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**ORIGINAL ARTICLE**

**Teledermatology practices: benefits, limitations and perspectives. Qualitative interview-based study with dermatologists**

*Pratiques de la télédermatologie : avantages, limites et perspectives. Étude qualitative par entretiens auprès de dermatologues*

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## **Abstract**

**Context.** - The demography of the French dermatologists has been declining for several years, and this decline will continue. Teledermatology is often presented as one of the possible solutions to meet consultation needs and is already used in various contexts. Yet some authors have specified that telemedicine is not an adaptation of medicine to technology, but a new radically different practice, and that these differences should be explored before generalizing its use.

**Objective.** - The aim of this study was to characterize the current teledermatology practices, especially their benefits and limitations compared to face-to-face consultations.

**Methods.** - A qualitative study was conducted in the Pays de la Loire region based on semi-structured interviews of 9 dermatologists, from March to May 2020. Interviews were recorded and a thematic analysis was performed.

**Results.** - The number of teledermatology consultations increased sharply due to the COVID-19 pandemic, showing its potential but also its limitations. Dermatologists reported an effective procedure given that it helped to regulate patient flow. It allowed identifying urgent needs and providing rapid advice when the situation allowed it. However, they also reported a poorly stimulating practice for dermatologists, and a feeling of frustration due to diagnostic and therapeutic incompleteness. This feeling was reinforced by a weakened relationship with patients. They estimated that the use of teledermatology will increase and recommended to continue to use it as a tool within a local network of known professionals. They stressed the need to identify the type of procedures that can be done by teledermatology, especially in a context of possible concurrence with artificial intelligence.

**Conclusion.** - Teledermatology was perceived as an imperfect solution to the medical desert issue. It allowed optimizing the medical time but weakened the physician-patient relationship, with diagnostic and therapeutic frustrations. Dermatologists recommend to consider teledermatology and dermatology as complementary and not competitive, within a local network of known professionals.

**Keywords:** Dermatology; Patient care management; Physician-patient relationships; Teledermatology; Telemedicine

## Résumé

**Contexte.** - La démographie dermatologique est en baisse depuis plusieurs années et cette baisse va se poursuivre. Pour répondre aux besoins de consultation, la télédermatologie est souvent présentée comme une des solutions possibles. Celle-ci est déjà utilisée dans de nombreux contextes. Pourtant certains auteurs indiquent que la télémédecine n'est pas une simple adaptation de la médecine à la technologie mais bien une pratique radicalement différente et qu'il faut explorer ces différences avant de la généraliser.

**Objectif.** - L'objectif principal était de caractériser les pratiques télédermatologiques actuelles, notamment leurs avantages et leurs limites vis-à-vis de la pratique dermatologique en présentiel.

**Méthode.** - Nous avons réalisé une étude qualitative par entretiens auprès de 9 dermatologues, libéraux et hospitaliers exerçant dans les Pays de la Loire de Mars à Mai 2020. Nous avons ensuite pratiqué une analyse thématique.

**Résultats.** - L'épidémie de COVID 19 a augmenté brutalement le nombre d'actes de télédermatologie, elle a montré les potentialités mais aussi les limites de cette pratique. Les dermatologues indiquent une procédure efficace, au sens, où elle permet de réguler les flux de patients. Elle permet notamment d'identifier les situations urgentes et de donner des avis rapides quand la situation le permet. La contrepartie est une pratique faiblement stimulante pour le dermatologue, accompagné d'un sentiment de frustration du fait d'une incomplétude diagnostique et thérapeutique. Cette frustration est renforcée par un appauvrissement de la relation avec le patient. Les dermatologues projettent une augmentation de cette pratique et préconisent de la maintenir comme un outil au sein d'un réseau local de professionnels connus. Ils indiquent la nécessité de caractériser les actes possibles à faire en télédermatologie, et ce d'autant plus rapidement que le rôle du télédermatologue paraît concurrencé par l'intelligence artificielle.

**Conclusions.** - La télédermatologie est vue comme une réponse imparfaite à la problématique des déserts médicaux. Elle permet une optimisation du temps médical mais implique un appauvrissement de la relation de soins, ainsi qu'une frustration diagnostique et thérapeutique. Pour compenser ces inconvénients les dermatologues préconisent de ne pas mettre en concurrence la dermatologie et la télédermatologie mais de les voir comme complémentaires au sein d'un réseau local de professionnels.

