Original Article

Clinician Satisfaction and Experience Using Teleconsultation during the COVID-19 Pandemic in Pakistan: A Cross-sectional Study

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Abstract

Aims: During the pandemic of COVID-19, the sudden change in traditional health-care providing systems, clinicians experience some positive and negative aspects of the approach. This study evaluates the clinician's satisfaction and experience with the use of teleconsultation provided during the pandemic of novel coronavirus and their willingness to continue telehealth after the pandemic. **Materials and Methods:** A cross-sectional survey was conducted online during the peak pandemic of COVID-19 in Pakistan through Google Forms questionnaire from 115 health consultants on different disciplines and recruited through social media. The questionnaire contains 15 questions regarding clinician's satisfaction, quality of treatment, and intention to continue providing telehealth services after the pandemic. Descriptive and inferential statistics were obtained by analyzing the data using SPSS software version 20, USA. **Results:** One hundred and fifteen consultants, 28 males and 87 females participated in the study, in which 62% were found to have an average and 34% at a high level of satisfaction. The Kruskal–Wallis test showed a significant difference among different medical specialists in the continuation of telehealth services after the pandemic of COVID-19 (P = 0.003) and its recommendation to friends and family (P = 0.02) with high mean rank in endocrinologist and dermatologist. **Conclusions:** A great number of participants reported a good response for the continuation in telemedicine services in their daily routine even after the pandemic situation. However, there is an urgent need to find the solution for the difficulties and drawbacks faced by health-care providers.

Keywords: COVID-19, pandemic, remote consultation, satisfaction, telemedicine

INTRODUCTION

Teleconsultation is defined as the health-care expert consults with one (or more) remote health-care providers or patient regarding a patient's condition, diagnosis, and treatment through telecommunication and information technology to bridge the spatial gap between the two or more participants.^[1] In other words, the consultation that is delivered remotely utilizing some sort of information and communicating technology to facilitate the process.^[2] It commonly includes telephones or video conferencing for interaction with patients.^[3] The use of telemedicine has substantially increased

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recently, and numerous studies explore its use in many clinical settings.^[4-8]

In March 2020, the coronavirus 2019 (COVID-19) outbreak was declared a pandemic by the World Health Organization. The response management includes early detection along with the isolation of affected patients, symptomatic monitoring, and the suspicious or confirmed reported cases for public health quarantine. The population confinement and epidemic effects

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on health-care systems interfere with routine treatment for non-COVID-19 patients.^[9] Telemedicine can help by allowing patients who are modestly ill to get the advice and supportive care they need while reducing their exposure to other acutely ill patients.^[10] Despite the compelling evidence regarding the advantages of telemedicine, its implementation still poses many obstacles and challenges. The literature reviewed indicates that the underuse of teleconsultation is primarily due to the reluctance of doctors to embrace and incorporate the system as part of their routine.[11-13] Patients and health-care professionals have become used to personal visits and may hesitate to change their traditional health-care methods.^[14] The need to run an additional computer-based system to explore and exchange information between doctors and patients can be difficult and will leave doctors with more work in addition to their heavy workload.^[13]

Previous studies observed many primary factors that are affecting telemedicine adoption and sustainability. These include but are not limited to, (a) lack of telemedicine policy structure, (b) inadequate personal expertise and technological skills, (c) resistance to reform by health-care providers, (d) quality of online consultation and network connectivity issues, and (e) limitations with performing comprehensive physical examinations.^[15-17] To adopt the technology even after the pandemic, it is necessary to report the difficulties faced by clinicians and their gratification in an online consultation to improve the services in future. The current study aims to evaluate the health-care provider's experiences and satisfaction with the use of teleconsultation during the pandemic of COVID-19 and their willingness to continue telehealth visits following the pandemic. This study can help us in identifying the problems arising in an online consultation and ultimately will help in the future for a better approach.

MATERIALS AND METHODS

The study was conducted online through Google Forms to evaluate the clinician's perspective and satisfaction level toward the use of telemedicine in Pakistan. The data were collected during the lock down period in the peak pandemic of COVID-19 from May 1, to July 30, 2020, in Pakistan, when doctors were treating their patients through teleconsultation. Clinicians were recruited online through social media platforms using nonprobability convenient and snowball sampling techniques from different medical specialties including general medicine, general surgery, gynecology, orthopedics, dermatology, endocrinology, pediatrics, dentistry, neurosurgery, pulmonology, anesthesiology, psychology, physiotherapy, and occupational therapy. Clinicians only facilitating their patients through ZOOM app video consultations were included in the study. We excluded all clinicians who were using telemedicine before the pandemic. The estimated sample size of 87 was calculated through Open Epi version 3.01 (HTML, JavaScript), by keeping 94% of anticipated frequency, taken from a previous study,^[14] with a margin of error 5% and a confidence interval 95%. The survey questionnaire was sent out to 150 participants of whom 115 were returned. The response rate was 77%. The study was performed with the ethical standard of the Helsinki Declaration. The study was approved by the Departmental Ethical Committee of Ziauddin University (0197120028DPT). All participants were given an explanation regarding the purpose of the study and written informed consent was taken before filling the survey.

