

Assessment of knowledge and perceptions of Tunisian psychiatrists regarding telepsychiatry

Evaluation des connaissances et des perceptions des psychiatres tunisiens à l'égard de la télépsychiatrie

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ABSTRACT

Introduction: Telemedicine has become a fundamental pillar of the evolution of healthcare worldwide. In Tunisia, the challenges of the health system, amplified by the COVID-19 pandemic, have highlighted the urgency to adopt innovative solutions. In this regard, the publication of Presidential Decree No. 318/2022 on April 8 in the Official Journal of the Tunisian Republic represents a significant advance in the regulation of telemedicine.

Aim: To assess the knowledge of Tunisian psychiatrists and child psychiatrists regarding telemedicine, its legal framework, and their perceptions of this new medical practice.

Methods: A descriptive cross-sectional study was conducted 8 months after the issuance of the presidential decree. The survey was conducted online through an electronic questionnaire on Google Forms.

Results: A total of 68 participants were included in this survey. The median number of professional years was 5±7 years. Among the participants, 82% worked in psychiatry and 18% worked in child psychiatry. The sector of practice was public in 69% and private in 31% of cases. Most of them (62%) did not know about the different telemedicine acts, and 57% of doctors were unaware of the existence of the presidential decree. The majority of doctors (84%) expressed a favorable opinion regarding the adoption of telepsychiatry, regardless of sex ($p=0.69$), professional status ($p=0.512$), specialty ($p=1$), years of experience ($p=0.83$), and practice sector ($p=1$).

Conclusion: Despite a low level of knowledge regarding telemedicine, the study highlights the interest of the participants in integrating telepsychiatry into their clinical practices.

Key words: Telemedicine, Psychiatry, knowledge, Legal status, Perception, Tunisia

RÉSUMÉ

Introduction: La télémédecine est désormais un pilier essentiel de l'évolution des soins de santé à l'échelle mondiale. En Tunisie, les défis du système de santé, exacerbés par la pandémie de COVID-19, ont souligné l'urgence d'adopter des solutions novatrices.

À cet égard, la promulgation du décret-loi présidentiel n° 318/2022 le 8 avril dans le Journal Officiel de la République Tunisienne représente une avancée significative dans la réglementation de la télémédecine.

Objectif: Évaluer les connaissances des psychiatres et pédopsychiatres tunisiens de la télémédecine, son cadre juridique et leurs représentations à cette nouvelle pratique médicale.

Méthodes: Une étude transversale descriptive a été menée à 8 mois de la parution du décret présidentiel. L'enquête a eu lieu en ligne à travers un questionnaire électronique conçu sur la plateforme Google Forms.

Résultats: Au total, 68 participants ont été inclus dans cette enquête. Le nombre médian d'année professionnelle était de 5±7 ans. Parmi les participants, 82% exerçaient en psychiatrie et 18% exerçaient en pédopsychiatrie. La majorité d'entre eux (62%) ne connaissaient pas les différents actes de la télémédecine et 57% des médecins n'étaient pas informés de l'existence du décret-loi. La majorité des médecins (74%) ont estimé nécessaire d'avoir une formation académique sur la télémédecine. La majorité des médecins (84 %) ont émis un avis favorable sur l'adhésion à la télépsychiatrie, indépendamment du sexe ($p=0,69$), du statut professionnel ($p=0,512$), de la spécialité ($p=1$), du nombre d'années d'expérience ($p=0,83$), et du secteur d'exercice ($p=1$).

Conclusion: Malgré un niveau de connaissance faible en matière de télémédecine, la présente étude a mis en évidence un intérêt des psychiatres à l'intégration des technologies d'information et de la communication dans leurs pratiques cliniques.

Mots clés: Télémédecine, Psychiatrie, Connaissance, Statut légal, Perception, Tunisie.

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INTRODUCTION

The advancement of Information and Communication Technologies (ICT) has brought about a significant transformation in the healthcare sector, reshaping the delivery of medical services. In 1997, the World Health Organization (WHO) defined telemedicine as "the part of medicine that uses the telecommunication transmission of medical information (images, reports, audio and video recordings) in order to obtain a remote diagnosis, expert opinion, continuous patient monitoring, or therapeutic decisions" (1). This mode of medical practice gained particular prominence during the COVID-19 pandemic (2). The concept of digital health, particularly telemedicine, is not new in Tunisia. On May 15, 1996, the National Telemedicine Committee was established to promote this innovative practice. As early as October 1996, a connection was established between La Rabta Hospital and Paul Brousse Hospital in Paris, marking the beginning of the integration of telemedicine into the strategic information technology plan of the Tunisian Ministry of Health (3).