**Mots clés :** Dermatologie ; Réseau de soins ; Relation médecin-patient ; Télédermatologie ; Télémédecine

## **Introduction**

The demography of the French dermatologists is currently declining and this decline will continue [1]. Due to this shortage of dermatologists, various solutions are proposed, including teledermatology [2]. This is a new practice, the recent reimbursement of which [3] has allowed a rapid development, in particular through direct access digital platforms [4]. This development has been further accelerated due to the COVID-19 pandemic [5]. Teledermatology includes two types of practice: store-and-forward teledermatology where practitioners examine photographs remotely, and teleconsultation where dermatologists have direct video conferencing with their patients. Teledermatology seems to have many benefits with an easier access to care [2], improved quality and lower costs [6]. Moreover, as dermatology is essentially a visual specialty, it is particularly suited to telemedicine [7]. Also, this practice appears useful to general practitioners and dermatologists [2,8]. Patient satisfaction is comparable to that of face-to-face consultations [9].

However, these benefits should be weighed against the disadvantages. For example, access to healthcare is only facilitated for populations that are able to use digital tools [10]. Likewise, the cost reduction is probably limited by the increased use of this practice [11]. Also, no gain in quality has been proven, and some authors ask to delay the development of this practice [12-14]. Finally, some physicians have expressed fears about the changes in the physician-patient relationship that this technique is likely to induce [15]. These changes are related to medical reasoning, with an impaired perception and a suppression of the affective atmosphere, referring to the influence of the context on the medical decision-making [16]. Communication is also modified, switching from a complex relationship to a simple exchange of information [17]. By modifying the usual benchmarks, telemedicine also changes patients'

feelings, with trust in the system to be built [18]. This reduced perception of the context and the richness of the exchanges would promote a relationship centered on the objective disease and not on the illness experienced by the patient [19].

Due to these changes, telemedicine should be seen as a new form of care, and not as a traditional medical practice simply adapted to technology [20,21]. As such, it does not seem to be able to meet the same objectives as traditional practice. To date, this otherness seems to have been poorly explored, especially in dermatology. The image of teledermatology used as a substitute for face-to-face dermatology persists, promoting a notion of competition between both types of consultation. Moreover, this lack of characterization interferes with the reflection on the place that should be assigned to this practice. We are currently conducting a quantitative study, in conjunction with the General Practice Department of Nantes University Hospital, to assess the reliability of store-and-forward dermatology. We wanted to complete this evaluation by a qualitative study with dermatologists.

The main objective of this qualitative interview-based study was to characterize current teledermatology practices, in particular their benefits and limitations compared to face-to-face dermatological consultations. A secondary objective was to collect the dermatologists' perspectives and recommendations for the future of this practice.

## **Method**

### A. Study design and setting

An exploratory qualitative study based on semi-structured interviews was conducted with dermatologists practicing teledermatology in the Pays de la Loire region, in France.

### B. Enrolment of the participants

We proposed to the panel of dermatologists participating in the quantitative study (7 dermatologists) to participate in the qualitative research, on a voluntary basis. A first email explaining the research project was sent to the dermatologists. If they showed their interest, an information letter and a consent form were sent to them.

In addition, in order to have a larger panel of dermatologists, we also contacted, using the same method, practitioners of a hospital center located in the same region where a dermatological tele-expertise platform had recently been implemented, as well as a private dermatologist. In total, 14 mails were sent. These interviews took place between February and May 2020, i.e. during the COVID-19 pandemic. This pandemic has changed tele dermatology practices, so that some dermatologists preferred to postpone the date of the interview in order to take a step back from this period.

#### C. Development of the interview guide

The interview guide was developed based on previously published studies, with a special focus on the topics that were frequently mentioned [15,17,18,22]: the benefits and limitations of this practice, the change in medical reasoning and in the relationship with patients. We grouped these topics into 3 main questions (*Box 1*) using the method described by Quivy et al. [23]. The interview guide was modified after the first interview to refocus it on the objective of the study.

#### D. Conduct of interviews

All the interviews were conducted by the same person, a resident in dermatology currently completing a research master of Medical Ethics and Bioethics. The interviews were conducted individually, in a quiet place, at the workplace and at the times requested by the dermatologists. Each interview was recorded using an audio recorder, with the participant's consent, before being transcribed within Word®, with pseudonymization of the participants'

data. The audio interviews were deleted after transcription. The anonymized transcripts were made available to the dermatologists interviewed and stored securely. Non-verbal communication was recorded live by the researcher during the face-to-face interviews.

