

Original article

Medicolegal Liability and Telemedicine Practice during COVID-19



Pandemic: Egyptian Physicians' Perspectives

Marwa M. Anwar^{1*}, Enas M. A. Mostafa¹, Shaimaa A. Shehata¹, Samar Abd ElHafeez², Nahed M. Ali¹

¹ Forensic Medicine and Clinical Toxicology Department, Faculty of Medicine, Suez Canal University, Ismailia, 41522, Egypt. ² Epidemiology Department, High Institute of Public Health, Alexandria University, Alexandria, Egypt.

ABSTRACT

***Corresponding author**

Marwa M. Anwar

E-mail:

marwa.magdy@med.suez.edu.eg

ORCID: <https://orcid.org/0000-0002-8468-6497>

Introduction: During COVID-19 pandemic, physicians faced diverse medicolegal dilemmas, and they found themselves increasingly involved in the practice of telemedicine; which by itself entails many ethical and medicolegal concerns. **Aim of work:** To ameliorate medicolegal and ethical challenges during future pandemics

through the assessment of the perception/attitude of Egyptian physicians towards the medicolegal liability of practicing medicine during the COVID-19 pandemic and exploring their perception/attitude & practice of telemedicine during COVID-19 pandemic. **Participants & methods:** We conducted an online survey among 385 Egyptian physicians of variable specialties; which focused on two challenging issues; 1) medicolegal liability of medical practice during the pandemic, and 2) telemedicine. **Results:** Our results showed that 62 % believed that physicians should be given legal protections in the form of a total exemption from medico-legal liability during COVID-19 pandemic. In addition, 77% agreed that sharing patients' data on social media may subject them to legal risk. About 63% practiced telemedicine during the pandemic; where 58% declared that it subjects physicians to medicolegal liability in case of malpractice, 57% approved requiring a specific license and 76% approved requiring training, while 37% believed that telemedicine practice doesn't require informed consent. There was a positive moderate correlation between total score of both sections of our questionnaire. Logistic regression models showed that regarding physicians' opinions about telemedicine; their specialty and working in COVID-19 triage were statistically significant predictors. **Conclusion:** Our study concluded that most of the participating Egyptian physicians had medicolegal and ethical concerns during the COVID-19 pandemic. This draws attention to the need to propose reform plans to address such challenges during future possible pandemics, not only on a national level but also globally.

Keywords: COVID 19, Egyptian physicians, ethical, medicolegal, pandemic, telemedicine

I. INTRODUCTION:

Upon announcement of China the emergence of the novel Corona Virus Disease 2019 (COVID 19) in late December

2019, it has extensively spread throughout the world to be declared as a pandemic by the world health organization (WHO) on March 2020. Not only did the pandemic impose a

substantial burden on the public health system, but it also created a myriad of ethical & medicolegal challenges, and psychological distresses. Therefore, the healthcare workforce; particularly the frontline fighters, must be informed, prepared and endorsed to cope up with such ongoing challenges and perceived uncertainties (Asghari and Tehrani, 2020).

The current study is going to address some of the ethical and medicolegal dilemmas that arose during the pandemic; 1) physicians' medicolegal liability, 2) telemedicine utilization during COVID 19 pandemic.

The duty that doctors have to fix and mitigate the repercussions of their voluntary and involuntary actions, omissions, and errors committed in the practice of their profession, within certain constraints, is known as medical professional liability (MPL) (Arimany-Manso and Martin-Fumadó, 2020).

Under these extraordinary circumstances of pandemic, medical practitioners are a valuable national resource, and they should be free of any stress from potential abuse or lawsuits, at least especially during the pandemic (Nagpal, 2020). Having rationing decisions in crisis situations, such as those imposed by COVID-19, is not the same as or comparable to making decisions in non-crisis conditions (Jerry, 2020). Among the medicolegal problems posed during pandemic are triage procedures, which should aim to eliminate both explicit and unconscious prejudice. It is therefore important from a legal standpoint that triage procedures and distribution decisions should not unfairly discriminate against protected

groups of people (e.g., based on age, sex, race, religion, or disability) (McGuire et al., 2020).

Another important medicolegal issue raised during the pandemic is the privacy and confidentiality. It may also be important for healthcare practitioners and public health policymakers to exchange personal information in order to contain the dissemination of the infection and/or track its progression. Stringent protections must be in effect to guarantee that: information sharing is performed in compliance with data protection laws; there is no unjustified violation of privacy, and sensitive information is only accessible to people with valid permission; and patients' confidentiality is safeguarded by protective mechanisms (e.g. Personal knowledge files should be password safe, and the data stored in them should be encrypted) (Department of Health, Government of Ireland, 2020; Sese et al., 2020).

