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Original Article

Evaluation of Rheumatologists' Teledermatology Practices and Perspectives

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Abstract

Objective: In their regular practice, rheumatologists often come across patients with skin and nail abnormalities, so they need dermatology consultations. A new option available today is the use of telemedicine for dermatology consultations. The aim of this study is to assess how frequently rheumatologists use this method, known as teledermatology (TD), and to investigate their perspectives.

Methods: This study is a survey of rheumatologists in Türkiye. The survey, generated with Google Docs, was e-mailed to rheumatologists who are members of the Turkish Rheumatology Association and asked them to complete it.

Results: A total of 122 rheumatologists completed the survey, with 85 women (70%) and 37 men (30%). The rheumatologists claimed that they encounter a mean of 6.60 (SD: 6.90) patients with skin/nail lesions each week in their clinical practice and consult them for face-to-face (FTF) dermatology examinations for a mean of 12.3 (SD: 15.56) patients every month. Of the rheumatologists who took part in the trial, 38.5% said they experienced the TD approach. Most of them (n: 30, 62.5%) use TD "occasionally." A significant proportion of rheumatologists stated that they used TD to consult with dermatologists in their personal networks (54.2%), dermatologists at the hospital where they work (47.2%), or dermatologists with advanced academic training in their field (45.8%). Most rheumatologists (60.8%) reported that, following TD, they only refer their patients to FTF examinations if the dermatologist requests it (e.g., for a biopsy). Some of the rheumatologists (37.5%) stated that TD would be effective in all skin lesions, but most rheumatologists (52.1%) stated TD would be more beneficial for special skin/nail lesions like infectious skin lesions or inflammatory dermatoses.

Conclusion: This study showed that a considerable number of rheumatologists use TD. Most rheumatologists schedule TD consults with dermatologists to gain speed for diagnosis and due to a lack of appointment availability from dermatologists. In rheumatology practice, clinicians have noted that they found TD effective for a wide range of skin/nail lesions.

Keywords: Inflammatory dermatoses, rheumatologists, teledermatology, telemedicine

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Introduction

In the COVID-19 period, telemedicine (TM) has cemented its position in clinical practice. One of the most useful TM methods was teledermatology (TD), which provides visual diagnoses. Dermatologists have discovered that TD methods have been useful for diagnoses since 1990s.[1] Evidence currently available supports the use of TD as a useful triaging technique for skin neoplasms, as well as its diagnostic accuracy and treatment outcomes for psoriasis, acne, and atopic dermatitis.[2,3] Prior research suggests that TD was reliable,[4] less expensive and required fewer clinic visits for treatment.[5] Also, the diagnostic accuracy of TD was reported to be 80%-90%, while the average agreement between face-to-face (FTF) consultations was reported to be 75%.[6-8]

In routine practice, rheumatologists encounter patients with a wide variety of skin/nail lesions including inflammatory dermatoses, vasculitis, panniculitis, and also infectious skin lesions, etc.[9] This makes rheumatology one of the branches that most commonly request dermatology consultations. According to our observations, several rheumatologists have benefited from TD since the pandemic. However, no data has been found on how frequently TD consults are required by rheumatologists. These observational data will be valuable for the standardization of teleconsultation systems, which are becoming increasingly popular over time.

The aim of this study is to assess how frequently rheumatologists use TD consultations and to investigate their perspectives about TD.

Methods

Participants and Survey

The study was designed as a cross-sectional survey. A questionnaire was developed to be completed by rheumatologists and pediatric rheumatologists in Türkiye. The inclusion criteria included: 1. Rheumatologists over the age of 18; 2. Actively working rheumatologists; 3. Working in Türkiye.

The survey was created using Google Docs. The questionnaire was tested on a sample of 7 rheumatologists to ensure clarity and then distributed to all participants through an email group from the Turkish Rheumatology Association [Türkiye Romatoloji Derneği (TRD)]. The organization had close to 500 members, all the members including rheumatologists. The survey was initially released on January 10, 2024, and it remained open until January 25, 2024. Twice in the same month, the researchers sent out reminders and incentives to participate in the study. Also, a link via mobile phones was sent to pediatric rheumatologists from a national group. All respondents were requested to approve the informed consent form prior to completing the survey, as the questionnaire was only intended to appear for those who provided online approval.

