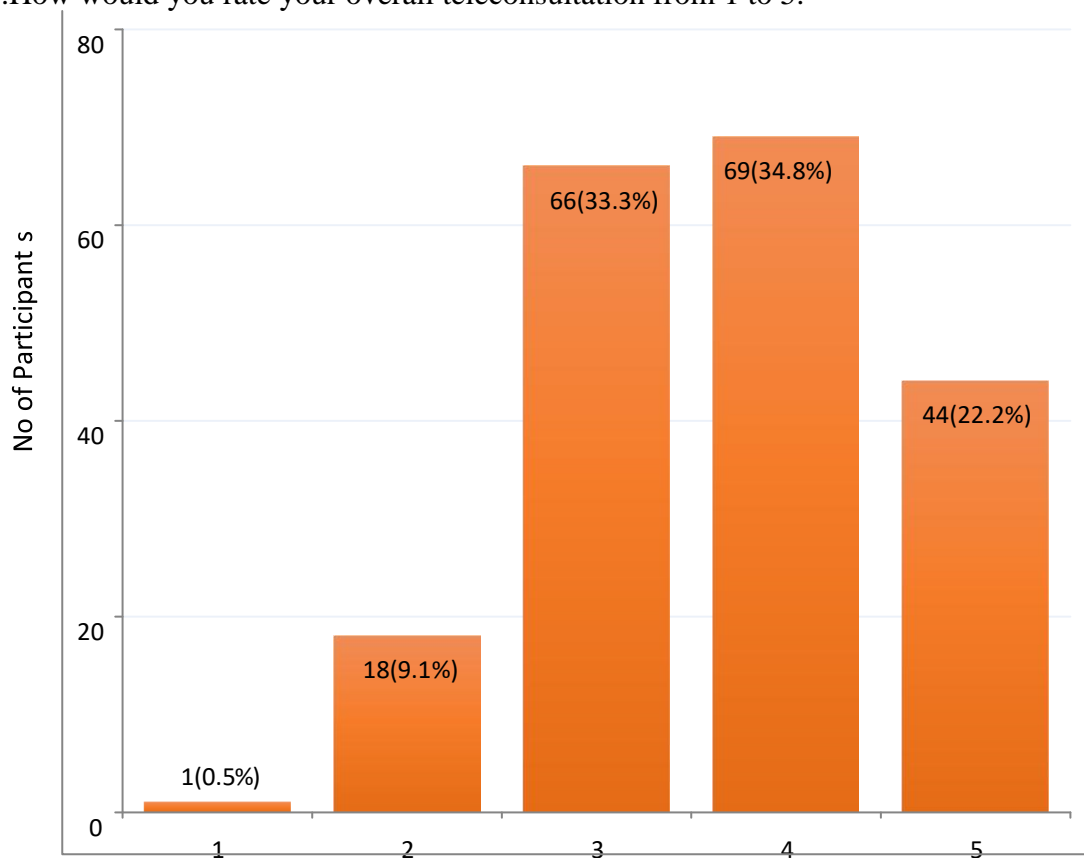
10. Your care plan to telemedicine was better than regular visits.

