

# ASSESSMENT OF KNOWLEDGE AND ATTITUDE OF SOHAG GOVERNORATE PHYSICIANS TOWARD TELEMEDICINE AND RELATED ETHICAL ISSUES AFTER COVID-19 PANDEMIC

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## ABSTRACT

**Background:** In the period of the COVID-19 pandemic, telemedicine has been a crucial instrument for the delivery of healthcare services. Its benefits include helping patients save time and money and protecting healthcare professionals from infection. **Objectives:** This study aimed to assess the knowledge and attitude of medical practitioners in Sohag governorate regarding telemedicine and related ethical issues after the COVID-19 pandemic. **Methodology:** A cross-sectional study was conducted, and data were gathered through a self-administered online questionnaire. The study was conducted in Sohag governorate over three months (from April to June 2022). Three hundred and twelve physicians of different specialties participated in this study. **Results:** About two-thirds of the participants knew the term telemedicine. Most participants believed that telemedicine could save transportation expenses and physician time. 59% of respondents thought that telemedicine could promote communication. About half of the participants believed that telemedicine threatened the privacy of patient information. Two-thirds of respondents said they should have patients' consent in written form. COVID-19 was an excellent chance to test telemedicine. According to most participants, the technical infrastructure is the main obstacle to a telemedicine application in Sohag governorate. Male physicians had better knowledge than females. Physicians aged 30-39 and consultants had a better attitude towards telemedicine. **Conclusions:** Physicians included in the study showed good knowledge and a positive attitude toward telemedicine. Following a brief trial period, doctors were ready to incorporate it into their practices. This study recommends that telemedicine conferences and training sessions be held, and telemedicine practice legislation and regulations be developed.

**Keywords:** Telemedicine, COVID-19, Knowledge, Attitude, ethical issues

## INTRODUCTION

The World Health Organization broadly describes telemedicine as the delivery of health care services, where distance is a critical factor, by all health

care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment, and prevention of

disease and injuries (Stoltzfus et al., 2023).

Since its inception in the late 1950s, telemedicine has been used in various facets of healthcare thanks to the broad adoption of telecommunications technology (Liu et al., 2021).

The COVID-19 epidemic presented challenges for the healthcare system. Fewer people visited and were admitted to hospitals to preserve social distance and limit illness transmission (Ghitani et al., 2021).

Compared to before COVID-19, when telemedicine's usage was almost exclusively restricted to providing treatment for persons in remote places, it expanded quickly (Layfield et al., 2020).

Telemedicine can enhance patient accessibility, satisfaction with treatment, and quality of care while actively tracking chronic illness, effectively utilizing doctors' time, and improving communication among medical experts (Jun et al., 2021).

Expanding telemedicine services will raise medical, legal, and ethical concerns, such as patient confidentiality, upholding treatment standards, obtaining patient consent, and professional misconduct. These might harm how telemedicine and virtual consultations are adopted and accepted (Ateriya et al., 2018).

The current study aimed to assess physicians' knowledge and attitudes toward telemedicine and related ethical issues in Sohag governorate after the COVID-19 pandemic.

## **SUBJECTS & METHODS**

### **Participants:**

Three hundred and twelve physicians were the subjects of this cross-sectional survey. It was conducted in Sohag governorate from April to June of 2022. The surveyed physicians included residents, specialists, and consultants with various specializations.

### **Data collection tool:**

Data were gathered using a self-designed, well-organized questionnaire

created after evaluating other relevant research (Ghitani et al., 2021; Elsaie et al., 2022). The questionnaire was distributed using an open-access Google survey.

There are five key sections of the questionnaire. The first part of the survey asked participants about their sociodemographics, while the second part was designed to evaluate doctors' knowledge of telemedicine. The third part studied the physicians' attitudes toward telemedicine, including advantages, compatibility issues, the complexity of implementing telemedicine, and preference to try telemedicine systems. The fourth part studied certain ethical challenges during telemedicine application. Lastly, the fifth part discussed physicians' ideas on how to enhance the utilization of telemedicine in Sohag governorate.

The knowledge portion was evaluated using a Yes/No strategy. The "Yes" answer was given a score of one, while the "No" answer was given a score of zero. In this part, one might receive a minimum score of 0 or a maximum score of 6. The degree of telemedicine knowledge was assessed using a cutoff point of 3 (or 50%) on the six questions. Less than 3 was considered to indicate a poor knowledge of telemedicine, whereas more than 3 was considered to indicate good knowledge of telemedicine.

The attitude portion was evaluated using a strongly agree\ agree\ neutral\ disagree\ strongly disagree strategy. The perceived answers were graded on a 5-point Likert scale, with one denoting strongly disagree, and five denoting strongly agree, except for complexity questions, which were reversely graded.

Average scores were measured. A mean of less than 2.5 (50%) was identified as a poor attitude. A score ranging from 2.6 (51%) to 3 (60%) was defined as moderate, and a score over 3.0 (60%) was categorized as having a good attitude.

Before the research began, ten doctors were pre-tested with the questionnaire to ensure they could comprehend each item.

### **Sample Size Calculation:**

The sample size of the current study was determined using the equation of Naing et al. (2006). Since no prior survey in the same demographic has been conducted, the prevalence of telemedicine knowledge and attitude is 50%. With a 95% confidence interval, the absolute precision error is 5%. Sohag Medical Syndicate estimated that 1,650 doctors worked in Sohag governorate in 2022 (population size). Consequently, the total sample size was 312.

#### Ethics considerations:

The Medical Research Ethics Committee of the Faculty of Medicine - Sohag University has approved the study protocol. I.R.B.'s number of registration is Soh-Med-22-04-32. A cover letter explaining the research objectives and assuring everyone that their responses would be concealed accompanied the questionnaire. Additionally, informed consent was received.