The questionnaire was designed to collect information on a wide range of topics. The first section includes basic socio-demographic information as well as questions investigating information about the institution of the participants. The second section consisted of 4 questions about rheumatologists' routine dermatology consultation practices. There was a question at the end of the second part that sought to determine the extent to which TD was being used. Only physicians who used TD proceeded to answer the remaining survey questions. In the last section, fourteen questions were asked to learn respondents' opinions on the advantages and disadvantages of TD.

Main Points

- In Türkiye, a considerable number of rheumatologists use consultations via teledermatology.
- Rheumatologists find dermatology consultations via TD reliable.
- Teledermatology is seen as an option by rheumatologists to accelerate the diagnostic process of skin lesions.

Ethics

The Dokuz Eylul University 'ocal ethical committee approved the study on December 6, 2023, with approval number 2023/39-18. At the start of the questionnaire, participants gave their informed consent.

Statistical Methods

The Statistical Package for the Social Sciences 22.0 (SPSS) software was used to run statistical analyses on the data. Based on the distribution of the data, the means with SD and median with interquartile range were used to express the results. Mann–Whitney *U*-test and Student *t*-test were used for comparisons based on the data distribution. The chi-squared test was used to assess categorical variables. A *P*-value of less than .05 indicated statistical significance.

Results

The survey was completed by 122 rheumatologists, including 85 women (70%) and 37 men (30%). The median age of the participants was 39.4 (SD = 5.9) years. Most participants' profession was Internal Medicine and Rheumatology (n = 68, 55.7%). The remaining professions were Pediatric Rheumatology (n = 40, 32.8%) and Physical Therapy, Rehabilitation, and Rheumatology (n = 14, 11.5%). The participants' mean duration of rheumatology specialization was 4.86 (SD = 5.3) years. The institutions of employment of the responders were university hospitals (n = 56, 45.9%), city hospitals (n = 25, 20.5%), research and training hospitals (n = 24, 19.7%), state hospitals (n = 11, 9%), and private hospitals (n = 6, 4.9%) respectively.

The collaboration procedures of rheumatologists and dermatologists in clinical practice were questioned. Accordingly, it was discovered that the institution that employed 4 of the rheumatologists (3.3%) lacked a dermatologist. Once again, 91% of the rheumatologists stated that their place of employment did not provide a collaborative outpatient clinic for both dermatology and rheumatology.

The rheumatologists reported that in their routine rheumatology practice, they encountered an active skin lesion without a specified diagnosis in 6.60 (SD = 6.90) patients each week. Additionally, rheumatologists stated that they provide face-to-face (FTF) dermatology consultations to a mean of 12.3 (SD = 15.56) patients each month in inpatient and outpatient clinics.

The main result in the study was that 38.9% of physicians claimed they use TD in their practice. The majority of the 47 physicians (38.9%) who reported using TD said they did it "often" (n = 30) or "sometimes" (n = 9). The remaining were using TD "rarely" (n = 6) and "almost for every lesion" (n = 2).

There was no significant difference in mean age, mean duration of rheumatology experience, or mean number of monthly dermatology consultations between rheumatologists who utilized TD and those who did not (Table 1).

The study found that 42.5% of pediatric rheumatologists, 41.2% of rheumatologists from internal medicine, and 14.3% of rheumatologists from Physical Therapy and Rehabilitation used TD respectively ($P > .05$). The majority of those using TD were rheumatologists from university hospitals (51.1%). This was followed by city hospitals (21.3%), training and research hospitals (12.8%), state hospitals (8.5%), and private hospitals (6.4%).

All rheumatologists who practice TD claimed that they took the photos with a mobile phone camera. In terms of photo quality, 22 of the rheumatologists stated that they "sometimes" experienced problems, 18 stated that they

Table 1. The Demographic Data and Clinical Experiences of Rheumatologists Who Utilized TD and Those Who Did Not

	Rheumatologists Using TD (n = 47)	Rheumatologists Not Using TD (n = 75)	*P*
Age (min-max, years)	39.89 (31-60)	39.19 (31-63)	.52
Sex (F%)	74.5%	66.7%	.42
Duration of rheumatology experience (min-max, years)	5.5 (0.5-25)	4.46 (0.5-20)	.30
Patients with skin lesions examined per week (min-max, n)	7.57 (1-50)	5.9 (0-40)	.22
Dermatology FTF consultations per month (min-max, n)	14.21 (1-80)	11.1 (1-120)	.27
Lack of dermatologist in the institution (n, %)	3 (6.4%)	1 (1.3%)	.29
Lack of collaborative outpatient clinics (n, %)	41 (87.2%)	70 (93.3%)	.33

F, female; FTF, face-to-face; n, number; TD, Teledermatology.

