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# Telemedicine for Rheumatology Patients in Covid-19 Pandemic: Perspectives of Patients

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## Abstract

Telemedicine use for patients with autoimmune rheumatic conditions during the pandemic mandates better characterization. We conducted a telephonic survey on patients who consulted rheumatologists remotely to determine their attitudes toward telemedicine. The study was conducted at Aga Khan University Hospital, a tertiary care hospital in Pakistan which is a lower-middle-income country. Descriptive analyses were performed. Fifty patients visited tele-rheumatology clinic, 35 (70.0%) were female with a mean (SD) age of 47.6 (18.1) years. Majority (27, 54.0%) learned about telemedicine from hospital website and outpatient clinic desk or helpline. Lack of examination was the biggest concern with teleconsultation (18, 22.2%). Most patients (38, 76.0%) agreed to continue teleconsultation beyond the pandemic. Telemedicine is preferable for providing rheumatology outpatient service during and after the pandemic.

## Keywords

Rheumatology, telemedicine, Covid-19, eHealth, perspectives, patient experience, patient access

## Introduction

Covid-19 pandemic resulted in a challenging situation globally. Lack of effective treatment, social boundary, and lockdown were the main preventive measures during the initial pandemic period rendering telemedicine a safer option for interaction between patients and clinicians (1).

Telemedicine (also known as teleconsultation interchangeably) uses 2-way telecommunication technology to provide clinical healthcare through a variety of remote methods. Initially, teleconsultation was primarily utilized to manage and follow Covid-19 patients in the outpatient setting (2). Nonetheless, the nature of the pandemic and the increasing number of patients with chronic medical conditions in other specialties necessitated the use of teleconsultation services for all patients with such conditions (3,4).

Communicating with their physician on a live video call can help patients with autoimmune diseases who are receiving immunosuppressant therapy to minimize the risk of acquiring a new infection. Unfortunately, the provision of remote clinical care or telemedicine for patients with autoimmune rheumatic conditions during the Covid-19 pandemic has not been well-characterized. Therefore, we sought to understand the attitude and perspective of patients suffering

from such chronic diseases who utilized the teleconsultation facility during the pandemic.

## Methodology

A cross-sectional telephonic survey was conducted in the rheumatology outpatients' services of a tertiary care hospital (Aga Khan University Hospital) after approval by the institutional ethical review committee (ERC# 2020-5586-15348). All patients who consulted a rheumatologist through teleconsultation services between June 2020 and November 2020 were enrolled. Information on individual patient teleconsultation was retrieved from the computerized outpatient medical record. A telephonic interview was conducted with patients who gave verbal consent. None of the patients refused

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participation in the survey, and they did not receive any financial remuneration. An experienced qualitative researcher who was not part of the rheumatology team providing clinical service conducted all interviews in December 2020. The interview consisted of single and multiple-choice questions. Each interview lasted for 15 to 20 min and was transcribed into a pre-designed form. No recording of the interview was conducted.

Demographics, rheumatological diagnoses, and history of Covid-19 illness were recorded. The questions were designed to determine patients' attitudes to teleconsultation and in-person clinic visit, their concerns regarding teleconsultation, and the potential scope of such a remote healthcare service in the future. The responses obtained were analyzed by using Statistical Package for the Social Sciences version 22.0. Descriptive analyses were performed.

## Results

### Baseline Demographics and Clinical Presentation

Overall, 50 patients contacted rheumatologists through teleconsultation service during the study period. Thirty-five patients (70.0%) were female, with a mean (SD) age of 47.6 (18.1) years. The majority of the study population (33, 66.0%) had one teleconsultation appointment. Most patients

**Table 1.** Baseline Characteristics and Disease Presentation Findings (N = 50).

Mean (SD) Age (years)	47.6 (18.1)
<b>Gender</b>	
Female	35 (70.0%)
Male	15 (30.0%)
<b>Residence</b>	
Urban	45 (90.0%)
Rural	5 (10.0%)
<b>Educational background</b>	
Graduate	27 (54.0%)
Higher secondary	10 (20.0%)
Secondary level	7 (14.0%)
Primary level	6 (12.0%)
<b>Rheumatological diagnosis</b>	
Non-inflammatory arthritis	26 (52.0%)
Rheumatoid arthritis	10 (20.0%)
Vasculitis	5 (10.0%)
Systemic lupus erythematosus	4 (8.0%)
Seronegative spondyloarthritis	3 (6.0%)
Scleroderma	1 (2.0%)
Rheumatic fever	1 (2.0%)
<b>Number of telehealth visits</b>	
One	33 (66.0%)
Two	9 (18.0%)
More than two	8 (16.0%)
<b>Reason for telehealth visits</b>	
Follow-up visit	28 (56.0%)
New symptoms	12 (24.0%)
Worsening of old symptoms	10 (20.0%)
<b>Suffered from SARS-CoV-2</b>	6 (12.0%)