#### E. Interview Analysis

A thematic analysis was performed according to the method described by Pierre Paillé and Alex Mucchielli [24]. The interviews were reread, noting the verbatims of interest and thematizing them. Recurring topics were grouped into thematic categories. This analysis was performed manually, without using computer software.

#### F. Ethics and regulatory approaches

Our study was not a research involving the human person in the sense of the Jardé law. It was nevertheless submitted for opinion to the CERAPHP.5 ethics committee which issued a favorable opinion.

### **Results**

#### A. Study Population

After sending the email, two dermatologists working in Angers university hospital, six working in the hospital center of the same region and the private dermatologist agreed to participate in the study. A dermatologist, working in university hospital, replied to the e-mail, saying that she did not wish to participate, without giving a reason. The four other dermatologists, 2 working in university hospital and 2 private dermatologists, did not respond to the email. There were 5 men and 4 women, with variable professional experiences (*box 2*).

Due to the lockdown of the population, only 3 interviews were conducted face-to-face and the other 6 interviews were conducted by telephone. Interviews lasted between 16 and 45



minutes, with a mean duration of 25 minutes. Data saturation was reached at the eighth interview.

### B. Current Practices

Most dermatologists interviewed (7/9) reported using a teledermatology platform implemented by the ARS of Pays de la Loire (regional public health agency), mainly for tele-expertise. This platform was only accessible to healthcare professionals, so that patients could not make a request by their own. During the COVID-19 pandemic, this platform was also used for teleconsultations. In this case, patients who already had a scheduled appointment with a dermatologist received a phone call to offer them to switch the face-to-face consultation to a teleconsultation. As this platform was not available to all participating dermatologists, some dermatologists (2/9) reported having continued to practice informal, i.e. unrecognized and unpaid, teledermatology.

### C. Benefits of teledermatology identified by participants

Dermatologists reported many positive aspects (*Box 3*): the formalization of and remuneration for an already existing activity and a response to the growing demand for consultations. For them, due to the decline in medical demographics, practicing teledermatology appeared to be a necessity in order to meet this demand. They reported that teledermatology allowed triaging patients requiring dermatological care and those who could be managed in general medicine. They considered it as a tool to be used for prioritizing patients according to their degree of urgency.

This rapid triage of patients appeared possible thanks to the use of photographs, considered more helpful than a clinical description, and by the upstream information work done by professionals (collection of patients' history, questioning...).

Finally, teledermatology appeared to be particularly suitable for fragile patients, patients with transport difficulties, or for the prison population. This remote, contactless management was also extensively used during the COVID-19 pandemic, which accelerated the development of this practice.

#### D. Limitations of teledermatology identified by participants

The COVID-19 pandemic resulted in a sharp increase in the use of this practice, revealing its potential but also its limitations (*Box 4*). Thus, dermatologists reported a change in medical reasoning. First, they described an impact on their perception due to a loss of their senses. For example, the vision was incomplete, limited by the camera's view and was in two dimensions instead of three. Also, palpation was impossible. Finally, according to the participants, due to the camera's view, teledermatology favored the timely management of a specific problem, instead of the whole-body examination usually performed.

They attributed these changes to a feeling of diagnosis uncertainty. While some dermatologists reported that they often made diagnoses in this way, others insisted on their feeling of decreased reliability compared to face-to-face examinations.

Beyond the medical reasoning, dermatologists reported a weakened relationship with their patients. Practitioners expressed a difficulty in appreciating the context, in particular patients' state of mind. They described impaired, less fluid interactions with their patients and a difficulty to use non-verbal communication. For them, these losses resulted in a utilitarian exchange, centered on the objective disease.

When asked if they would be willing to exclusively use teledermatology, all the dermatologists clearly answered "No". They justified their refusal by the fact that they found this practice less rewarding, and by an increased feeling of fatigue due to the use of a screen and to the management of the technology.

#### E. Perspectives and recommendations:

All dermatologists projected an increased use of this practice in the short term. They considered this practice as an imperfect answer to the medical desert issue and recalled the need to consider these deserts as a constructed and potentially reversible phenomenon. While they acknowledged that teledermatology is an interesting new practice, they recommended to see it as complementary and not as competing with face-to-face consultations. To this end, they recommended identifying what can be done or not by teledermatology, given the specific characteristics of this practice. This reflection seemed really necessary to them because they felt that the role of teledermatologists, with their judgment remotely from the patient's context could be in competition with artificial intelligence in the short term.

