Original Article

PATIENT ACCEPTABILITY AND SATISFACTION FOR TELEMEDICINE IN COVID-19

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ABSTRACT

Background: The emergence of COVID-19 back in 2020 quickly caused a global crisis unparalleled in modern history which made humanity spring into action with the will to fight back, with social distancing being one of the biggest weapons. This measure, then, breathed a new life back into telemedicine, with the idea in mind that a computer virus is the only infection that telemedicine can transmit. While there has been much research on telemedicine in pre-COVID times, we saw only a limited amount of research set during the pandemic when, particularly, its use skyrocketed, which puts much emphasis on the need for our research.

Material and Methods: It was a descriptive cross-sectional study with a total sample size was 224, non-probability convenient sampling technique was used. Data was collected over six months, from the Telemedicine clinic of the University of Peshawar using questionnaires named TUQ (Telehealth Usability Questionnaire) and TSQ (Telehealth Satisfaction Questionnaire), analyzed using SPSS version 22 for Windows and presented in the form of a histogram, pie charts, bar charts and frequency tables.

Results: The data revealed that a large number of patients, 157 out of 224, which is 70% were well satisfied upon using the services. The results of acceptability were no different, as 90.2% of participants, 202 out of 224, agreed to the system being usable and acceptable, partly or strongly.

Conclusion: This was a very strong result that suggested telemedicine potentially being the future. But our research targeted mostly literate people while the literacy rate in Pakistan is 62.3%. Furthermore, telemedicine is found to be great for stable OPD patients only but not for critical patients like those in the ICU.

Key Words: Telemedicine, Intensive Care Unit, Patient Satisfaction

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INTRODUCTION

Late in December 2019, in Wuhan (China), an outbreak of Pneumonia appeared with no apparent causes.[1] In about two months it became a pandemic and infected 106 people in 19 other countries and killed 213 people in China.[1] Different laboratories determined that a new coronavirus (SARS-CoV-2), the World Health Organization, named this disease coronavirus disease 2019 (COVID-19) and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[2] This pandemic SARS infected about 8,000 people worldwide with nearly 800 deaths at the start and a death rate of around 10%. Whereas MERS-COV infected over 857 people causing 334 deaths, with a mortality

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rate of 35%**.** There are some overlapping and discrete aspects of the pathology and pathogenesis of those SARS-CoV-2.[3] A minimal percentage of respiratory infections is caused by Human SARS-CoV-2 annually. This new virus was named COVID-19 which started in the seafood market in China.[4] Coronaviruses (SARS-CoV-2) single-stranded RNA viruses. According to a genomic study, bats were found to be the primary source of this virus transmission which produced severe acute respiratory symptoms in humans. However, the mode of its transmission to humans is not clear.[5,6]

Telemedicine is the use the modern technology like computers, video, phone, and messaging) by a medical professional to diagnose and treat patients in a remote location[7,8]

The concept of it is to provide health services and information through electronic information and communication technology is known as telehealth.[9] It allows communication between patient and doctor through this electronic communication system and provides care, counsel, recommendations, prompts, education, intervention, monitoring and remote admissions. The term "telemedicine" is occasionally used interchangeably or, in a more constrained meaning, to refer to clinical services that are provided remotely, such as diagnosis and monitoring. Telehealth can help close the gap when it is difficult to access healthcare in far-flung areas due to transportation issues, sudden changes due to outbreaks, or pandemics, funding issues, insufficient staff, or other factors in addition to offering distance learning, meetings, supervision, and presentations between practitioners, online information and health data management, and healthcare system integration. Since computer viruses are the only infection that may be acquired when using TM, nearly all large corporations and health plans provide some kind of coverage for TM services to promote the TM methodology.[10]

To help people deal with their routine activities and stay connected, Telecommunication infrastructure and its allied services are playing an important role. There has been an enormous increase in the use of information technology to meet the demands of online jobs, entertainment and other aspects.[11] The recent Pandemic has proved that the telecommunication industry is the leading facilitator of yield in accession to connectivity.

This technology facilitates those who face hurdles in approaching acceptable care due to financial or geographic compulsions. Telehealth can be instrumental in enhancing the efficacy and convenience of healthcare.[12]

Telemedicine is a great alternative to mental health treatment. Many patients can now receive treatment from healthcare professionals without the need for in-person presence. Additionally, patients can enrol in step-by-step training services catered to their particular ailment, complete a series of self-tests, and email their symptoms to doctors[13]

Patients might not be aware of their access to TM and may not be aware of how to use it. To remove these hurdles, Health plans, employers, hospital systems, and media outlets should work together. Now more than ever before due to the COVID-19 pandemic, in-office consultations present a threat to the lives of healthcare workers.[14]

Telemedicine is undeniably a potentially useful tool in managing pandemics and its development is the need of the hour. Telemedicine can not only be used to provide rare health services to remote areas of the country but also decrease person-to-person contact and save the lives of patients and healthcare workers. This study aims to focus on acceptability and satisfaction in teleconsultation.