Figure 10. eConsultation over Physical Visits to the Physician

Regular visits have better care plan for telemedicine. Majority was having better care plan with 55.8%. Minority accounting for 44.2% was less satisfied with the care plan.
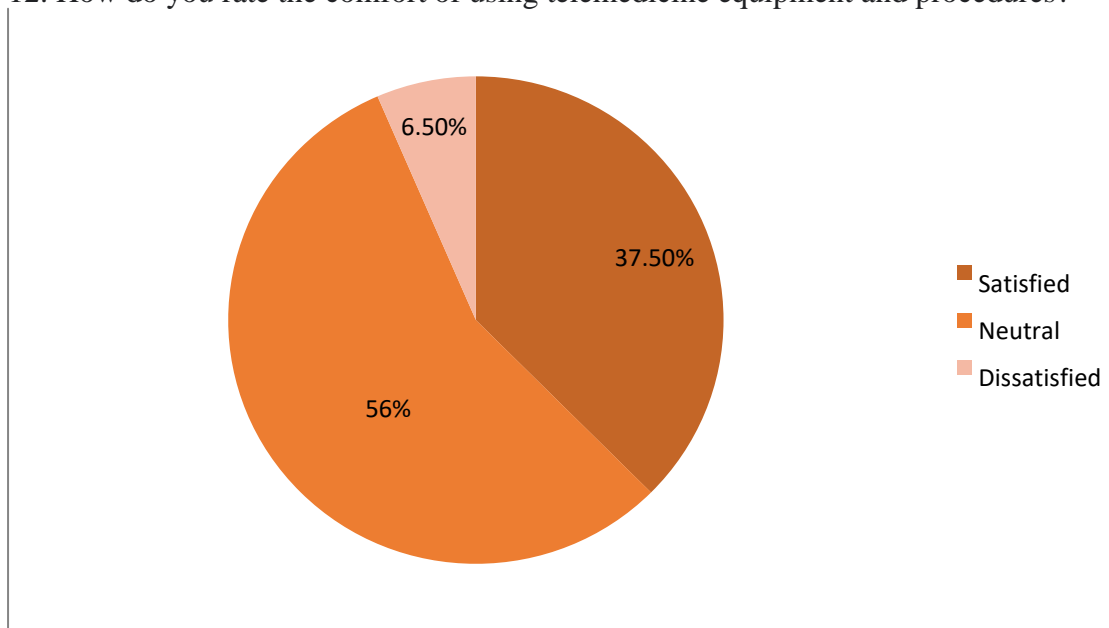
11.How would you rate your overall teleconsultation from 1 to 5.

Figure 11. Ratings of Teleconsultation

Rate your overall teleconsultation from 1 to 5. Majority was found to be 34.8% rated 4 for teleconsultation Least of 0.5% rated 1.
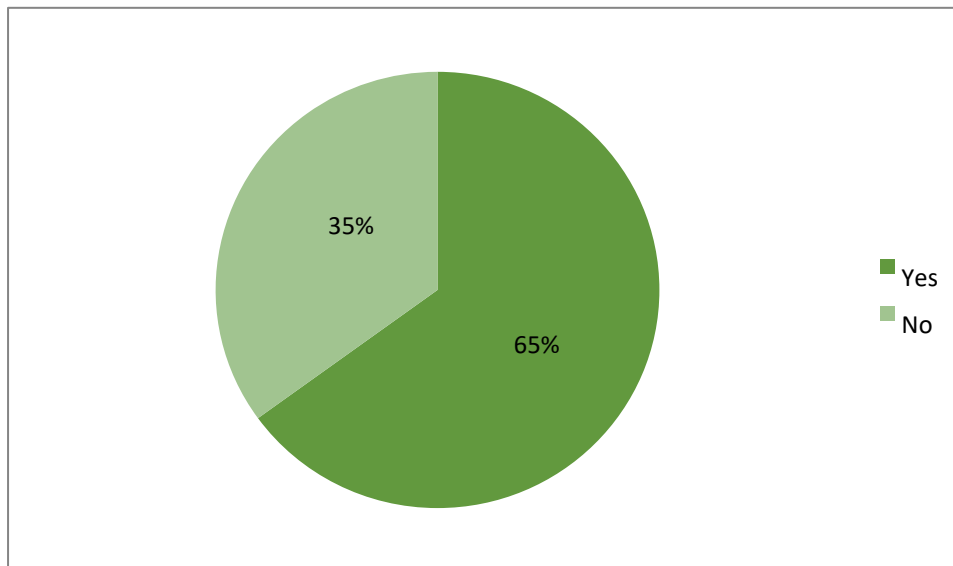
12. How do you rate the comfort of using telemedicine equipment and procedures?