As regards telemedicine (Remote consultation) utilization during COVID 19 pandemic, the recent emergence of COVID-19 has heightened the need for sustainable and effective healthcare services to encounter hospitals' resources shortage during this biological crisis, and to reduce the risk of viral exposure (Loeb et al., 2020). Many physicians nowadays prefer to incorporate virtual remote consultations into their regular medical practices instead of the conventional way (Gupta et al., 2020). Remote consultation is becoming more popular practice in a variety of medical fields. This advancement enables doctors to provide medical services via interactive virtual video home visits, cell phones, e-mail, social

media, and remote patient monitoring devices (Lutz et al., 2009).

Despite the benefits of telehealth, there are some of the ethical and legal issues emerging from remote consultation specifically patient-physicians relationship; patient privacy; confidentiality of data; inadequate training; lack of legalization and increased medical liability (Akbulut, 2003; Isabalija et al., 2011; Ayatollahi et al., 2015; Alaboudi et al., 2016; Pirtle et al., 2019). The fear of medical liabilities and medical malpractice adds new responsibilities to physicians, which may be attributed to a lack of standards and guidelines during telemedicine (Mars, 2020).

No previous studies have brought together both the medicolegal liability of practicing medicine during pandemics and the ethical concerns of telemedicine in Egypt. Therefore, this study aimed to ameliorate medicolegal and ethical challenges during future pandemics through the assessment of the perception/attitude of Egyptian physicians towards the medicolegal liability of practicing medicine during the COVID-19 pandemic and exploring their perception/attitude and practice of telemedicine during the COVID 19 pandemic.

II. PARTICIPANTS AND METHODS:

II.1 Study sample:

A cross sectional analytical study was conducted using an online survey. The survey was shared via the social media platforms during the period of August-October 2020, targeting Egyptian physicians from all specialties and all career hierarchy. Participating physicians were recruited through a convenient sampling technique; by

sharing the online questionnaire on different social media platforms. A total of 385 medical doctors from Egypt completed the survey. We used Open Epi (Open Source Epidemiologic Statistics for Public Health) version 3, open source calculator to calculate the sample size. The following criteria were set: On the assumption that there are no previous similar studies in Egypt, the probability of the existence of medicolegal and ethical dilemmas facing Egyptian physicians is considered 50%, a confidence level of 95%, and limit of precision of 5%, with a design effect of 1.0.

II.2 Inclusion Criteria:

- Egyptian physicians
- Both genders
- Working inside Egypt during the COVID-19 pandemic
- Physicians working in all types of Egyptian health care facilities (either: university hospitals, ministry of health hospitals, military hospitals, primary health care units, health insurance organizations or private sector).
- All specialties.
- All career hierarchy (house officers, general practitioners, residents, specialists, consultants & retired physicians).

II.3 Exclusion Criteria:

- Refusing to participate in the study.

II.4 Study tool

An online self-administered structured questionnaire originally prepared by the research team through integrating and merging the relevant literature and customizing it to culture sensitive items as no previously adopted questionnaire involved all such intermingling issues. The

questionnaire was designed to collect basic sociodemographic data, personal data, and data on perceptions/attitudes and practices towards medicolegal and ethical challenges during COVID 19 pandemic from the perspectives of the Egyptians' physicians (Yap et al., 2004; Owili et al., 2015; World Health Organization, 2016; Angelos, 2020; Emanuel et al., 2020; Kramer et al., 2020; Liu et al., 2020; Michalowski et al., 2020; Nagpal, 2020).

The questionnaire consists of three sections.

- The first section (A) described the demographic and personal data (12 items)
- The second section (B) assessed the target physicians' perception/attitude regarding the medicolegal liability during COVID 19 pandemic (11 items).
- The third section (C) assessed the target physician perception/attitude and practice regarding telemedicine during COVID 19 pandemic (11 items).

The answers on almost all questions were scored on Likert scale as 1= agree; 2= neutral; and 3= disagree. It was considered the choice of "neutral" as a disagreement more than an agreement. The participants were eligible to fill in the survey once.

II.5 Questionnaire validity and reliability

Validity and reliability of the instrument were ascertained through a panel of experts who revised the clarity, relevance, applicability, comprehensiveness, and ease of understanding of the questionnaires. In addition, a pilot testing of questionnaire was conducted on 20 physicians. According to their feedback, the required modifications were carried out. The participants in the pilot testing asked for the Arabic translation of some ethical and medicolegal expressions to

facilitate answering the questions. Cronbach's alpha test was used to measure reliability of each questionnaire section, which showed that both questionnaire sections had good reliability, where Cronbach's alpha was for section B 0.69, and section C 0.71 (Schrepp, 2020).