The aim of this study is to evaluate the acceptability of telemedicine as an alternative to outpatient services in COVID-19 patients and find the satisfaction of symptomatic COVID-19 patients in teleconsultation.

MATERIAL AND METHODS

It was a descriptive cross-sectional study and was conducted at the University of Peshawar including those consulting telemedicine

settings. Data was collected over 06 months from January 2022 to June 2022. According to the WHO sample size calculator, taking statistics of the prevalence of patient satisfaction, Cochran's formula was used. The sample size was calculated using a 95% Confidence interval and a 5% Margin of error.

$n = Z^2 pq/e^2$ after putting a Prevalence of 84% from a study conducted in Philadelphia[15], the calculated sample size was 224 and a simple convenient sampling technique was used to collect data from participants in the University of Peshawar, who used telemedicine in the pandemic of COVID-19.

Patients above the age of 25 years attending the telemedicine centre of the University of Peshawar were included. Patients not willing to participate were excluded. Data collection was through Questionnaires named TSQ and TUQ (Telehealth satisfaction questionnaire & telehealth utility questionnaire.[16] (TSQ) designed based on patients' responses was used to assess the level of satisfaction as follows:

1-1.5= Poor
1.6-2.5= Fair
2.6-3.5= Good
3.6-4.0= Excellent

The extent to consider telemedicine to be appropriate based on cost-effectiveness, technical quality, convenience, accessibility, ethicality and self-efficacy.

Scale [16] (TUQ) for assessing acceptability of patients using telemedicine was used as follows:

1-3= Disagree
3-5= Partly agreed
5-7= Strongly agreed

Data collection was started after obtaining ethical approval from the ethical review board. The educational status of the patient was taken into account and the team was trained to assist the patients in filling out these questionnaires. Data was analyzed through SPSS (Statistical Package for Social Science) version 22, using tables and charts for frequencies and percentages.

RESULTS

A total of 224 participants were involved in this study, among them 118 were males (53%) and 106 were females (47%).

According to the data, out of the total 224,118 (53%) were males and 106 (47%) were females.

Table-1: Relationship of Waiting time with satisfaction level

		Frequency	Percent
Satisfaction level Response	Poor	13	5.8
	Fair	109	48.7
	Good	79	35.3
	Excellent	23	10.3
	Total	224	100.0

Table-2: Explanation of treatment by a specialist

		Frequency	Percent
Response By specialist	Poor	11	4.9
	Fair	60	26.8
	Good	115	51.3
	Excellent	38	17.0
	Total	224	100.0

With regards to the question of the behaviour of the specialist during the interaction, 53 or 23.7% thought it to be excellent, 96 or 42.9% good, 67 or 29.9% fair and 8 or 3.6% poor. A good majority of 73% of the patients described the overall experience as good and excellent, with 56% or 126 patients calling it good and 17% or 38, excellent.

For 9 patients or 4%, the experience was poor and for 51 patients or 23%, it was fair.

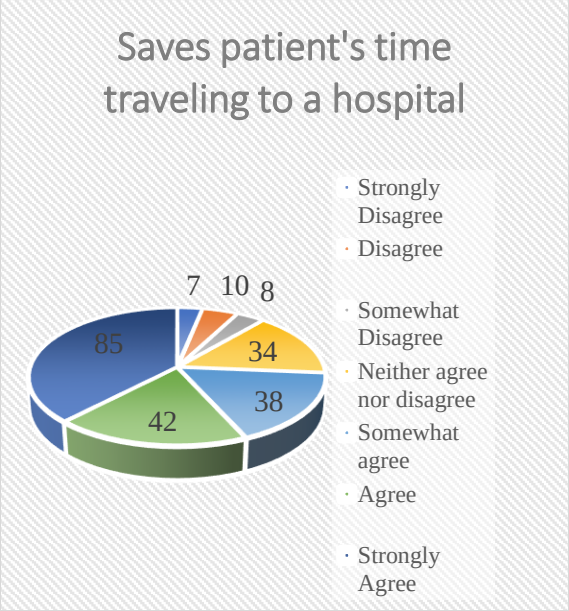

Figure-1: TUQ-Analysis for travelling time to Hospital

About the question of the saving of travel time for the patient to reach some hospital instead, a total of 74% of the participants agreed at some level, 38% of which were in strong agreement while 19% and 17% agreed and somewhat agreed respectively. A total of 25% disagreed and 15% were indecisive.