The survey used self-administered structured questionnaire developed by authors provided in [Multimedia Appendix 1], with good internal consistency and Cronbach's alpha value of 0.93. The questionnaire consists of 15 question statements. The respondent will have to mark their option from 1 to 5 rank where 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, and 5 = strongly agree. The total score of the questionnaire was set at 75 and greater scores show the highest level of satisfaction. Out of 75 score, <40 indicates low satisfaction, 40–60 score consider average, and above 60 is considered to be high. The survey questionnaire also includes demographic details such as gender, age, work experience, and specialty.

Descriptive statistics were used to measure the frequency, percentage, mean and standard deviation for demographics and questionnaire responses. The nonparametric Kruskal–Wallis test was analyzed for the comparison of responses in different consultation groups following the test of normality. The association of total score with demographic variables was analyzed using multiple linear regression. P < 0.05 was considered statistically significant.

RESULT

A total of 115 responses were received. Among them, (87/115) participants (75.7%) were female consultants, and (55/115, 47.8%) were in their middle-aged group (30–39 years). The greater proportion of consultants (41/115, 35%) had working experience between 5 and 10 years. A detailed demographic description is provided in Table 1.

Consultants were asked to fill a questionnaire comprised 15 statements about teleconsultation services provided to the patients. Forty-four out of 115 consultants (38%) were strongly agreed and (47/115, 40%) agreed that teleconsultation was feasible during the time of pandemic situation of COVID-19. Similarly, around the same response was found for the statement; telemedicine is beneficial for clinician's practice. The consultant's comfort with technology is an essential component and we found (29/115, 25%) participants strongly agreed and (62/115, 53%) agreed, respectively, that they were comfortable during the online consultation as shown in Figure 1.

The understanding of how to use online consultation seems easy among telehealth providers as (64/115, 55%) agreed and (31/115, 27%) strongly agreed that they find it easy to comprehend the process of teleconsultation; however, the two consultants disagreed (2/115, 1%) and strongly disagreed

Table 1: General demographic data of participants				
Variables	n (%)			
Gender				
Male	28 (24.3)			
Female	87 (75.7)			
Age (years)				
<30	29 (25.2)			
30-39	55 (47.8)			
40-49	28 (24.3)			
50 or >50	3 (2.6)			
Working experience (years)				
<5	29 (25.2)			
>5-10	41 (35.7)			
>10-15	26 (22.6)			
>15	19 (16.5)			
Clinical specialty				
Orthopedic	5 (4.3)			
General medicine	37 (32.2)			
General surgery	2 (1.7)			
Physical therapy	17 (14.8)			
Occupational therapy	12 (10.4)			
Psychology	19 (16.5)			
Obs/Gynecology	4 (3.5)			
Pediatrics	7 (6.1)			
Neurosurgery	1 (0.9)			
Pulmonology	1 (0.9)			
Dentistry	6 (5.2)			
Anesthesiology	1 (0.9)			
Endocrinology	1 (0.9)			
Dermatology	2 (1.7)			

(1/115, 9%). The question regarding the teleconsultation fulfilled the required need of a patient, (29/115, 25%) of the responses were found to be neutral as they were not confident enough whether they fulfilled the need or not, furthermore (4/115, 3%) consultants disagreed that online clinics did not manage the necessity of the patient. The prompt return of patients for recall checkup was a major concern as we found (14/115, 12%) of responses disagreed that their patient did not come back quickly and (38/115, 33%) have neutral perspective on it. The satisfaction of consultants is an important component as it reflects the providers' adherence to telemedicine services. Six clinicians (6/115, 5%) were not satisfied with the quality of care given through telemedicine. Similar responses of disagreement (6/115, 5%) were documented when inquiring whether they would continue the telemedicine services after the pandemic. However, the most of the respondent were agreed to continue their telemedicine services even after the pandemic situation, and will recommend to their families and friends. Linear regression was analyzed to identify the significant predictors of outcome variable; however, none of them were meaningfully associated with the dependent variable described in Table 2.

We found most clinicians (72/115, 62%) were at the average level of satisfaction, whereas (40/115, 34%)

clinicians were highly satisfied in their overall responses. However, (3/115) 2.6% were at a low level of satisfaction. Figure 2 shows the responses compared with respect to clinical specialty. The Kruskal–Wallis test was analyzed to determine the difference among the group's responses. A significant difference was found in the recommendation of telemedicine service to friends and family (P = 0.02) and the continuation of telemedicine services in practices after the pandemic of COVID-19 (P = 0.003). The mean rank was high in endocrinologist and dermatologist, whereas least in anesthetics, pediatrician, and general surgeons.