To promote adherence to the approach, they suggested to maintain this tool within a local network of known professionals. Patients could physically consult a general practitioner or a nurse who could refer them, if necessary, via teledermatology, to a known teledermatologist. The first face-to-face consultation could allow a global dermatological examination and facilitate patients' adherence to the approach. If necessary, this referent professional could contact a teledermatologist for further advice. The teledermatologist, knowing his interlocutor, could then better answer the request (*figure 1*).

Conversely, the interviewed dermatologists were afraid that the development of direct access digital teledermatology platforms could lead to care disconnected from the field reality, making it difficult to perform the required procedures. Indeed, since teledermatology does not allow physical procedures, in particular biopsies, in some case tele-expertise concluded to the need for a physical consultation with a dermatologist to perform this procedure. These patients could therefore be referred to the nearest dermatology department by an unknown colleague (*figure 2*). Moreover, since neither the patient, nor the attending dermatologist

know the teledermatologist, the interviewed dermatologists suggested that trust issues could arise in patients' care.

Noting that many patients were no longer registered with an attending physician, the dermatologists expressed the wish to extend nursing skills to include them in a teledermatology network. They could consult and ask for teledermatology advice from the nearest department, if necessary, in line with the local network. They could be identified by both the patient and the teledermatologist.

Dermatologists also discussed the pricing of this practice. While they agreed that paying for a practice that was not previously remunerated is a step forward, the amount remains low. This inadequate pricing appeared to them more pronounced for the requesting professional who must collect data and is currently paid €5 for a level 1 tele-expertise in France.

Finally, with the idea of structuring dermatology and teledermatology, they reported the need to identify the procedures that can be done or not by teledermatology. This identification could guide the future place of artificial intelligence (*Box 5*).

## **Discussion**

### **Main results**

This work allowed exploring the specificities of the current teledermatology practices, in particular by characterizing its benefits and limitations compared to face-to-face dermatology as identified by a panel of dermatologists working in the Pays de la Loire region (France).

The results suggested that, from the dermatologists' perspective, the experience in teledermatology first responded to an increasing demand for consultations due to the shortage

of dermatologists. It was perceived as an effective practice, in the sense that it allowed regulating patient flows. This practice nevertheless appeared to be weakly stimulating for dermatologists, generating a feeling of frustration due to a feeling of diagnostic and therapeutic incompleteness. This frustration was reinforced by a weakened relationship with the patients.

While in the future everyone predicts an increased use of this practice, many recommendations were suggested, in particular the need to work with known professionals. Finally, they reported the need to identify the procedures that fall or not within the scope of this practice. This identification is necessary since the role of dermatologists in teledermatology appears to be competing with artificial intelligence.

#### Strengths and limitations of the study

The main strength of our study is its originality. Indeed, we did not find any other qualitative studies on teledermatology involving dermatologists in the literature. Moreover, the context of the COVID-19 pandemic has suddenly changed practices. The interviews took place during the pandemic. We were therefore able to interview dermatologists while most of their activity was performed by telemedicine. This unprecedented situation could be questioned in the moment, and the comparison with their conventional practice was easy because it was recent. Nevertheless, a potential bias could have been introduced because it is likely that the two interviews conducted in March (respectively 3 weeks and 1 week before the lockdown of the population) would have given different results if they had been conducted a few months later. The remaining interviews (seven) were conducted in May, so they took into account the pandemic context.

The main limitation is the low number of dermatologists interviewed and their practice location. We mainly interviewed physicians practicing in areas where the density of

dermatologists has decreased in previous years and is likely to continue to decline. This is a local context that does not allow drawing conclusions on a larger scale, even if the dermatological demography is declining throughout the French territory. Another limitation is related to the method, since we focused only on interviews with dermatologists. Our study is therefore based on the feelings of dermatologists. A complementary approach would have been to observe face-to-face consultations and teleconsultations in order to have an external view. Finally, the subject of the study is another limitation: we tried to characterize teledermatology as a whole. It would be relevant to conduct an additional study specifically focused on teleexpertise or dermatology teleconsultation.

### Comparison to the literature

In order to structure dermatology and teledermatology, dermatologists would like teledermatology to be developed locally. This organization would have many benefits.