However, despite these initial advancements, the legal framework for telemedicine in Tunisia began to be defined more recently. Law 2018-43 of July 11, 2018, amending Law 91-21 of March 13, 1991, established the legal framework governing the practice and organization of medical and dental professions, thus marking a significant step in regulating telemedicine in the country (4,5).

In March 2020, the National Council of the Order of Physicians of Tunisia granted an exceptional authorization for teleconsultation in Tunisia, which was temporary until the end of the pandemic. This measure allowed physicians to use remote consultations, telecommunications, video conferences, as well as to renew prescriptions for chronic conditions (6).

To specify the application details of this practice, Presidential Decree No. 318/2022 was published in the Official Journal of the Tunisian Republic on April 8, 2022 (7).

Telepsychiatry is the application of telemedicine in the field of mental health. It is considered one of the oldest applications of telemedicine, with the first teleconsultation experiments initiated in the United States in 1958 (8). In the Tunisian context, an emerging trend characterized by rising demand for telemedicine among patients is observed. However, this evolution is hindered by the existence of an incomplete legal framework, further compounded by a lack of understanding of this framework. The potential risk arising from this situation is an increase in the misuse of teleconsultation among healthcare professionals. Despite limited reported experience with telemedicine practice, there is no data regarding the adoption of this emerging medical practice among Tunisian psychiatrists (9,10).

The objective of this work was to assess the knowledge of Tunisian psychiatrists and child psychiatrists regarding telemedicine, its legal framework, and their perceptions of this emerging medical practice.

METHODS

Study design

We conducted a descriptive cross-sectional study. The study period spanned a month and a half, from November 15, 2022, to December 31, 2022.

Study participants

The inclusion criteria for this survey covered Tunisian psychiatrists and child psychiatrists practicing in Tunisia, regardless of their affiliation with the public or private sector, and those who consented to participate in the survey. Psychiatrists and child psychiatrists practicing abroad were not included. Exclusion criteria included doctors from other medical, surgical, or biological specialties, as well as medical interns and externs.

Study procedure

The survey was conducted online using an electronic questionnaire developed on the Google Forms platform. The questionnaire was designed in French and comprised 34 questions : 10 questions on sociodemographic and professional data, 13 questions on knowledge related to telemedicine and its legal framework, and 9 questions regarding the interest in telepsychiatry in general and in the Tunisian healthcare setting in particular. There was also a question about willingness to embrace telepsychiatry and another question about the interest in specific academic training on telemedicine.

During the questionnaire elaboration, our team relied on the decree law and the specificity of our psychiatric healthcare system, as well as data obtained from the literature on the application of telemedicine in psychiatry. We reached out to the executive board of the ATPEP "Association Tunisienne de Psychiatres d'exercice privé" , who supplied us with an email list of private practice psychiatrists and child psychiatrists. Additionally, we acquired email lists of psychiatry and child psychiatry residents, as well as hospital-university psychiatrists and child psychiatrists, through the National College of Psychiatry and Child Psychiatry. The questionnaire was distributed via email to a total of 391 doctors.

Statistical analysis

Data entry and analysis were conducted using SPSS software version 26. We calculated simple frequencies and percentages for qualitative variables. Means, extreme values (minimum and maximum), and standard deviations were determined for quantitative variables. In the absence of normality, medians and interquartiles were calculated. Comparisons of percentages for independent series were performed using Pearson's chi-squared test. In cases where this test was not valid, the bilateral Fisher exact test was used. The significance level was set at 0.05.

Ethical considerations

All participants were informed of the study's objectives, the anonymity of participation, and the option to refuse to respond to the questionnaire. The study was approved by the ethics committee of Razi Hospital (RP B01-2023).

RESULTS

Sample Size

During data collection, Out of 391 physicians contacted via email, 70 participants responded to the questionnaire, which corresponds to 17.9% of the physicians contacted via email. Among these participants, two psychiatrists were practicing abroad at the time of the study and were therefore excluded. In total, 68 participants were included in this survey.

Sociodemographic and Professional Characteristics

The majority (78%) of the doctors were female, with a median age of 5 ± 7 years. Among the participants, 82% practiced in adult psychiatry, and 18% specialized in child psychiatry. Half (50%) of them were junior doctors (residents). The predominant practice sector was the public sector (91%). A patient traveling more than 100 kilometers round trip for a medical consultation was found in 91% of doctors. Geographic distance was identified as the main reason for the cancellation of a medical consultation (60%) (Table 1).