(28, 56.0%) used telemedicine service for a regular follow-up visit to discuss the status of their disease. Baseline demographics of the study population findings are shown in Table 1. Rheumatoid arthritis was the most common inflammatory condition during teleconsultation (10, 20.0%). Out of 50, 6 (12.0%) patients suffered from Covid-19. Nearly half of the study population (23, 46.0%) were using prednisolone, followed by hydroxychloroquine (14, 28.0%) and sulfasalazine (7, 14.0%). Four (8.0%) patients were receiving biological disease-modifying drugs. Thirteen (26.0%) patients stopped taking conventional synthetic disease-modifying anti-rheumatic drugs due to fear of having Covid-19 infection. Four (8.0%) patients discontinued hydroxychloroquine due to non-availability of this drug during the pandemic.

### Key Themes About Teleconsultations

The most common mode of learning about teleconsultation was hospital website and outpatient clinic desk or helpline (27, 54.0%), followed by primary rheumatologist (9, 18.0%), family and friends (8, 16.0%), social networking sites (5, 10.0%) and other patients (1, 2.0%). Twenty-eight (56.0%) patients had no problem in seeing their rheumatologist in physical clinic when asked about the extent to which their usual physical clinic visit was affected. Fifteen (30.0%) patients thought about visiting an alternate facility if teleconsultation was not an option to seek medical care. Approximately one-

**Table 2.** Key Themes About Teleconsultations.

Common advices sought during rheumatology teleconsultation	
Worsening of usual disease symptoms	36 (48.6%)
Development of new symptoms	18 (24.3%)
Modification of treatment	12 (16.2%)
Side effects related to treatment	8 (10.8%)
<b>Common concerns regarding teleconsultation</b>	18 (21.7%)
Lack of physical examination performed by doctor	13 (15.7%)
Doctor not giving enough time during teleconsultation	10 (12.0%)
Unable to accurately present my complaints to doctor	9 (10.8%)
Hearing issues during teleconsultation	7 (8.4%)
Doctor unable to understand my complaints	6 (7.2%)
Problems with using phone or computer	4 (4.8%)
Receiving wrong drug prescriptions	4 (4.8%)
Lack of possibility of performing additional tests	
Lack of access to equipment (computer, tablet, phone)	
<b>Common reasons for continuing teleconsultation beyond pandemic</b>	34 (39.5%)
Long waiting times for traditional in-person clinic visit	33 (38.4%)
Teleconsultations are more time convenient	11 (12.8%)
Difficulty in walking	8 (9.3%)
Fear of infections	

third (14, 28.0%) of the patients reported that they required another person's assistance to participate in teleconsultation.

Worsening of usual disease symptoms (36, 48.6%) was the most common reason for seeking medical care through teleconsultation during the lockdown period. Common concerns raised by teleconsultation participants are summarized in Table 2. The most highlighted limitation was lack of physical examination (18, 21.7%). Majority felt that the best aspect of an in-person clinic visit in comparison to teleconsultation was the chance of physical examination (43, 47.2%), followed by a direct talk with the care provider (35, 38.5%), possibility of discussing test results (10, 10.9%), or undergoing additional testing (3, 3.3%).

### **Teleconsultation Beyond the Pandemic**

Overall, 38 (76.0%) patients preferred continuing rheumatology teleconsultation beyond the pandemic, while 12 (24.0%) patients showed a future preference for an in-person visit only. Out of those who wanted to continue teleconsultation services beyond the pandemic, 22 (57.9%) patients felt that a combination of teleconsultation and an in-person visit would be a more appropriate option. Common reasons for continuing telemedicine service are also mentioned in Table 2. The most common reason for choosing teleconsultation over traditional in-person clinic visits was the long waiting time in physical consultation clinic (34, 39.5%).

### **Limitations**

To the best of our knowledge, this is the first study from Pakistan done in patients with autoimmune rheumatic disorders, to determine the perceptions and concerns of end-users regarding telemedicine services. However, there are certain limitations to this study. Firstly, the sample size is small; therefore, stratification is not possible to find out proper associations. Secondly, the study is based on recall of the patients' experiences, resulting in recall bias. Thirdly, the study has selection bias since it only included patients who sought medical help through telemedicine services and did not include patients who waited for an in-person visit. Furthermore, most of the patients in this study are from Urban area either due to high percentage of clinic patient population being urban since urban areas offer better internet connectivity and technological assistance than the rural areas. Another reason for high percentage of urban population is because of increased telemedicine awareness among them due to higher literacy rate as compared to remote rural areas of our country.