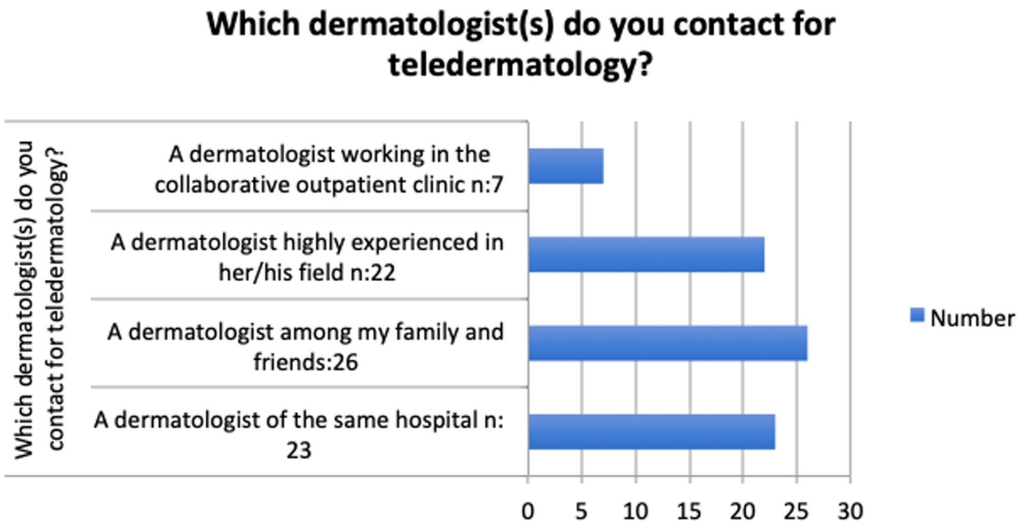

Figure 1. Teledermatologists preferred by rheumatologists.

"rarely" experienced problems, 5 stated that they experienced problems "very often", and 2 stated that they did not experience any problems.

According to the survey data, the majority of rheumatologists practice TD with dermatologists among their family or friends (n=26). This is followed by dermatologists from the same institution (n=23), dermatologists in an academic setting (n=22), and dermatologists from a collaborative outpatient clinic (n=7) (Figure 1).

The rheumatologists explained why they use the TD method for consultations, including for simultaneous diagnoses of rheumatologic disease and dermatologic lesions (n=38), when patients have difficulty in getting an appointment for dermatology (n=28), and for lesions that require urgent diagnosis and treatment (n=27), mainly (Figure 2).

In questions investigating the reliability of TD, the majority of the participants believed that TD would be effective for "some skin lesions, partially" (n=35). Some of the rheumatologists expressed concern that it would not be as effective as an FTF assessment (n=16). Similarly, some rheumatologists responded that even if they conduct TD, they would refer all patients for an FTF evaluation (n=18).

But the majority of the participants reported that they just refer the patient to FTF examination only if the dermatologist requests to see the patient in order to do a biopsy or further tests (n=29) and if the dermatologist thinks the photo inadequate (n=22) (Figure 3 and 4).

According to the rheumatologists, TD is especially beneficial for infective lesions (n=25), inflammatory dermatoses (n=22), drug-related skin lesions (n=17), and connective tissue disease lesions (n=15). The patients with vasculitis and panniculitis gain the least from TD consults. Eighteen participants claimed that all lesions benefit from TD consults (Figure 5).