#### Statistical analysis:

The questionnaire data were coded

Table 1 represents the demographic data of the participants.

	Count	%
Gender		
Male	159	51
Female	153	49
Age		
Less than 30	50	16
30-39	143	45.8
40-49	71	22.8
50-59	35	11.2
More than 60	13	4.2
Title		
Resident	48	15.4
Specialist	123	39.4
Consultant	141	45.2
Specialty		
Medical specialty	240	77
Surgical specialty	72	23

Seventy-one percent of the participants were familiar with the term telemedicine. 37.5% of those surveyed had some experience with telemedicine. Tools like teleconferences and teleconsultations were known to 66.3% of people. Forty-six

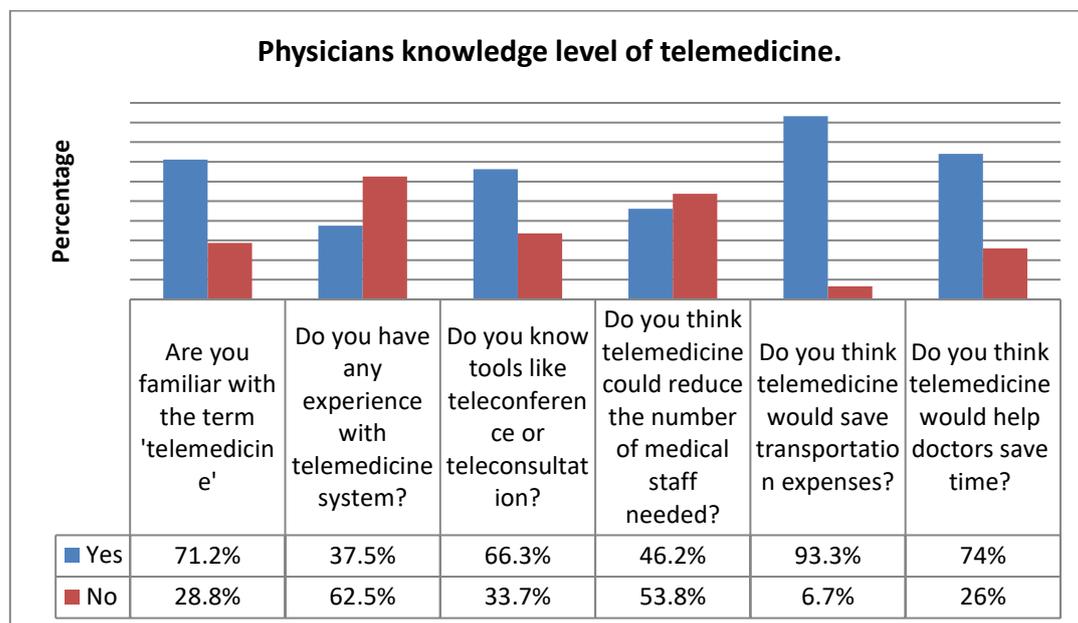
percent of the participants agreed that telemedicine could reduce the number of medical staff needed. Telemedicine could save transportation expenses, according to 93.3% of respondents. 74% knew before being analyzed with IBM SPSS Statistics for Windows version 20. Frequency (count) and relative frequency (percentage) were used to illustrate the data. The qualitative data were compared using the Chi-square ( $\chi^2$ ). Statistical significance was considered at a p-value less than 0.05. The reliability of the questionnaire was measured using Cronbach's alpha coefficient ( $\alpha = 0.75$ ), and its content validity was assessed.

## RESULTS

A total of 312 physicians responded to the survey. Males made up 51% and females 49%. The average participant was between 30 and 39 years old (45.8%). Ages 40 to 49 made up about 23%. 16% of the population was under 30. 11.2% were 50-59. Only 4.2% of respondents were older than 60. About 45% of respondents were identified as consultants, 40% as specialists, and 15% as residents. The specialty of the participants varied between medical (77%) and surgical (23%) specialties (Table 1).

percent of the participants agreed that telemedicine could reduce the number of medical staff needed. Telemedicine could save transportation expenses, according to 93.3% of respondents. 74% knew

telemedicine could help doctors save time (Fig. 1).