## **Discussion and Recommendations**

### **Generalizability of Results**

Our study is a first from a lower-middle-income country describing the attitude of rheumatology patients towards telemedicine. Generally, people have shown a good acceptance

of telemedicine services and wish to continue this service once the pandemic is over. A higher proportion of females in our study concurs with an increased prevalence of rheumatic diseases among young women in our urban population (5). A similar demographic pattern is seen in other studies done around the world (6–9). Our study shows arthritis to be the most common reason for teleconsultation. Gkrouzman *et al.* also stated that the effectiveness of teleconsultation in rheumatology has mostly been seen in patients with inflammatory arthritis, and data is scarce for the management of connective tissue diseases through teleconsultation (10). Similar findings have also been reported in other studies (7,8,11). In contrast, research from the neighboring Indian population (9) showed that almost half of the patients who availed telemedicine services had a diagnosis of SLE. Another study from Hong Kong conducted in Lupus Nephritis patients showed a good acceptance of teleconsultation (12). Our study also reported that a quarter of patients had either deescalated or stopped their treatment regimen during the pandemic citing fear of catching Covid-19 infection. Research from India reported a similar rate of patients who stopped taking regular medicines due to their financial constraints (9). A similar percentage of patients altered their medications in a study from North America without any specific reason (7).

### **Positive Factors for Patients**

Teleconsultation for autoimmune rheumatic diseases is a promising substitute to in-person clinical visits for follow-up patients who have exacerbation of their usual musculoskeletal complaints. Review of literature has shown that teleconsultation follow-up visits were common than the first-ever consultation for musculoskeletal diseases (13). The majority of patients in our study who sought medical advice through teleconsultation belonged to follow-up category rather than initial patient category and reported worsening of their usual symptoms. This is likely due to an already established rapport between doctor and patient. Follow-up teleconsultation offers another benefit by providing the patient and rheumatologist a chance to review their medications and this may help in reducing the percentage of patients who had stopped or de-escalated their medication due to fear of infections. Hall *et al.* also demonstrated another positive aspect of teleconsultation in their study (13), in which patients believed that teleconsultation was less crowded than the in-person clinic visit. Another study highlighted convenience of time, avoiding long queues, and less chances of catching infections as benefits of teleconsultations (8).

### **Limitations for Patients**

Our research has emphasized particular concerns raised by the participants concerning teleconsultation. The foremost is lack of physical examination, followed by less time

given by the rheumatologist, and difficulty in describing their symptoms remotely and making the doctor understand. These factors become a bigger limitation while teleconsulting a patient for new symptoms as that requires a much more detailed clinical examination. McDougall *et al.* also questioned the accuracy of teleconsultation in diagnosing new rheumatic conditions as compared to its application for follow-up of an already established diagnosis (14). A study from Poland also stated that the lack of possibility to perform new tests like ultrasound examination and lack of physical examination were the main concerns faced by patients availing teleconsultation (8).

### *Likelihood and Rationale for Continuation of Teleconsultation*

The World Health Organization recommends digital technologies like teleconsultation to meet the growing burden of rheumatic diseases (15). Covid-19 pandemic affected the delivery of rheumatology services and hence accelerated the use of telemedicine services to cater a large number of patients in both near and remote areas (10). Most of our patients wanted to continue with telemedicine services beyond the pandemic since it is a time-saving way of seeking medical help as well as has less chance of catching up an infection. They also showed a preference for having a combination of both in-person clinic visits and teleconsultations when required.

Telemedicine services offer a valuable, well-accepted, and practical method of providing rheumatological services during and after the Covid-19 pandemic. However, our patient population lacks insight into its utility to address medical problems remotely and without physical interaction. We strongly feel that the feasibility and application of telemedicine in resource-limited settings and low-middle-income countries must be established to avail its potential to transform healthcare across the globe.

### **Declaration of Conflicting Interests**

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### **Ethical Approval**

The study was approved by the Ethical Review Committee of the hospital (ERC# 2020-5586-15348).

### **Statement of Human and Animal Rights**

No experimental procedures conducted involving humans and animals.

### **Statement of Informed Consent**

Verbal informed consent was taken from all patients for their anonymized information to be published in this article.

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