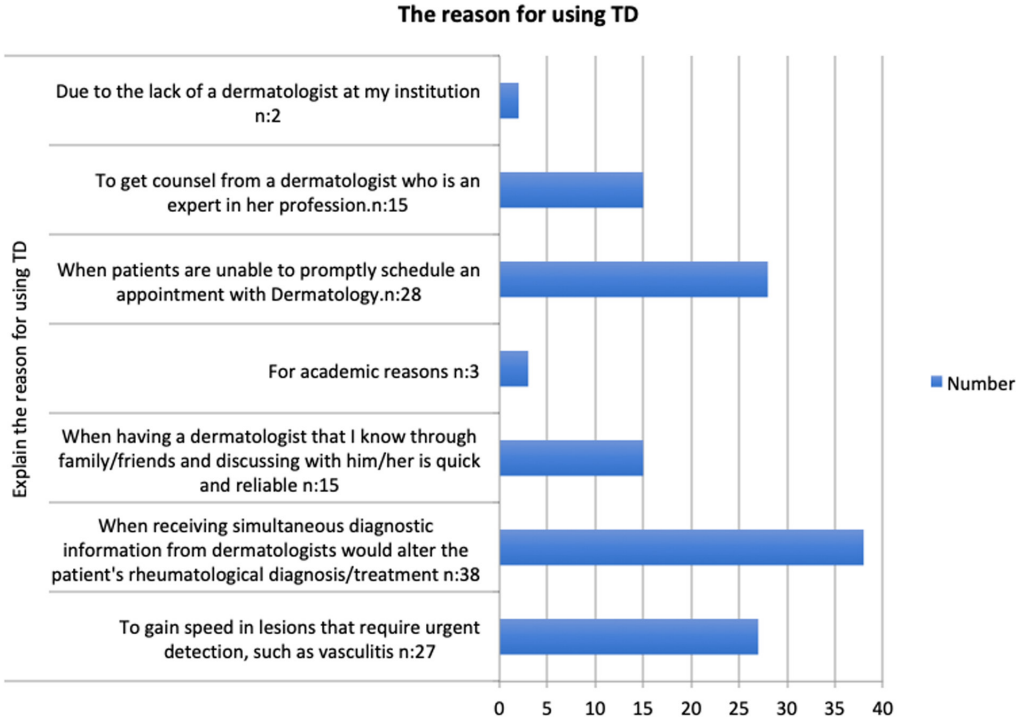

Figure 2. The reasons for using the Teledermatology.

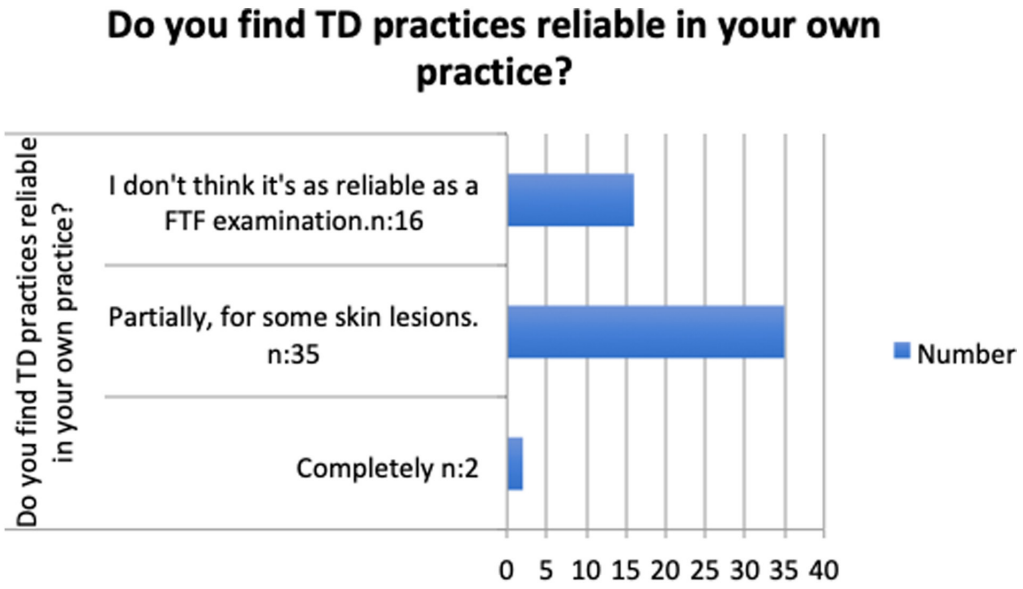

Figure 3. Physicians' perspectives on the reliability of Teledermatology.

Discussion

This study showed that a considerable number of rheumatologists (38.5%) working in Türkiye benefit from TD. A previous survey from Türkiye evaluating the awareness of TD in the public, majority of whom were healthcare professionals, showed limited awareness about TD.[10] Our findings indicate that rheumatologists have an improved awareness of and approach to TD.

Rheumatologists commonly see patients with inflammatory and infectious skin/nail lesions, and skin vasculitis. Patients applying to rheumatology with a variety of inflammatory diseases had a likelihood of 25% of having any skin or nail problems.[9] For example, in a study with RA patients, 77% of the participants had at least one skin condition found on their visits.[11] To recognize this range of skin lesions, rheumatologists frequently require the opinion of a dermatologist. The participants in our study reported that in their daily practice, they encountered an active skin lesion in nearly 7 patients each week, and they provide FTF dermatology consultations to a mean of nearly 12 patients each month.