First, a care network between known professionals allows building trust between them. This desire to know their interlocutors may also be found in interviews with general practitioners [15]. This trust also promotes the development of "learning relationships" as communication takes place through telemedicine [25].

Maintaining the approach locally would also guarantee that it is well adapted to local resources, with the possibility to monitor patients, unlike remote medicine that is disconnected from the reality of the territory. This is also the opinion of the French National Medical Council (CNOM), which has stated that digital medical platforms with direct access to patients result in a "risk of uberization of medicine" [26]. Not knowing the teledermatologist could also promote the use of "low-cost" expertise abroad [27].

Finally, following the usual care pathway allows patients to physically meet primary care professionals (nurses or physicians) in order to openly express their complaint and

undergo a general clinical examination. This initial consultation would compensate for the objectifying and partial nature of teledermatology [28]. Moreover, patients' trust in their general practitioners could spread to the professional to whom they are referred. Thus, this first consultation could compensate for patients' distrust of the unknown teledermatologist [18].

The challenge for dermatologists is to define what can be done or not by teledermatology. Among the requests, it appears possible to manage some cases remotely while others cannot. This distribution has not yet been defined, and it is urgent to do it as the practice develops. It would require further quantitative and qualitative studies, in particular to identify situations where there is a risk of error. This reflection on the possibility of remote care, i.e. with an objective and partial care relationship, could help to define the future place to be given to artificial intelligence.

## **Conclusion**

Rather than a competition between teledermatology and traditional practice, teledermatology needs to be seen as a different practice, with many strengths to complement and strengthen the healthcare services currently available. However, the inherent virtuality of the process is reductive, which means that its scope of application needs to be precisely defined and a human presence should be maintained during the care process.

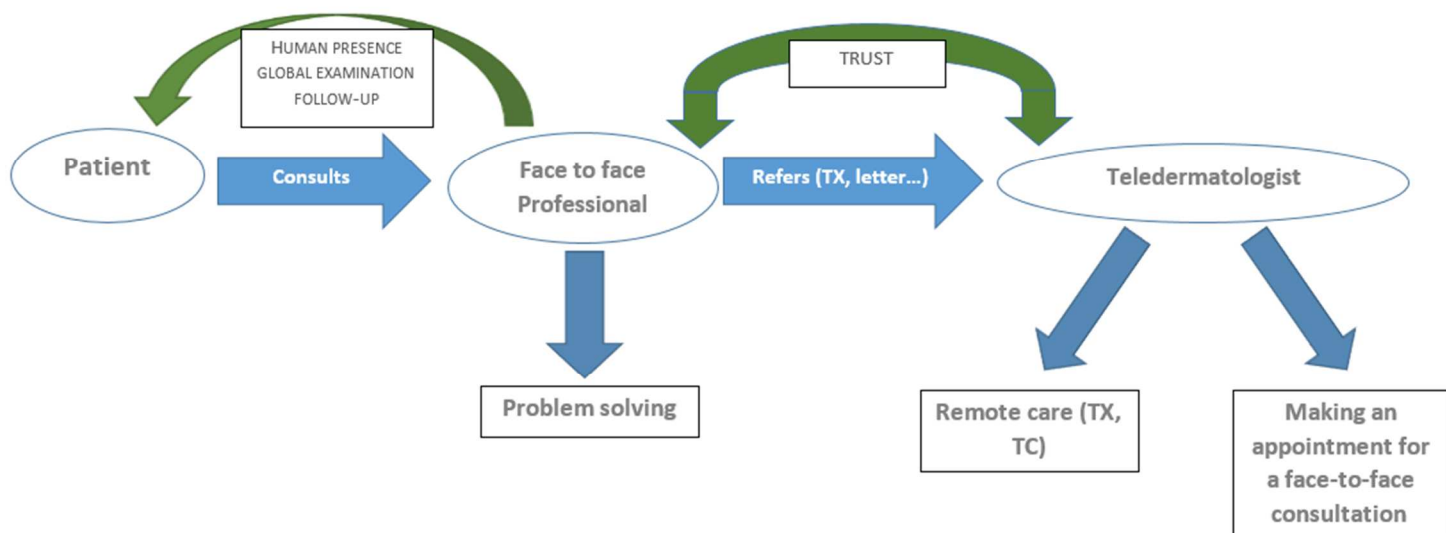
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Figure 1: Suggested care pathway with professionals who know each other



TX: tele-expertise / TC: teleconsultation

Figure 2: Patient care pathways with direct access to teledermatology