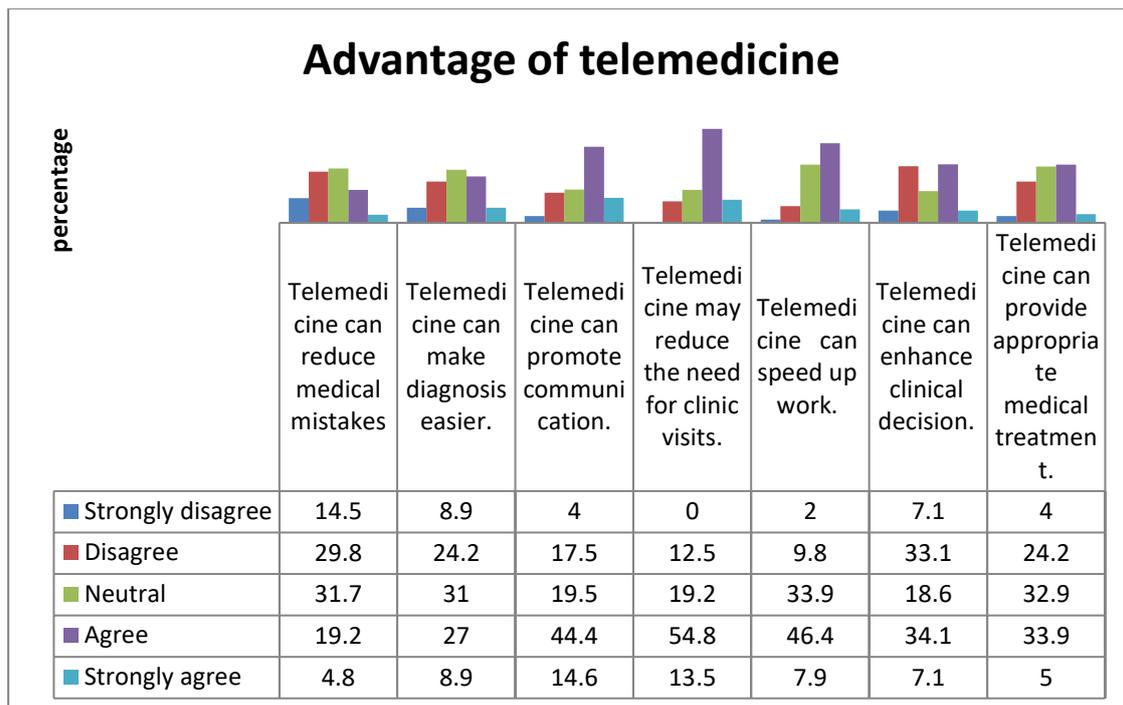


**Figure 1-** Bar chart represents physicians' knowledge level of telemedicine

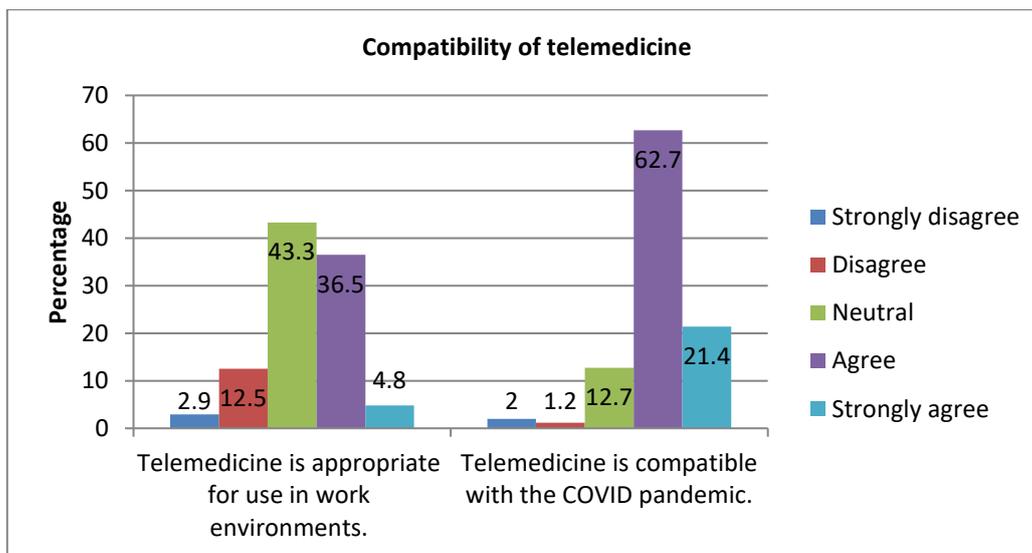
Only 24% of doctors who were asked about the benefits of telemedicine said that it may reduce medical mistakes. 36% claimed that telemedicine could make diagnosis easier. 59% of respondents concurred that telemedicine could promote communication. Sixty-eight percent believed that telemedicine could reduce the need for clinic visits. 54.3% of respondents reported that telemedicine could speed up work. 41.2% of

respondents believed that telemedicine could enhance clinical decisions. 38.9% thought telemedicine could provide appropriate medical treatment (Fig. 2).

On investigating the compatibility of telemedicine, 41.3% reported that telemedicine was appropriate for use in work environments. Additionally, 84% concurred that telemedicine was compatible with the COVID-19 pandemic (Fig. 3).



**Figure 2-** Bar chart represents the advantages of telemedicine



**Figure 3-** Bar chart represents the compatibility of telemedicine.

On investigating the complexity of telemedicine, 49.8% agreed that telemedicine requires extra effort. Half of the participants agreed that learning telemedicine is difficult and necessitates training. 51.3% of respondents disagreed that telemedicine adds to the staff's workload. 69.6% concurred that there are more staff responsibilities with telemedicine. 48% agreed that

telemedicine threatens the privacy of patient information. (Fig. 4).

When the physicians were asked about their telemedicine trial preference, most (86.5%) answered that COVID was an excellent chance to test telemedicine. 76% were interested in utilizing a telemedicine application. Most doctors (91.4%) suggested telemedicine testing before fully implementing it (Fig. 5).