Figure 12. Satisfaction on the Use of eConsultation

Comfort of using telemedicine equipment and procedures were rated as follows: 56% are neutral, 37.5% are satisfied and 6.5% are dissatisfied.
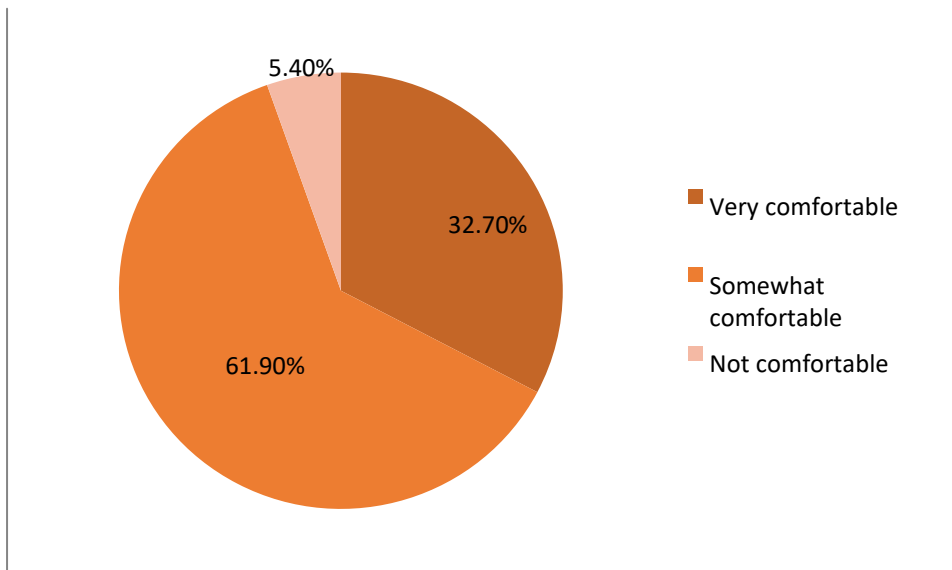
13. Does telemedicine provide desirable results in patient diagnosis?

Figure 13. Patient Satisfaction on the Results of Telemedicine

How were the patient diagnosis results provided by telemedicine? Majority was satisfied with 65%. Minority accounting for 35% was less satisfied.
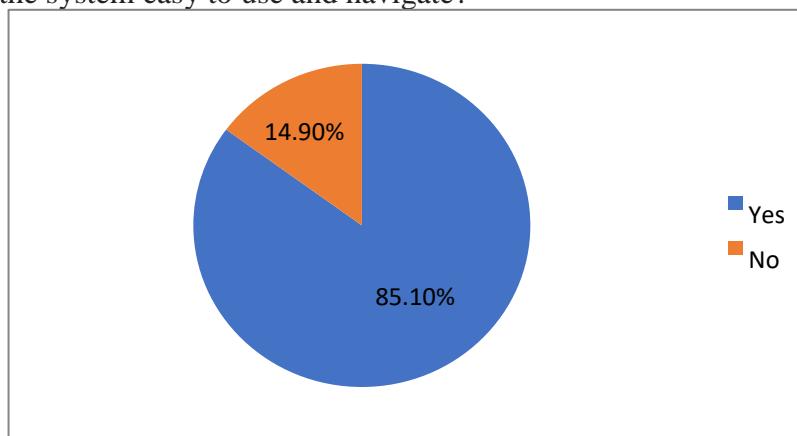
14. Were you comfortable during the telemedicine consultation?