Table 1. Sociodemographic and Professional Characteristics of Surveyed Physicians

Age		32±10 years [24-71]
Sex	Male	22% (n=15)
	Female	78%(n=53)
Years of professional experience		5±7 years
Specialty	Psychiatry	82%(n=56)
	Child Psychiatry	18%(n=12)
Statut professionnel	Resident	50%(n=34)
	Assistant professor	13%(n=9)
	Associate professor	6%(n=4)
	Professor	3%(n=2)
	Specialist physician	28%(n=19)
Current sector of practice	Public	69%(n=47)
	Private	31%(n=21)
Average time to get a first appointment	Two week	73%(n=50)
	One month	15%(n=10)
	Three months	12%(n=8)
Appointment method(s)	Paper diary	75%(n=51)
	Electronic diary	16%(n=11)
	Online electronic diary	16%(n=11)
	On-site secretary	40%(n=27)
Patient who travels more than 100 km (round trip) to consult you	Yes	91%(n=62)
	No	9%(n=6)
Reason(s) for cancellation of the consultation	Geographical distance (no means of transport)	60%(n=41)
	Work schedule constraints of the patient on the move	44%(n=30)
	Somatic problem	28%(n=19)
		32%(n=22)

Evaluation of knowledge of telemedicine and its legal framework among participants

Among the 13 knowledge-related questions, only four received correct responses from more than 50% of the participants (Q1, Q3, Q8, and Q13). More than half of the respondents (62%) were unaware of the different telemedicine acts. More than two-thirds of the participants (73%) claimed to know the definition of teleconsultation, and 57% were unaware of the existence of Presidential Decree No. 318/2022 regarding the practice of telemedicine in Tunisia. Only 21% of them knew that there were telemedicine best practice recommendations. The majority of doctors (74%) believed it was necessary to have academic training in telemedicine (Table 2).

Table 2. Knowledge about Telemedicine Among Surveyed Physicians

Questions	Responses	Pourcentage (counts)
Q1 : Definition of telemedicine	Yes	100% (n= 68)
	No	0% (n=0)
Q2 : Knowledge of different telemedicine acts	Yes	38%(n=26)
	No	62%(n=42)
Q3: Definition of teleconsultation	Yes	73%(n=51)
	No	27%(n=19)
Q4: Definition of teleexpertise	Yes	22% (n=15)
	No	78%(n=53)
Q5: Definition of medical telemonitoring	Yes	41%(n=28)
	No	59%(n=40)
Q6: Definition of medical teleassistance	Yes	32%(n=22)
	No	68%(n=46)
Q7: Definition of medical regulation	Yes	32%(n=22)
	No	68%(n=46)
Q8: Definition of electronic medical prescription	Yes	59%(n=40)
	No	41%(n=28)
Q9: Knowledge of Presidential Decree No. 318/2022 regarding the practice of telemedicine in Tunisia	Yes	43%(n=29)
	No	57%(n=39)
Q10: Knowledge of the procedure for practicing telemedicine in Tunisia	Yes	18%(n=12)
	No	82%(n=56)
Q11: Knowledge of the existence of good practice recommendations for telepsychiatry	Yes	21%(n=14)
	No	79%(n=54)
Q12: Ability to issue medical prescriptions (Table B) through telemedicine *	Yes	59%(n=40)
	No	41%(n=28)
Q13: Ability to practice telemedicine with a patient abroad*	Yes	94%(n=64)
	No	6%(n=4)
The utility of having academic training in telemedicine	Yes	74%(n=50)
	No	26% (n=18)

*Correct answer to questions Q11 (Yes), Q12 (No), Q13 (Yes)

Utility and representation of telemedicine in the Tunisian psychiatric healthcare setting

According to 88% of doctors, telepsychiatry is useful to integrate into the Tunisian healthcare system, and 94% believed that telepsychiatry can facilitate access to healthcare. The interest in telepsychiatry practice in public hospitals was observed in 79% of doctors. Telepsychiatry is considered an alternative solution to address the underdevelopment of liaison psychiatry by 82% of the participants. Telepsychiatry can be implemented in various contexts, including patient monitoring (97%), addiction treatment (74%), and cognitive-behavioral

therapies (88%). Furthermore, 81% of doctors believed that telepsychiatry presents a higher risk of medico-legal issues compared to traditional psychiatry (Table 3).