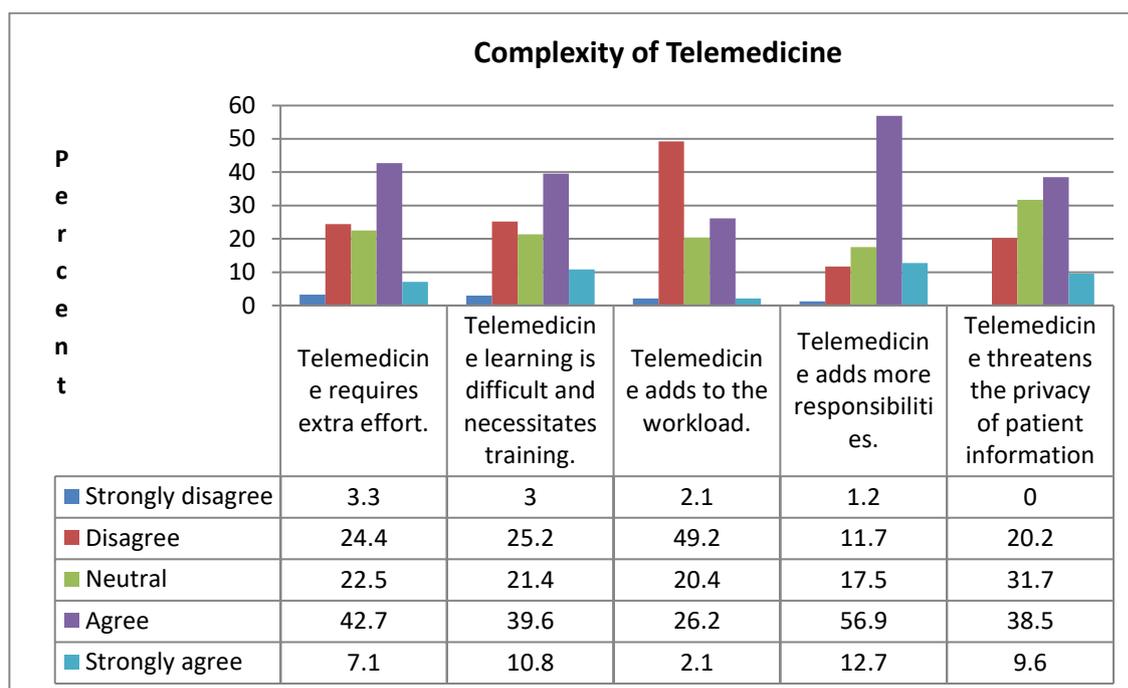


Figure 4- Bar chart represents the complexity of telemedicine.

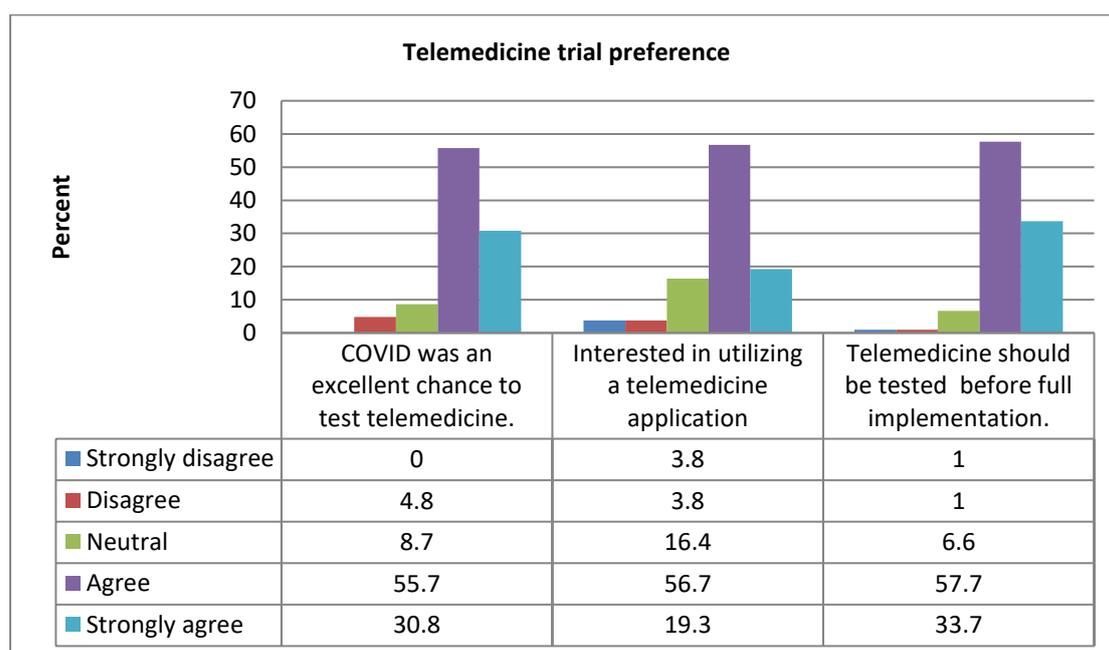


Figure 5- Bar chart represents the trial preference for telemedicine.

When asked about various ethical concerns in telemedicine practice, 37.5% of the participants agreed that telemedicine may negatively impact the doctor-patient relationship. Before employing telemedicine, 76% of respondents said they should have patients' consent in written form. 58.7% of respondents said they could ascertain the patient's capacity for consent through

social media consultation. About 90% rejected the use of patient information obtained through telemedicine for educational purposes without permission. Keeping patient rights and confidentiality was named as one of the ethical concerns of telemedicine practice by most participants (94.2%) (Fig. 6)

The physicians were asked about their opinions on improving the use of

telemedicine. 97% reported that telemedicine services should aid rather than replace in-person medicine (Fig.7A).

When physicians in Sohag governorate were questioned about the primary challenges to telemedicine adoption, 52% said that technical

infrastructure is the biggest barrier, 40% said patient awareness, and 8% said physician awareness (Fig.7B).

About 65% of the surveyed physicians exhibited good knowledge of telemedicine. Also, 67% showed a good attitude toward telemedicine (Fig. 8).