Figure 14. Comfort During Teleconsultation

Majority with 61.9% was comfortable while using telemedicine consultation.
32.7% was not comfortable.
Minority of participants accounting for 5.40% were not comfortable.
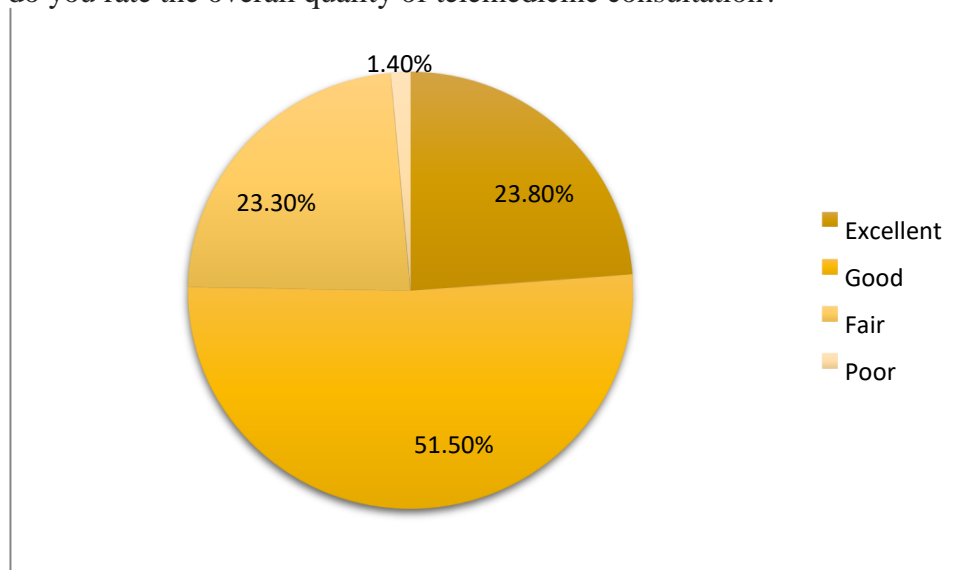
15. Is the system easy to use and navigate?

Figure 15. Ease in the use and Navigation of Telemedicine

Majority of them with 85.1% found to be easy to use and navigate. Minority with 14.9% was not satisfied.

16.How do you rate the overall quality of telemedicine consultation?

Figure 16. Overall Quality of Telemedicine Consultation

Rate the overall quality of telemedicine consultation. Majority of them with 51.5% was satisfied with the telemedicine consultation. Minority of them with 23.8% with poor response.

17. For your most recent telehealth visit, what type of care did you receive?
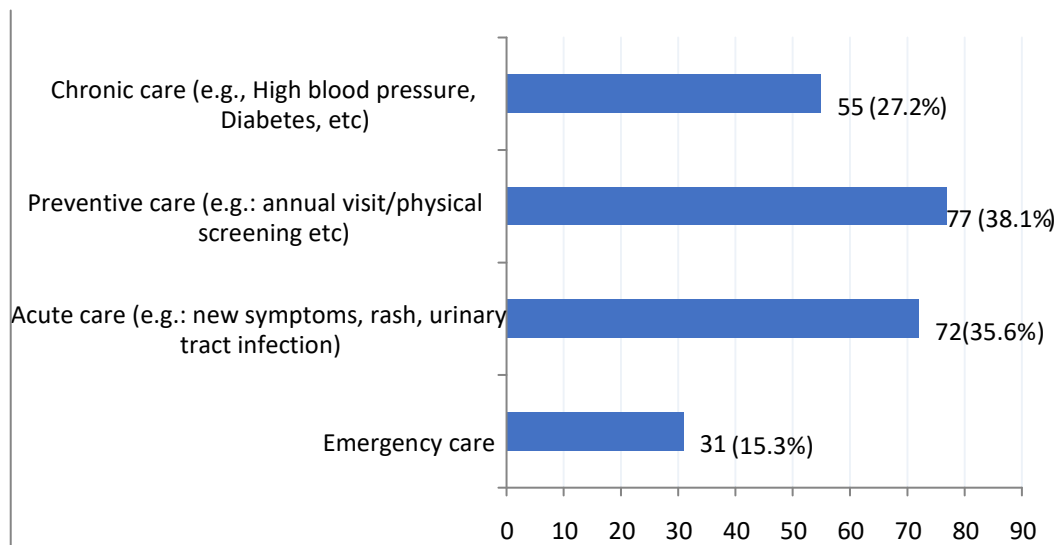
Figure 17. Purpose of eConsultation

For most recent teleconsultation, majority of care received was preventive care with 38.1% was receive during the most recent telehealth visit.

Secondly Acute care accounting for 35.6%, Minority i.e., 15% received emergency care.