Table 3. Perception and Utility of Telepsychiatry in the Tunisian Healthcare System According to Surveyed Physicians

Questions	Responses	Pourcentage (counts)
Integrating telepsychiatry into the Tunisian psychiatric care system is beneficial.	Yes	90%(n=61)
	No	10%(n=7)
Telepsychiatry presents more medico-legal issues than traditional psychiatry.	Yes	81% (n=44)
	No	19% (n=13)
Telepsychiatry facilitates access to care.	Yes	94%(n=64)
	No	6%(n=4)
Telepsychiatry concerns both private practice psychiatrists and hospital-university psychiatrists	Yes	88%(n=60)
	No	12%(n=8)
Telepsychiatry is an alternative solution for the underdevelopment of liaison psychiatry.	Yes	82%(n=56)
	No	18%(n=12)
The utility of telepsychiatry in public hospitals.	Yes	79%(n=54)
	No	21%(n=14)
Utility in the correctional setting (for detained patients).	Yes	74%(n=50)
	No	26%(n=18)
Télépsychiatrie can be applied with	Children	Yes 59%(n=40)
	Adults	Yes 96%(n=65)
	Elderly	Yes 75%(n=51)
It is useful to use telepsychiatry for	Patient Follow-up (Monitoring)	Yes 97%(n=54)
	During psychiatric emergencies	Yes 43%(n=29)
	Addictionology	Yes 74%(n=50)
	Cognitive-Behavioral Therapy	Yes 88%(n=60)
	Management of Suicidal Crises	Yes 62%(n=42)
	Cognitive Remediation	Yes 63%(n=43)

Adoption of Telepsychiatry

The majority of participants (84%) expressed a favorable opinion on telepsychiatry. No associations were found between the adoption of telepsychiatry and sex (p=0.69), physician status (p=0.512), specialty (p=1), years of professional experience (p=0.83), and practice sector (p=1) (Table 4).

Table 4. Association between Telemedicine Adoption and Professional and Sociodemographic Variables

Variables	Favorable n=57	Not favorable n=11	P	
Sex	Male	21%(n=12)	27%(n=3)	p=0,69
	Female	97%(n=45)	73%(n=8)	
Physician status	Junior	47%(n=27)	64%(n=7)	p=0,512
	Senior	53%(n=30)	36%(n=4)	
Years of professional experience	6±7 years [1-40]	4±11 years [2-43]	p=0,834	
Specialty	Psychiatry	82%(n=47)	82%(n=9)	p=1
	Child Psychiatry	18%(n=10)	18%(n=2)	
Current sector of practice	Public	68%(n=39)	73%(n=8)	p=1
	Private	32%(n=18)	72%(n=3)	

DISCUSSION

Knowledge related to telemedicine

Although all participants were already aware of the definition of telemedicine, more than half of them had not heard of the existence of the presidential decree-law related to the practice of telemedicine in Tunisia and therefore, they were unaware of its legal framework.

This lack of knowledge reflects the limited dissemination of the law and the lack of information among Tunisian doctors about the legal framework for the practice of telemedicine.

This result can partly be explained by the professional characteristics of the studied population, particularly the fact that junior doctors, due to their academic status, have not yet considered integrating telemedicine into their daily professional practice.

Additionally, the period between the publication of the decree law and our survey was relatively short (8 months), which may also contribute to this result.

A lack of knowledge was also found among surveyed doctors regarding the different modalities of telemedicine, except for teleconsultation, which 73% of them claimed to know. This result can be explained by the fact that teleconsultation is the most frequently used and widespread telemedicine act in psychiatry (8).

The decree-law on telemedicine is divided into four chapters with 29 articles, covering general provisions, areas of application, general conditions of practice (including authorizations, technical requirements, exercise guarantees, and payment methods), and final and transitional provisions. In psychiatry, teleconsultation, which involves providing medical consultations remotely, and teleexpertise, which allows a physician to seek the opinion of competent colleagues, are the two main acts of telemedicine. To perform a telemedicine act, a physician must enter into a contract with the platform, approved by the professional order (if a private sector physician) or the Ministry of Health (if a public sector physician). The decree-law raises new legal risks for all stakeholders, including physicians performing the act, physicians consulted, and information support providers (7). Despite the publication of the Presidential Decree, which represents a significant advance in the regulation of telemedicine, the decree-law is currently awaiting the publication of application texts. These texts will provide more detailed guidance on implementing the law. Lack of knowledge could lead to misuse and abuse in a non-legal framework.

The majority of doctors stated that it is necessary to have training in telemedicine. Training is considered a key driver for the expansion of telemedicine and overcoming barriers to its implementation. An example of this is the strategy adopted in the United States. To successfully integrate telemedicine into the American healthcare continuum, courses have been included in medical education curricula to effectively use telemedicine technologies in students' future careers (11).

Representation of telepsychiatry and its usefulness in the Tunisian Healthcare System

The usefulness of integrating telepsychiatry into the Tunisian psychiatric healthcare system was recognized by 90% of cases. This emerging medical practice can find its place in both the public and private healthcare sectors. It could facilitate access to care for certain patients in geographically remote areas.