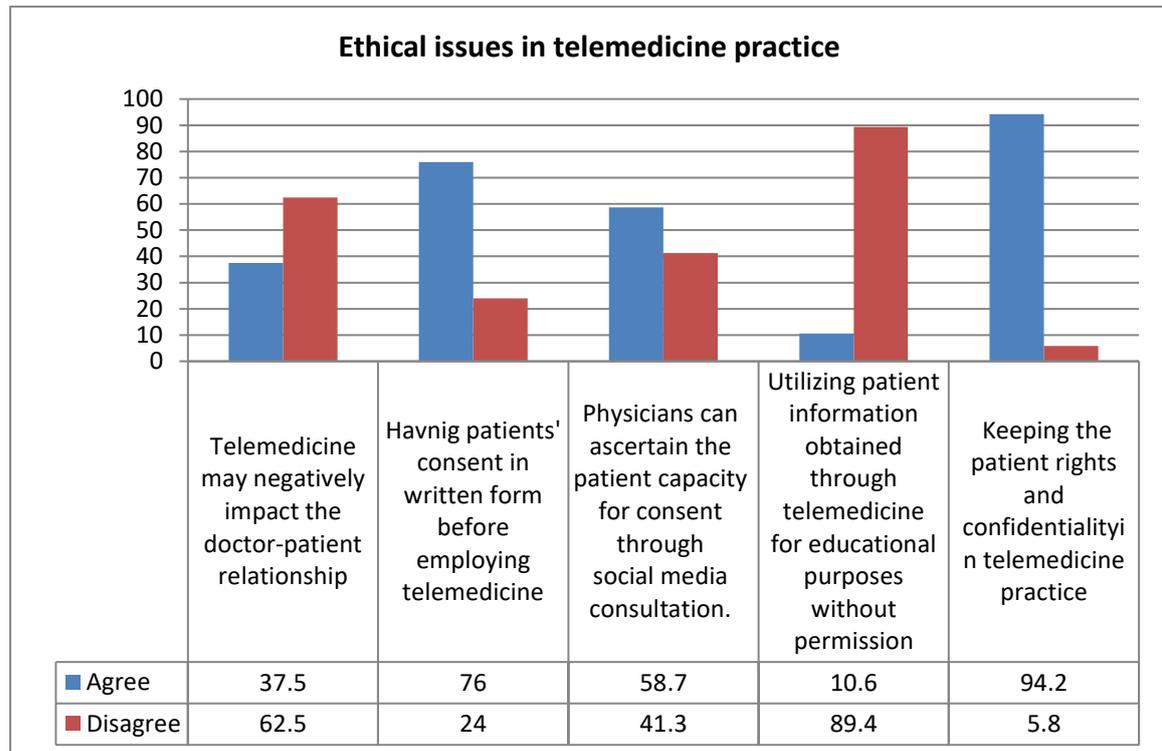
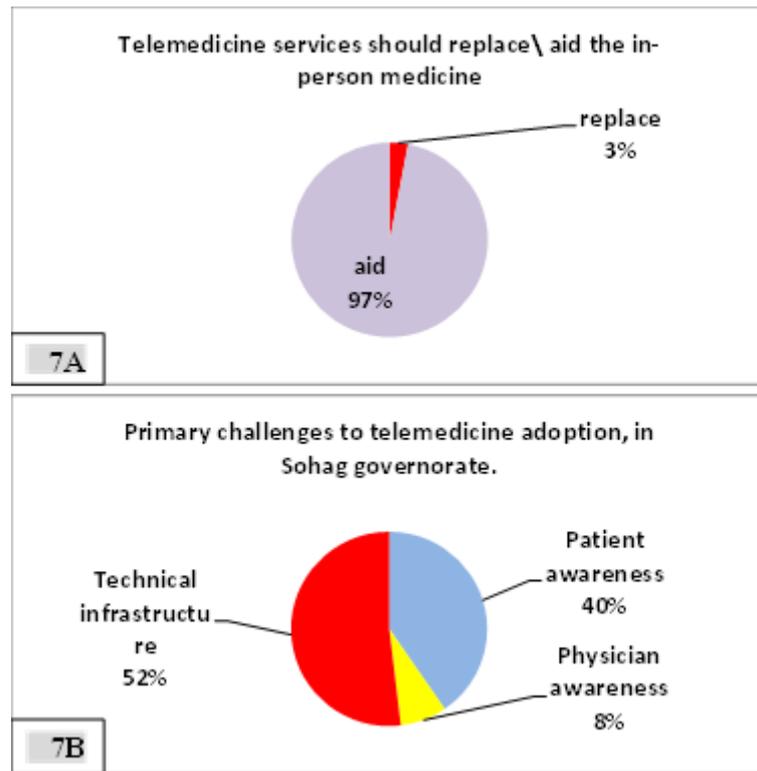
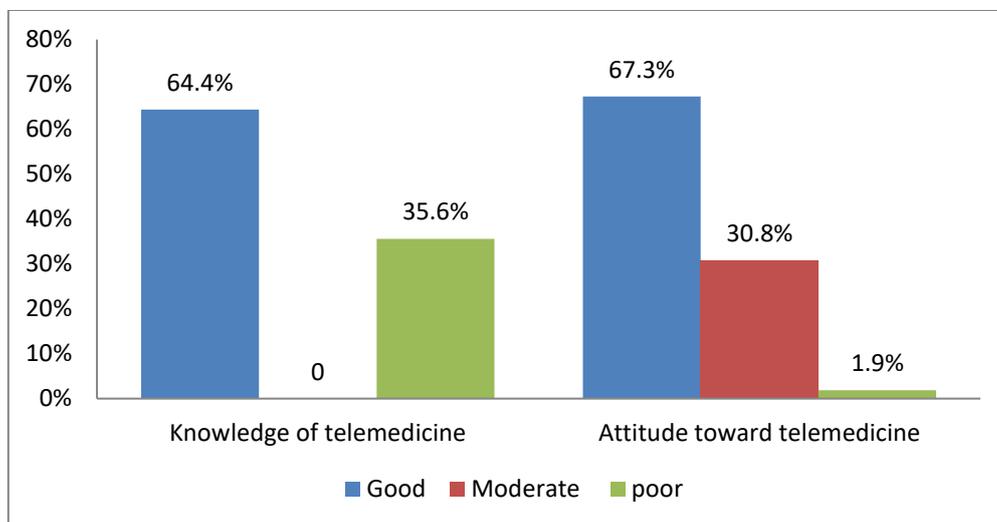


Figure 6- Bar chart represents ethical issues in telemedicine practice.



**Figure 7-** Pie charts represent the opinions to improve the use of telemedicine.7A: Telemedicine services should aid or replace in-person medicine. 7B: The primary challenges to telemedicine adoption in Sohag governorate.