DISCUSSION

The current study examined the clinician's views on teleconsultation's experience, satisfaction, and adherence to telemedicine services after the pandemic. The findings of this survey showed that more than half the strength of the consultants, 62% had an average level of satisfaction, and only 34% were at the high level of satisfaction. Moreover, most of the clinician wants to continue telehealth in their practices following the pandemic of COVID-19. The adoption of telehealth by clinicians and their ability to adapt to new technologies has been identified as a significant aspect in the long-term success of telemedicine programs.^[18]

Health innovations are becoming increasingly pertinent to the health-care industry. Digital health and telehealth services have the potential to revamp the quality of medical care, and reduce hospital visits and the cost of treatment.^[19] Earlier, health-care professionals had little or no awareness regarding telemedicine,^[20] therefore acting as a preventive measure toward the adoption of this technology, this COVID-19 pandemic has led these professionals not only to adopt the technology as a choice but also it was adapted as a necessity. This study was conducted to have a clear understanding of the need and operating technique of this innovation. To optimize the adoption of these innovative technologies, it is important to build user-oriented advanced technologies considering the opinions of health professionals as prospective users. The finding of this survey showed that clinician concerns about the technicality issue that arise in online consultation that may hinder their performance, as well as their self-satisfaction that directly impacts the desire to pursue teleconsultation services in future. Further, the slow return of follow-ups is disquiet for clinicians that restrain them to adopt this technology at a speedy rate. This might be due to the quality of care being provided to patients, as telehealth is not similar to the traditional way of treatment reported by one-third of clinicians. With reference to the previous observational study conducted in Italy to explore the feasibility and acceptability of telemedicine including teleconsultation and telerehabilitation, they found a high level of patient satisfaction and concluded it as an alternative solution for outpatient services, as only 0.5%of patient's required face-to-face interventions.[21] Whereas another study assessed patient satisfaction with diabetes through remote consultations given by an endocrinologist

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Predictors	Coefficient	SD	t	Р
Overall score in clinician satisfaction questionnaire				
Constant	52.689	4.267	12.348	< 0.00
Gender	1.808	1.804	1.002	0.31
Age	0.439	1.040	0.422	0.67
Experience	0.181	0.787	0.230	0.81
Clinical specialty	0.129	0.236	0.546	0.58
Consultants' preference to continue telehealth after the COVID-19 pandemic				
Constant	3.731	0.478	7.799	< 0.00
Gender	0.110	0.202	0.546	0.58
Age	0.178	0.117	1.527	0.13
Experience	-0.055	0.088	-0.619	0.53
Clinical specialty	-0.002	0.026	-0.062	0.95

SD: Standard deviation

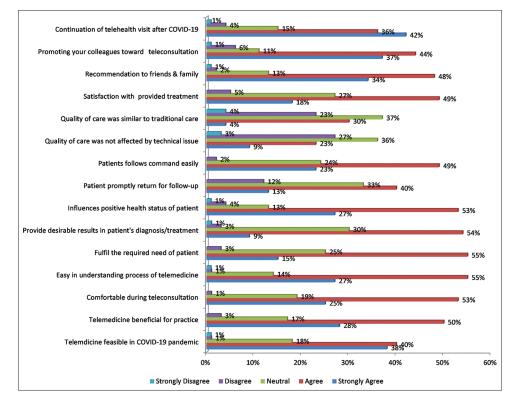


Figure 1: Responses of questionnaire by clinicians

and reported lower satisfaction in the dimension of clinical assessment.^[22] However, the finding of our study observed that general surgeons, anesthesiologists, neurologists, and orthopedists are least likely desire to continue telehealth services in future. This shows teleconsultation satisfaction and its adoption differs with respect to clinical specialty as some of the physicians require physical interventions to create a positive change in patient's health or some can readily help their patient without any barrier. Besides these factors, most of the clinicians support the idea to continue telehealth as they find it feasible and time-saving approach, it also fulfills the required need of patients by producing the desired outcome among them.