Discussion

Among 187 responses we received 79.1%from urban areas and 20.9% from rural one. From the study, an idea about patients' satisfaction, barriers and outcomes about telemedicine is obtained.

The barriers faced by patients while using telehealth was due to network issues out of (100%) 48.5 % patients faced network problems and the second most common barrier was knowledge related that is 38.6% and 12.9% didn't faced any sort of. barrier In our study majority of patients who consulted though telemedicine received preventive care almost 38.1% And secondly acute care about 35.6% Least care they received during emergencies The barrier in well developed countries faced while consulting doctor through telemedicine was mostly technically challenged staff that in percentage is about 41.7% and cost is also the commonly faced barrier in well developed countries ..Overall the barrier is not about understanding doctor as we surveyed we found that 74.9% patients are able to understand doctor well while consulting through telemedicine. Through our survey we found outcomes of telemedicine use in that out of 187 responses 74 of the patients' purpose of consultation was resolved. Under outcomes we surveyed about the most benefiting field of medicine through telemedicine and we got to know that most of the patients consulted through telemedicine during the time of pandemic as we all were quarantined so most of the responses, we got to know that the tele health was beneficial in Pandemic times and secondary is in mental health conditions.

83 patients out of 187 responses consulted for mental illness that in percentage is about (41.1%) and 74.8% patients we're benefited at the times of pandemic In outcomes of telemedicine we even questioned them about continuing use of telehealth so most of them said they would use telemedicine with more improvements almost of them responded this (71%) of them want improvements in telemedicine and 25.6% people wanted to use telemedicine in same manner with no changes And very few of them don't want to consult through telemedicine that is about 5% .Through telemedicine patients were able to understand doctor well with no issues but few percent of them were not able to follow up doctor well in percentage we see that 67.8% patients were able to understand doctor well and 32% were not able to understand doctor properly. When asked about overall ratings about telemedicine out of 5 most of them gave 4 points only 1 percent of patients were not happy with the use of telemedicine and few of them want the telemedicine to get improved for better further use. Through our survey we got to know that 56% patients are ok with tele consultation and 37.5% were satisfied with the use of telemedicine and 6 %were dissatisfied when asked about desirable diagnosis through tele-consultation we got to know that 65% of patients got desirable results 35% were not happy.

With the help of our online survey, we even got to know About comfort of patients while consultation through telehealth and the responses were mostly neutral (somewhat comfortable) 32.7% were completely comfortable and 6% of them were not at all comfortable with telemedicine so most common answer was yes, they are comfortable with telemedicine consultations. System is also easy to navigate for every one of them (85.1%) responses showed positive answer while 14% were not able to navigate system because of knowledge issues.

When asked about quality of telemedicine we got majority of responses as good (51%) Lastly, we asked them about your last telehealth visit, would you have chosen telehealth over an in-person appointment if both required a co-pay?

200 responded

Yes-35%

No-32%

Either one would 22% have been fine Don't know-10% chosen Telehealth if my illness is mild, otherwise I... Need a lot of improvement in telehealth -35%

So, from the survey patient's barrier, outcomes and their satisfaction while consulting through telemedicine can be understood.

Conclusion

The barriers faced by patients while using telehealth was mostly due to network issues out (100%) 48.5 % patients faced network problems and the second most common barrier was knowledge related that is 38.6% and 12.9% didn't face any barrier.

Despite the widespread use of telemedicine in all major areas of health care, evidence concerning the benefits of its use exists in only a small number of them. Further study suggests that it is most effective in pandemic and mental health, others where its use is most effective includes consultation for communicable diseases.

A majority of responses reported suggest that telehealth interventions produce positive outcomes when used for remote patient monitoring, broadly defined, for several chronic conditions and for psychotherapy as part of behavioural health. The most consistent benefit has been reported when telehealth is used for communication and counselling or remote monitoring in chronic conditions such as cardiovascular and respiratory disease, with improvements in outcomes such as mortality, quality of life, and reductions in hospital admissions.

Moreover, the easy to navigate system and remote consultation suggests positive outcomes.

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