**Figure 8-** The bar chart represents physicians' overall knowledge and attitude toward telemedicine.

Good knowledge of telemedicine was significantly related to the gender of physicians. Males exhibited better knowledge than females (p-value 0.016). Good knowledge of telemedicine was separate from other demographic data (age, title, and specialty) (**Table 2**).

On the other hand, gender and specialty did not substantially influence positive attitudes toward telemedicine. However, age and title were significantly related to it (p-values 0.001 and 0.023, respectively). The age group 30-39 and

consultants experienced the greatest levels (Table 3).

Table 2- represents the relation between sociodemographic data and knowledge of telemedicine.

		GOOD KNOWLEDGE		POOR KNOWLEDGE		X2	P-VALUE
		Count	percent	Count	percent		
Gender	Male	120	59.7%	39	35.1%	5.756	0.016*
	female	81	40.3%	72	64.9%		
Age	< 30	34	16.9%	16	14.4%	7.552	0.183
	30-39	76	37.8%	67	60.4%		
	40-49	55	27.4%	16	14.4%		
	50-59	28	13.9%	7	6.3%		
	> 60	8	4%	5	4.5%		
Title	Resident	30	14.9%	18	16.2%	4.168	0.124
	Specialist	66	32.8%	57	51.3%		
	Consultant	105	52.2%	36	32.4%		
Specialty	Medical	156	77.6%	84	31.5%	0.05	0.8
	Surgical	45	22.4%	27	24.3%		
Total		201	100%	111	100%		

\*Significant p-value < 0.05. X2: chi-square.

Table 3- represents the relation between sociodemographic data and attitudes toward telemedicine.

		GOOD ATTITUDE		MODERATE\ POOR ATTITUDE		X2	P-VALUE
		Count	Percent	Count	Percent		
Gender	Male	111	52.8%	48	47.1%	0.308	0.579
	female	99	47.2%	54	52.9%		
Age	< 30	21	10%	29	28.4%	21.370	0.001*
	30-39	87	41.4%	56	54.9%		
	40-49	66	31.4%	5	4.9%		
	50-59	24	11.4%	11	10.8%		
	> 60	12	5.7%	1	1%		
Title	Resident	24	11.4%	24	23.5%	7.529	0.023*
	Specialist	72	34.3%	51	50%		
	consultant	114	54.3%	27	26.5%		
Specialty	Medical	165	78.5%	75	73.5%	0.99	0.61
	Surgical	45	21.4%	27	26.5%		
Total		210	100%	102	100%		

\*Significant p-value < 0.05. X2: chi-square.

### DISCUSSION

Telemedicine is a form of e-health characterized by providing healthcare remotely utilizing information and communication technology (Scott and Mars, 2015).

There are four primary subfields of telemedicine: First, synchronous audio-

video telemedicine. Second, asynchronous or store-and-forward telemedicine. Third, remote patient assessment; and fourth, mobile tools of communication (Gioia and Salducci, 2019).

The latest appearance of COVID-19 has raised the demand for reliable healthcare services to deal with hospitals' resource scarcity and lower the danger of

viral transmission (Loeb et al., 2020).

The study assessed physicians' knowledge, attitudes toward telemedicine, and related ethical issues in Sohag governorate. The participating physicians in this research were between 25 and 65 years old. It encompassed a variety of surgical and medical specializations. This survey included people with various degrees, from residents to consultants.

Telemedicine encompasses patients, physicians, technology, and a regulating framework (Josep and Carles, 2020). Numerous factors affect how information technology is used in the healthcare system. Human-related factors, such as users' technological expertise and attitudes, are very important. According to previous studies, attitudes and perceptions are essential and crucial research subjects to understand how health professionals see and conceptualize telemedicine (Ayatollahi et al., 2015; Zayapragassarazan and Kumar, 2016).

Ayatollahi et al. (2015) reported that many practitioners needed to be more knowledgeable about and interested in telemedicine.

In the current study, most respondents (64.4%) had good knowledge of various aspects of telemedicine. Most respondents (71.2%) recognized the term 'telemedicine,' while only 37.5% had some experience with telemedicine. 66.3% of the respondents knew tools like teleconferencing or teleconsultation.

The current findings are consistent with those of Elsaie et al. (2022), who claimed that 69.3% of the surveyed Egyptian dermatologists had a good knowledge of telemedicine. Additionally, 68.9% were aware of the phrase 'telemedicine,' 46% had come upon a telemedicine platform, and 58.6% were informed of techniques like teleconferencing.

Physicians in Egypt had a comparatively better level of understanding of telemedicine than physicians in India, Ethiopia, Srilanka, and Saudi Arabia, who exhibited varying levels of awareness of telemedicine (41%, 37.6%, 43%, and 46.1%, respectively)

(Edirippulige et al., 2007; Zayapragassarazan and Kumar, 2016; Biruk and Abetu, 2018 and Albarrak et al., 2021).

Fewer conferences and seminars about telemedicine could explain the lower knowledge among physicians (Albarrak et al., 2021). Telemedicine is being used increasingly throughout the globe, especially since the Coronavirus epidemic in 2019, which explains the higher knowledge level in recent research (Bhaskar et al., 2020).

However, Similar European surveys demonstrated greater telemedicine awareness (84%) (Mairinger et al., 1996). Inadequate infrastructure, lack of technology skills, and poor knowledge among doctors and patients explain the lower knowledge level in lower and middle-income nations (Scott et al., 2018).

In the present study, 46% of the participants reported that telemedicine might reduce the number of medical staff needed. Also, most respondents reported that telemedicine could save transportation expenses and physicians time (93.3% and 74%, respectively).