Rheumatologists are becoming more interested in understanding dermatological conditions. Around the world, a large number of multidisciplinary clinics have been developed to facilitate collaborative efforts between dermatologists and rheumatologists for enhanced patient care. Also, studies examining collaboration across the fields of Rheumatology-Dermatology produce more thorough examinations for better disease control.[12] Despite the significant demand for dermatology consultations, in our study, 3.3% of rheumatologists indicated that their institution did not have any dermatologists, and a huge majority (91%) claimed that there were no collaborative Rheumatology-Dermatology outpatient clinics. Furthermore, the survey results indicate that patients struggle to schedule dermatological

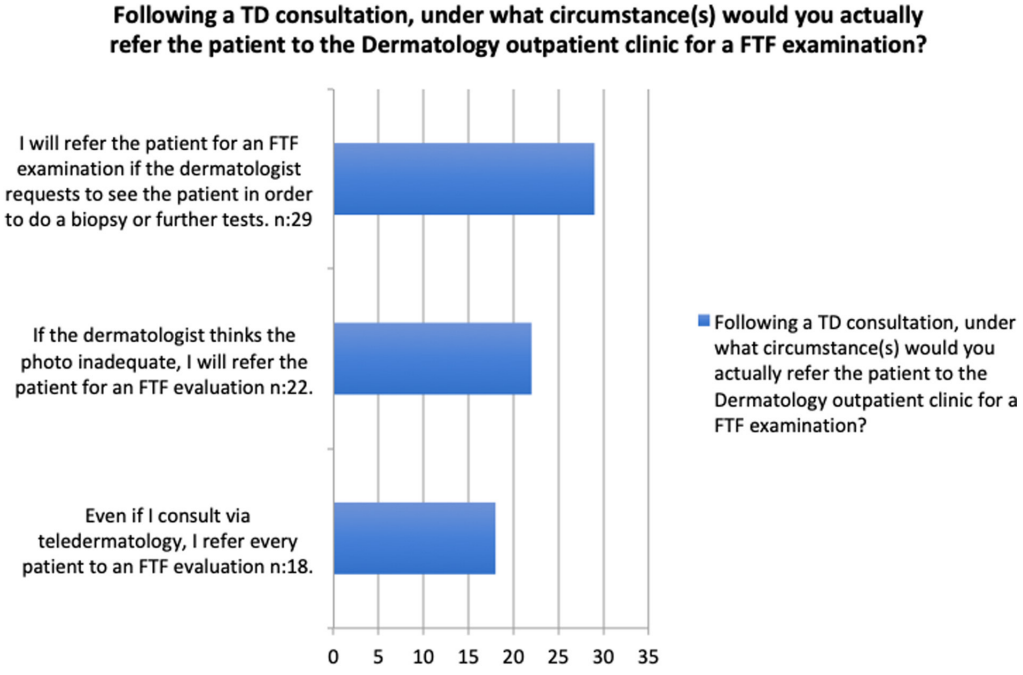

Figure 4. Circumstances to make a face-to-face consultation following Teledermatology.

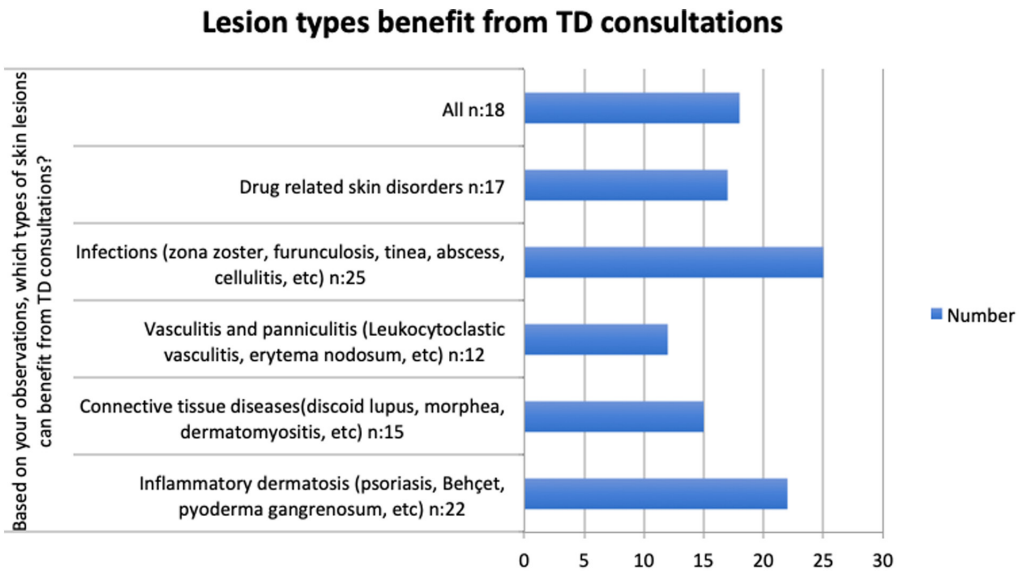

Figure 5. Skin lesions for which Teledermatology could give diagnostic benefit.