Table-3: Simplicity of the system

	Frequency	Percent
Strongly Disagree	13	5.8
Disagree	14	6.3
Somewhat Disagree	23	10.3
Neither agree nor disagree	53	23.7
Somewhat agree	43	19.2
Agree	24	10.7
Strongly Agree	54	24.1
Total	224	100.0

In reply to the question of productivity, 16.1% stated that they could not become productive quicker using the system and disagreed in varying degrees whereas 63.8% of patients felt otherwise and agreed on different levels. When asked about interaction with the system,20.1% neither agreed nor disagreed while 18.3% of patients were of the view that the interaction with the system was not good and disagreed on. varying degrees while 59.4% agreed on different levels

It was sought if the system was designed for the patient and whether it could do what patients required it to. Those who disagreed on different levels were 9.7% to the design of it being so while 44.2% agreed to it on varying levels. On the question of patient expressiveness, 57% agreed on different levels, a total of 29% disagreed on different degrees and 15% neither agreed nor disagreed

The patients were asked about the level of comfort between clinicians and patients. A majority of 60% in total felt comfortable and so, agreed on different levels. 21% in total disagreed on different levels.18% neither agreed nor disagreed. When asked about commitment to using the system again,66% agreed,18.1% disagreed and 15% were indecisive.

DISCUSSION

This study was conducted by using a validated Telehealth satisfaction questionnaire (TSQ)[16,17] The results showed that the majority of the participants were highly satisfied with the new technology of healthcare; telemedicine. Out of the total 224 people who participated, 157 people which is 70% fell in the category of "good" and "excellent" when it came to labeling their experience with telemedicine.

The study results are consistent with the study done in Santa Catarina Brazil for assessing the satisfaction of patients with the use of telemedicine on a total number of 564 patients, The collected data were quantified and underwent statistical analysis, which showed a clear perception of the improvement in the quality of service by both patients and healthcare professionals.[18] In this study a total of 102 patients which is 45.6%, said that they had to wait less to get their appointment through telemedicine. Compare this to the 55% of patients in the Brazilian study who said they had to wait 1 day to get their appointments (1 day being the least time of waiting in their

study) through telemedicine while before telemedicine, only 16% of patients said that they had to wait for 1 day to get their appointments, rest of them said they had to wait even longer.

So overall, telemedicine saves patients' time. The participants of our study and the patient's Brazilian study were both stable enough to wait for the appointment to get done and for results to arrive, unlike the patients in ICU who require constant monitoring and direct physical presence as they are on the verge of death and their families trying hard to keep their sanity.[19]

Overall, telemedicine can be a great source of online healthcare in the future but for minor health consultations like those of stable patients in OPD. The satisfaction level of illiterate people specifically needs to be evaluated and doctor's preference for telemedicine rather than direct physical practice of medicine should also be a point of focus to discover to label telemedicine fully suitable for future implementation.

This study further aimed to assess the level of acceptance of telemedicine services during the pandemic situation. The results indicate that an overwhelming majority found this system acceptable. These findings are somewhat in close agreement with a study conducted in Australia which used a modified version of the telehealth acceptability survey.[20] According to the results of the Australian study 128 respondents, one fifth showed a constant disagreement with the usage and acceptance of the telehealth services. The remaining four fifth which is a great majority found this system acceptable at varying levels although they expressed concerns regarding a few variables.[20]

The level of acceptability was evaluated based on several variables. Regarding the simplicity and ease to use and understand this system more than half the participants agreed to accept it at different levels. It was discovered that 55% of the total liked this system and found it simple to use, similarly, 54 % of the participants agreed to be accepting of this at some level about the feasibility with the usage and understanding of the system. Several other studies have reported that according to patients the healthcare outcomes in video visits were no different than in-person visits and so are consistent with our study. When assessed for the level of acceptance regarding the commitment to use this system again in future and the overall satisfaction of the users by using Telehealth, it was revealed that 66.5% intend to do so and agreed at a certain level, 18.1% disagreed at a certain level while 15% were neutral. These findings are not consistent with the cluster studies conducted in South Australia where two clusters were randomized, cluster 2 shows almost complete dissatisfaction with the use of telemedicine services while 70% of the participants of group 1 indicate dissatisfaction. Overall, 48% of the respondents would prefer to use this system in future.[21] The differences in the results might be because these clusters particularly group 2 do not have a good assess to technology and they are not so educated or are mostly poor. Another survey conducted on the high-risk obstetrical patients with the support of the Northwell Health system shows a more positive result as compared to our study.[22]

A survey conducted in Pakistan involving health care professionals showed that a total of 52.2% of participants showed agreement with using telemedicine.[23]

The higher acceptability rate as evident from our results quite clearly states that telemedicine is an emerging field and can be regarded as an acceptable medium of healthcare delivery across the country. Thus, it can be concluded that telemedicine cannot be considered as a complete alternative to conventional in-person visits but can be viewed as a complement to it which would benefit a lot, particularly in emergencies such as in times of pandemic.

CONCLUSION

The study results were very strongly in favour of telemedicine suggesting it to be potentially the future of medical consultation & treatment. This study also concluded that

people were very satisfied with the introduction of telemedicine services and their utility. Future research on the perception of physicians regarding the consultation process is needed and targeting the illiterate population could complement our work.

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AUTHOR'S CONTRIBUTION

RA: Topic selection and writing of article
AM: Writing, data collection and statistical analysis
SI: Writing, data collection and analysis
MHA: Writing, data collection and statistical analysis
TS: Writing, data collection and statistical analysis
R: Writing and data collection

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