Moreover, telemedicine could be a key player in reducing the distribution inequalities of psychiatrists in Tunisia, given that the density of these professionals was relatively low, at 2.81 psychiatrists and child psychiatrists per 100.000 inhabitants in 2017, with some regions having fewer than one psychiatrist per 100.000 inhabitants (12). Similarly, due to the absence of liaison psychiatry services in many Tunisian hospitals, telepsychiatry presents itself as a solution to improve access to mental healthcare in the country (13).

In the present study, interest in telepsychiatry has been observed in various areas of mental health, including patient monitoring and emergency situations, regardless of age. According to 75% of participants, remote consultation could be beneficial for the elderly. Currently, an increasing number of controlled trials demonstrate the effectiveness of telepsychiatry in treating specific mental disorders, such as depression and anxiety, as well as in managing suicidal crises (14).

For some patient groups, the distance created by telepsychiatry can be seen as an advantage as it can encourage their engagement in mental healthcare, especially for patients with phobias or for elderly individuals who may face obstacles such as reduced mobility, transportation issues or social isolation (15,6). The effectiveness of psychiatry extends beyond traditional psychiatric treatment methods and also involves some recent psychotherapy methods. An example is cognitive-behavioral therapy (CBT) in the treatment of social phobia. In a recent meta-analysis including 42 articles, the results concluded that internet-based CBT is effective in managing social phobia, with no significant difference compared to traditional CBT practice (17).

Adherence to telepsychiatry

In this study, the majority of doctors expressed a favorable opinion about their adoption of telepsychiatry, indicating a positive perception of using ICT in their clinical practice. This result aligns with a recent study conducted by Albarrak et al. in Saudi Arabia to assess perceptions of telemedicine, where surveyed doctors were willing to adopt it in their daily practice. The main obstacles to using telemedicine mentioned in the study were the lack of proper training and coordination between ICT experts and clinicians (18).

Furthermore, the interest in telemedicine in psychiatry was evident, regardless of the doctor's status, years of practice, practice location, and specialty. Among the doctors who supported telemedicine, 47% were juniors, and 53% were seniors. This suggests that familiarity with digital technologies is not a determining factor

for telemedicine adoption, as senior doctors are just as interested as junior doctors.

Similarly, our study showed that the adoption of telepsychiatry is not determined by specialty, as the majority of surveyed child psychiatrists expressed a favorable opinion. Some characteristics related to child psychiatry interviews suggest that the interest in telepsychiatry in child psychiatry may be limited due to the need for mediation in play and motor skills, the requirement for specific educational materials (toys, drawings, modeling clay), and the analysis of a child's movements in the room. In a study conducted among Norman psychiatrists on telepsychiatry practice, child teleconsultation was the least considered in comparison to those oriented toward adolescents, adults, and the elderly (19).

These data remain controversial, as other studies have highlighted the advantages of teleconsultation for the child population, and some programs dedicated to this population have shown their feasibility, especially for neurodevelopmental disorders (20, 21).

Despite the interest generated by telepsychiatry, 81% of doctors expressed concerns about their potential exposure to medico-legal issues related to this developing practice (22). This observation underscores the importance of academic training focused on legal aspects and the responsibilities of those involved in this emerging practice.

Relevance and limitations of the study

To our knowledge, this is one of the first Tunisian studies that assess the knowledge of Tunisian doctors, particularly psychiatrists, about telemedicine. The main value of this work lies in evaluating the perceptions of mental healthcare professionals regarding telemedicine a few months after the publication of the decree-law regulating its practice. Thus, this study provides primary data on the level of knowledge and interest that psychiatrists and child psychiatrists have in this new medical practice.

However, this work has some methodological limitations. Firstly, the participation rate was low, with only 17.9% of the target population taking part, and the sample size does not adequately represent all Tunisian psychiatrists and child psychiatrists, including those from both the private and the public sectors. Additionally, the evaluation process lacked objectivity and did not utilize a validated psychometric tool. Given the absence of an appropriate tool, we designed a questionnaire specifically for this study.

CONCLUSION

Despite a lack of knowledge about telemedicine and its legal framework, our survey suggests that there is interest in this emerging practice among Tunisian psychiatrists. To address this knowledge gap, it would be necessary to implement specialized training programs in telemedicine to improve doctors' understanding of this new practice. This training could cover theoretical knowledge, various

modalities, technical aspects, and recommendations for best practices in telemedicine to help future practitioners effectively use ICT for remote care.

Abbreviations:

ICT = Information and Communication Technologies

CBT = Cognitive-Behavioral Therapy

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