According to Elsaie et al. (2022), 71% of the responding Egyptian dermatologists were aware of the potential medical staff reductions brought on by telemedicine. Also, they agreed that telemedicine could save transportation costs and physicians' time (90% and 81.8%, respectively). Similarly, Albarrak et al. (2021) found that over 90% of clinicians in various specialties believed that telemedicine might help save time and money.

Sixty-seven percent of the participating doctors in the current survey had a positive attitude toward telemedicine. These findings were in line with those published by Biruk and Abetu (2018) and Elsaie et al. (2022), who noted that the majority of respondents (64% and 75.4%, respectively) had a positive attitude toward telemedicine.

In the current study, one-quarter of the participating physicians believed that telemedicine could reduce medical errors. One-third of the participants stated that

telemedicine has the potential to facilitate diagnosis. More than half of the respondents thought that telemedicine could facilitate communication. Similar results were reported by **Elsaie et al. (2022)**.

Telemedicine permits two types of telehealth services: physician-to-physician and patient-to-physician services (**Pathak and Rai, 2021**). Telemedicine, which enables global physician-to-physician communication, has the potential to reduce medical errors and facilitate diagnosis in complex or difficult situations (**Greisman et al., 2015**).

However, it is not always possible to develop a diagnosis or recommend treatment without a hands-on approach. Numerous diagnostics, such as imaging studies and serological analyses, often request the patient's physical presence (**Pathak and Rai, 2021**).

In the current study, 68.3% of those surveyed felt that telemedicine may reduce the frequency of clinic visits. These findings are consistent with those of **Elhadi et al. (2021)** and **Elsaie et al. (2022)**, who found that the majority of participants (79.3% and 93.6%, respectively) agreed that telemedicine reduces outpatient hospital visits.

About forty one percent of participants in the current study felt telemedicine raises the standard of clinical decisions. This finding is consistent with a survey by **Elsaie et al. (2022)** showing that 36% of Egyptian dermatologists thought telemedicine could improve clinical decisions. **Biruk and Abetu (2018)** reported that 86.6% of the respondents concurred that telemedicine could improve the quality of clinical judgment.

Teleconsultations offer a special chance for cross-border cooperation and group decision-making. It gives medical professionals the knowledge to assess patients' symptoms. Perhaps most importantly, it allows patients to participate in decision-making. It enables consultants to communicate with general

practitioners and nurses to arrive at a diagnosis and choose a therapy plan (**Pappas et al., 2019**).

Teleconsultation has several benefits, according to **Malasanos et al. (2005)** and **Elbert et al. (2014)**, including protection from contact with COVID-19 cases, immediate healthcare, a decrease in healthcare costs, accessibility of medical care for patients, time savings, and a decrease in the workload of health staff.

Fifty-one percent of the participants in the current survey were certain that telemedicine doesn't raise staff workload. Similarly, **Anwar et al. (2023)** found that most participants (84%) thought remote consultation would lessen the effort of hospital personnel. However, **Biruk and Abetu (2018)** claimed that telemedicine would add to staff effort and that 68.2% of the research group thought telemedicine would provide staff members with additional duties.

Most participating doctors in the current survey felt telemedicine suits the COVID-19 epidemic. They additionally concurred that COVID was a great opportunity to try telemedicine. Similar results were recorded by **Elsaie et al. (2022)**.

Furthermore, **Anwar et al. (2023)** noted that almost 63% of participants engaged in telemedicine throughout the pandemic. **Parvin and Shahjahan (2016)** said 90% of respondents recommended full e-Health deployment in hospitals.

In the current study, 76% of participants expressed interest in using a telemedicine app. Before completely deploying telemedicine, most doctors (91.4%) recommended pre-testing it. **Elsaie et al. (2022)** reported similar outcomes. The attitude towards telemedicine, the patient-physician relationship, and the degree of technological worry may also impact one's readiness to use telemedicine (**Sushil et al., 2009**).

Certain patient rights have been agreed upon in traditional medical practice, including the right to receive treatment, the liberty to select a doctor, the ability to switch doctors at any point during treatment, the right to secrecy,

respectability, and the right to reject treatment. The same applies to telemedicine and online consultation (**Raposo, 2016**).

Many telemedicine programs demand informed consent as it is essential to any medical practice (**Odhiambo and Mars, 2018**).

In the current study, 76% of respondents thought written consent should be obtained from patients before applying telemedicine. According to **Balestra (2018)**, informed consent should be acquired before any telemedical communication unless there is an emergency.

Patients must be aware that virtual visits for telemedicine may come with intrinsic safety hazards and are not always considered the gold standard of care. To properly get their informed consent, it is necessary to consider their autonomy (**Moghbeli et al., 2017; Nittari et al., 2020**).

Concerns regarding the use of telemedicine were expressed in the current study. In the first place, 37.5% of current survey respondents thought telemedicine could adversely impact the doctor-patient relationship. Similar findings were reported by **Ashfaq et al. (2020)** and **Anwar et al. (2023)**.

This result might be attributed to the fact that telemedicine may make patients uncomfortable and inconvenient, as well as a lack of patients' sense of proximity or link to their doctors (**Guinart et al., 2021**).

Telemedicine cannot completely replace the traditional doctor-patient relationship, but it can be recommended in some circumstances, such as the COVID-19 pandemic, crises, and patients living far away (**Ghitani et al., 2021**).

Second, telemedicine compromises patient privacy and confidentiality, according to 48% of responding physicians. This finding was consistent with **Biruk and Abetu (2018)** and **Elsaie et al. (2022)**, who found that 66% and 44% of the participants believed telemedicine would endanger patient confidentiality and privacy.

The privacy and confidentiality

concerns will be resolved with adequate knowledge and training in telemedicine ethics and medicolegal concerns (**Zayapragassarazan and Kumar, 2016**).

When evaluating the adoption of telemedicine, it was claimed that confidentiality protection and the creation of secure information technology systems were of the greatest importance (**Judi et al., 2009**).