examination appointments, despite rheumatologists' intensive dermatology consultation demands. The presence of such conditions may be facilitating factors for rheumatologists to use TD consultations in Türkiye.

Numerous rheumatology studies have shown that TM is useful for diagnosing and treating autoimmune and inflammatory rheumatic diseases.[13-15] These studies have grown during the pandemic. Online patient rheumatology examinations and TM techniques are also employed also in some centers in Türkiye. This TM experience of rheumatologists may again be encouraging regarding TD consultations.

The majority of participants who use consultations via TD noted that they did not routinely refer patients for FTF examinations after being diagnosed with TD. Only some of the rheumatologists expressed concern that TD would not be as effective as an FTF assessment, so they would refer all patients for a FTF evaluation. According to these findings, most rheumatologists believed that TD consultations were reliable.

Regardless of how reliable they found TD, there were very few rheumatologists who believed it was beneficial for every lesion type. The majority of the participants using TD stated that TD would be effective for "some skin lesions, partially." They found it beneficial for infective lesions (such as zona zoster), inflammatory dermatosis [such as psoriasis (PsO)], drug-related skin lesions, and connective tissue disease lesions (such as discoid lupus, dermatomyositis, etc.). They stated patients with vasculitis and panniculitis gain the least benefit from TD consultations. This data is comparable to earlier research. Articles were made available that assessed the diagnostic accuracy of TD for inflammatory dermatoses, with a focus on PsO data.[16-18] They demonstrated that patients with PsO might be diagnosed with TD in a manner that was very similar to FTF examination. To the best of our knowledge, there is no evidence of TD accuracy for panniculitis or vasculitis in the literature. The most probable rationale for this is the increased necessity for biopsy in the diagnosis of lesions like panniculitis or vasculitis.

One of the study's most interesting findings was that the majority of rheumatologists consult via TD with dermatologists through family members or friends. The reason that the answer "dermatologists from family/friend" exceeds the number of "dermatologists at the same hospital" might be related to the difficulty of scheduling appointments in hospitals in Türkiye.

Similarly, when participants were asked why they resorted to the TD method, the main answers included simultaneous diagnoses of rheumatologic disease and dermatologic lesions, difficulty getting an appointment for dermatology, and lesions that require urgent diagnosis and treatment. It was discovered that the most common reasons for applying to TD were a desire to gain speed for diagnosis and due to a lack of appointment availability from dermatologists.

As far as we know this is the first TD awareness survey conducted via rheumatologists. The data of the study should be evaluated only within the context of Türkiye's conditions. The results seemed to accurately reflect the circumstances in Türkiye. As a limitation, this was a cross-sectional survey conducted in a time-limited manner. The participants represent fewer than half of Türkiye's actively working rheumatologists. It is important to acknowledge selection bias, given that we reached participants only through electronic channels. To manage this issue, messages were also delivered to personal phones via WhatsApp groups. Recall bias may also be present in survey questions that include features like the number of patients evaluated.

Conclusion

The findings of this study revealed that a substantial proportion of rheumatologists in Türkiye use the TD approach. The vast majority of rheumatologists who utilize this consultation method consider it reliable. The main advantage of TD is that it speeds up the diagnosis of skin/nail lesions and eliminates appointment issues for dermatologists in Türkiye. For rheumatologists in Türkiye, TD seems to be a useful tool for routine daily practice. Future research is needed to validate and standardize rheumatologists' TD approaches, paving the way for wider application.

Data availability statement: The data underlying this article cannot be shared publicly due to the privacy of individuals who participated in the study. The data underlying this article will be shared upon reasonable request to the corresponding author.

Ethics Committee Approval: The Dokuz Eylul University local ethical committee approved the study on December 6, 2023, with approval number 2023/39-18.

Informed Consent: Written informed consent was obtained from the participants who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

Declaration of Interests: The authors have no conflicts of interest to declare.

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