Initial telemedicine exposure was promising but the adoption was sluggish until the COVID-19 disease outbreak. A study investigated the patient's intention to continue using telehealth services before the pandemic of COVID-19 that proves to be public health crises management and they concluded that introducing m-health in health insurance schemes can overcome the cost and payment barriers, therefore promoting the adoption, not only clinicians but also patients.^[23] We analyzed the factors related to the willingness of clinicians to continue telemedicine programs after the COVID-19 pandemic and factors related to the engagement of clinicians with the quality of treatment delivered by telemedicine. Our study findings were similar to that of Demartines *et al.* who also Zahoor, et al.: Teleconsultation in COVID-19

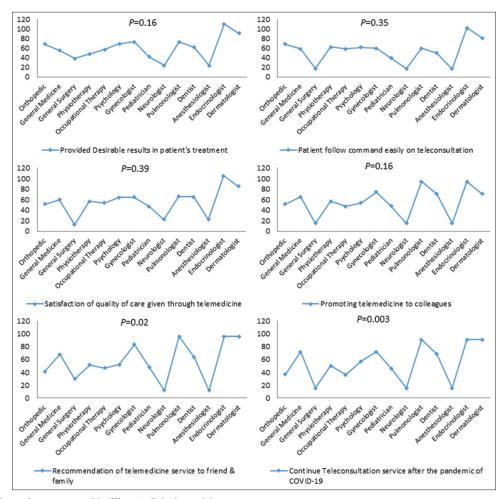


Figure 2: Comparison of responses with different clinical specialty

concluded that most clinicians were interested in utilizing this technology in the future as well.^[24] Our findings were almost consistent with the findings of Ashfaq *et al.*^[20] in which the majority of the physicians believed that technology is effective in providing health-care delivery. Richards *et al.*^[25] reported an encouraging input from clinicians, especially in the field of strategic use of telemedicine (76%) and ease of use (74%), which is consistent with our research findings.

Telemedicine is now primarily being used throughout Pakistan to enhance the efficiency and responsiveness of health services. In today's era of technology, the use of telemedicine is becoming an effective component in the health-care systems.^[26] The perceptions of medical professionals are a cornerstone for the effective introduction of eHealth and telemedicine into conventional medical systems.^[27] To increase education and understanding among health-care practitioners, telecare, and telemedicine should be an indispensable part of the medical curriculum and specialized training for medical personnel.^[28]

Moreover, the developing nations have insufficient health-care facilities and are suffering from undeveloped health infrastructure; therefore there is a need for telemedicine as an effective way to deliver patient treatment.^[29] Improvement can be implemented by introducing advanced software related to specific health-care

domains, easing the process, remote education, establishing professional departments for teleconsultation in hospitals that construct plans, and promoting its adoption. Our survey can be helpful to know about the rate of satisfaction in telecare providers, especially in developing countries where technology uptake is slow. This information can be used as a framework for policymakers and technology-driven individuals, as many basic difficulties of teleconsultation from patient diagnosis to the impact of treatment are explored in our study.

The results of the research are subjected to several limitations. A low response rate was expected, as is usual for questionnaire surveys and the sample response may or may not be reflective of the broader group or the average practitioner; however, future studies can implement a small incentive or a gentle reminder to complete the survey. The questionnaire was undertaken within 2 months of dramatic shifts in medical practice due to the pandemic, and attitudes and priorities that continue to build. This survey gathered the self-reported data of the respondents that can cause somewhat biased results, further future studies should be implemented on other research designs. We developed a research questionnaire that serves as a useful tool for further analyzing advances in health technology in large-scale national and international studies.

CONCLUSIONS

The study reveals that health-care providers willingly embraced new technology to expand their practices during the COVID-19 pandemic and even a large number of participants had a positive response to continuing of telemedicine services in their everyday routine. However, finding a solution to the difficulties and constraints that health-care practitioner's encounter is necessary. The legislation should set in place steps to strengthen the opportunities for physicians to acquire and incorporate telemedicine expertise in their medical practice.

Ethical code

The study was approved by the Departmental Ethical Committee of Ziauddin University (0197120028DPT).

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Conflicts of interest

There are no conflicts of interest.

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[Multimedia Appendix 1],

Survey Instrument for measuring Clinician's Perception & Satisfaction with the use of Teleconsultation

This survey is designed to measure the clinician's perception and satisfaction with online consultation. Please tick one option from strongly agree to strongly disagree for each statement mentioned below:

Assessed Items	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree
Did you find it feasible to use telemedicine in the pandemic of COVID-19?					
Is telemedicine beneficial for your clinical practices?					
Were you found yourself comfortable during the telemedicine consultation?					
Did you find it easy in understanding the process of telemedicine?					
Did you fulfill the required needs of a patient through telemedicine?					
Did telemedicine services provide desirable results in your patient's diagnosis/treatment?					
Did you feel that teleconsultation service impact your patient's health status positively?					
Did the patients turn up promptly for the recall checkup?					
Did your patients follow your command/instruction easily on telemedicine?					
Did the Quality of care delivered by telemedicine services were not affected by any technical difficulty?					
Did the quality of health care provided through telemedicine was similar to traditional care?					
Are you satisfied with your quality of treatment given through telemedicine?					
Would you like to recommend this service to your family and friends?					
Would you like to promote your colleagues towards telemedicine services?					
Would you like to continue the telemedicine services?					
Total score 75. <40 indicate low satisfaction, 40-60 score average satisfaction	. >60 is high satisfac	tion			

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