Another concern raised by this survey was the confidence of 69.6% of the respondents that telemedicine will add more responsibilities for doctors to manage and take into account.

This finding was consistent with findings from previous studies (**Sheikhtaheri et al., 2016; Elsaie et al., 2022**) in which participants expressed their concerns about telemedicine's administrative and legal obligations.

In the current study, good knowledge of telemedicine was not correlated with most physician characteristics or demographics (age, title, specialty). Still, it was strongly related to respondents' gender, with male participants having the highest levels of knowledge ( $P=0.016$ ).

The current findings are consistent with those of **Biruk and Abetu (2018)**, who found that having good knowledge of telemedicine was substantially correlated with participants' gender ( $P=0.001$ ), with 74.1% of participants having good knowledge being men.

In contrast, **Elsaie et al. (2022)** found that respondents' levels of good knowledge of telemedicine were substantially correlated with their ages, peaking in the 30–40-year-old age group ( $P=0.004$ ) and unrelated to their gender ( $P=0.861$ ).

In the current study, gender and specialty did not impact attitudes toward telemedicine. However, it was strongly correlated with age and title (p-values of 0.001 and 0.023, respectively). Positive attitudes were observed among consultants and people aged 30–39.

These findings concur with those of **Biruk and Abetu (2018)**, who found that participants' telemedicine attitudes were positively correlated with their ages ( $P=$

0.001). Contrarily, **Elsaie et al. (2022)** found no relationship between respondents' positive attitudes about telemedicine and their age or job title.

The use of telemedicine technology has greatly altered the attitudes and behaviors of healthcare professionals. It was shown that while one can first be wary and unaccustomed to the type of platform being utilized, after the usage of telemedicine systems, physicians' perspectives and worries altered (**Hanson et al., 2009**).

Egypt has no administrative or statutory guidelines for telemedicine use (**Elsaie et al., 2022**). The rising concern over medical malpractice is seen as an obstacle to the use of telemedicine. Most doctors, however, believe that the lack of uniform legal frameworks and insufficient current regulations are the primary barriers to remote consultation (**Helou et al., 2020**). After the COVID-19 crisis, adequate rules are required to secure ongoing telemedicine operations (**Daniel et al., 2018**).

### CONCLUSIONS

Physicians included in the study showed good knowledge and a positive attitude toward telemedicine. Following a brief trial period, doctors were ready to incorporate it into their practices.

Telemedicine services should not replace but aid the regular medical practice. Concerns were expressed regarding how telemedicine would affect doctor-patient relationships, how they might compromise data privacy, and how they might impose more responsibilities.

### RECOMMENDATIONS:

- Telemedicine services must be developed and standardized, particularly during crises and pandemics.

- In Egypt, laws and guidelines for telemedicine need to be developed and assessed to guarantee patients' and physicians' rights.

- To strengthen telemedicine practice, technical infrastructure has to be upgraded.

- This study suggests holding conferences and training sessions so doctors can efficiently practice

telemedicine.

- Additional research is required to determine the general population's awareness of telemedicine in Sohag governorate.

**Conflict of interest:** The authors declare that they have no competing interests.

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## الملخص العربي

### تقييم معرفة وموقف أطباء محافظة سوهاج تجاه التطبيب عن بعد والقضايا الأخلاقية ذات الصلة بعد جائحة كوفيد-19

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**مقدمة:** في فترة جائحة كوفيد-19، كان التطبيب عن بعد أداة هامة لتقديم خدمات الرعاية الصحية. وتشمل فوائده مساعدة المرضى على توفير الوقت والمال وحماية المتخصصين في الرعاية الصحية من العدوى. **هدف الدراسة:** هدفت هذه الدراسة إلى تقييم معرفة وموقف الاطباء في محافظة سوهاج فيما يتعلق بالتطبيب عن بعد والقضايا الأخلاقية ذات الصلة بعد جائحة كوفيد-19. **منهج الدراسة:** أجريت دراسة مقطعية، وتم جمع البيانات من خلال استبيان ذاتي عبر الإنترنت. أجريت الدراسة في محافظة سوهاج على مدار ثلاثة أشهر (من إبريل إلى يونيو 2022). شارك في هذه الدراسة ثلاثمائة واثنى عشر طبيباً من مختلف التخصصات. **النتائج:** حوالي ثلثي المشاركين يعرفون مصطلح التطبيب عن بعد. يعتقد معظم المشاركين أن التطبيب عن بعد يمكن أن يوفر نفقات الانتقال ووقت الطبيب. يعتقد 59% من المشاركين أن التطبيب عن بعد يمكن أن يعزز التواصل. يعتقد حوالي نصف المشاركين أن التطبيب عن بعد يهدد خصوصية معلومات المرضى. قال ثلثا المشاركين إنهم يجب أن يحصلوا على موافقة المرضى كتابياً. كان كوفيد-19 فرصة ممتازة لاختبار التطبيب عن بعد. وفقاً لمعظم المشاركين، فإن البنية التحتية التقنية هي العقبة الرئيسية أمام تطبيق التطبيب عن بعد في محافظة سوهاج. كان الأطباء الذكور أفضل معرفة من الإناث. كان للأطباء الذين تتراوح أعمارهم بين 30 و39 عاماً والاستشاريين موقف أفضل تجاه التطبيب عن بعد. **الاستنتاج:** أظهر الأطباء المشاركين في الدراسة معرفة جيدة وموقفاً إيجابياً تجاه التطبيب عن بعد. وبعد فترة تجريبية قصيرة، كان الأطباء على استعداد لدمجها في ممارساتهم. وتوصي هذه الدراسة بعقد مؤتمرات ودورات تدريبية للتطبيب عن بعد، وتطوير تشريعات ولوائح ممارسة التطبيب عن بعد.