II.6 Statistical analysis

Data from the questionnaire were coded, entered, and analyzed using a basic statistics program: statistical package for social sciences (SPSS) software version 24. Descriptive statistics were used to summarize the data. Data were represented as frequencies (n) and percentages (%) for categorical variables and means \pm standard deviation for continuous variables. The total score for each section was calculated by simple addition of the answers from all questions of the section. Pearson's Correlation between the questionnaire sections' total scores among study participants were assessed to determine the relationship between the sections of the questionnaire, the direction and strength of the relation. Logistic regression models were constructed for identifying the independent predictors for each section total score. The Odds Ratio (OR), P-value, and 95% confidence interval (CI) were reported. P-value of (< 0.05) was considered statistically significant. Data were presented in tables, and graphs (Çokluk, 2010; Sedgwick, 2012).

II.7 Ethical Considerations

Ethical approval from the Research Ethics Committee (REC) of Faculty of Medicine, Suez Canal University, Egypt was obtained (Reference number; 4248). Informed consent was obtained from all participants at the beginning of the online

survey. Completing the questionnaire and submitting it denoted the voluntary consent to participation in the study. A detailed participant's information sheet was supplied at the beginning of the online questionnaire to explain the purpose of the research, potential benefits, risks, ensuring that participation is voluntary and that he/she has the right to refuse participation or to withdraw without any reasons and contact data of researchers for further inquiries. Confidentiality was ensured by keeping the questionnaire anonymous and avoiding mentioning any identifying features of the participants.

III. RESULTS

- Section (A): Demographic and occupational characteristics

The distribution of the participating Egyptian physicians (N=385) according to their demographic and occupational characteristics is shown in Figure 1.

The mean age of participating Egyptian physicians was 36.9 ± 8.3 years, 55.6% were males, (77.2% were married, 73 % lived with their family(Wife/Husband/Sons/Daughters).

The highest percentage of participants were consultants (approximately 43%). More than third of the participants had between 10 and 15 years of experience. Approximately about two thirds worked in a university hospital. The mean working hours was 34.9 ± 26 hours/week. 26.5 % of study participants worked in isolation premises during COVID-19 pandemic and 21.8 % worked on the triage for COVID-19. The distribution of the participating Egyptian physicians according to their specialties is shown in Figure 2. Paediatrics was the most represented specialty (11.4%), followed by intensive care medicine (8.8%) and family medicine (8.6%).

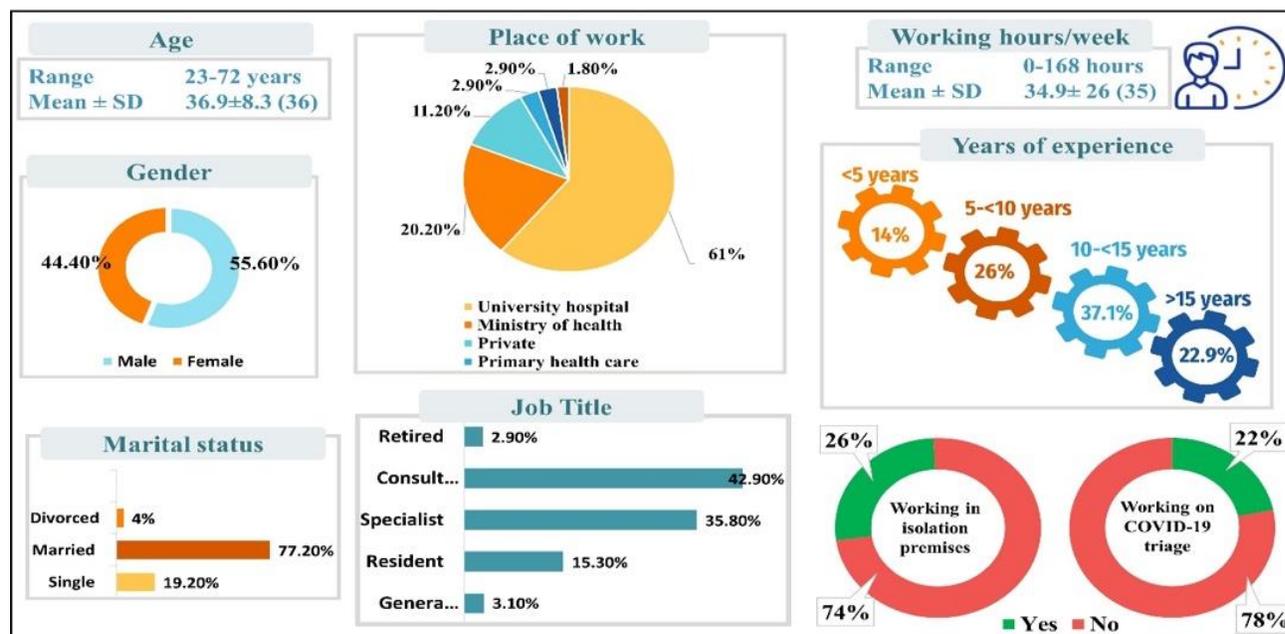


Figure 1: Distribution of participating Egyptian physicians according to their demographic and occupational characteristics (N=385).

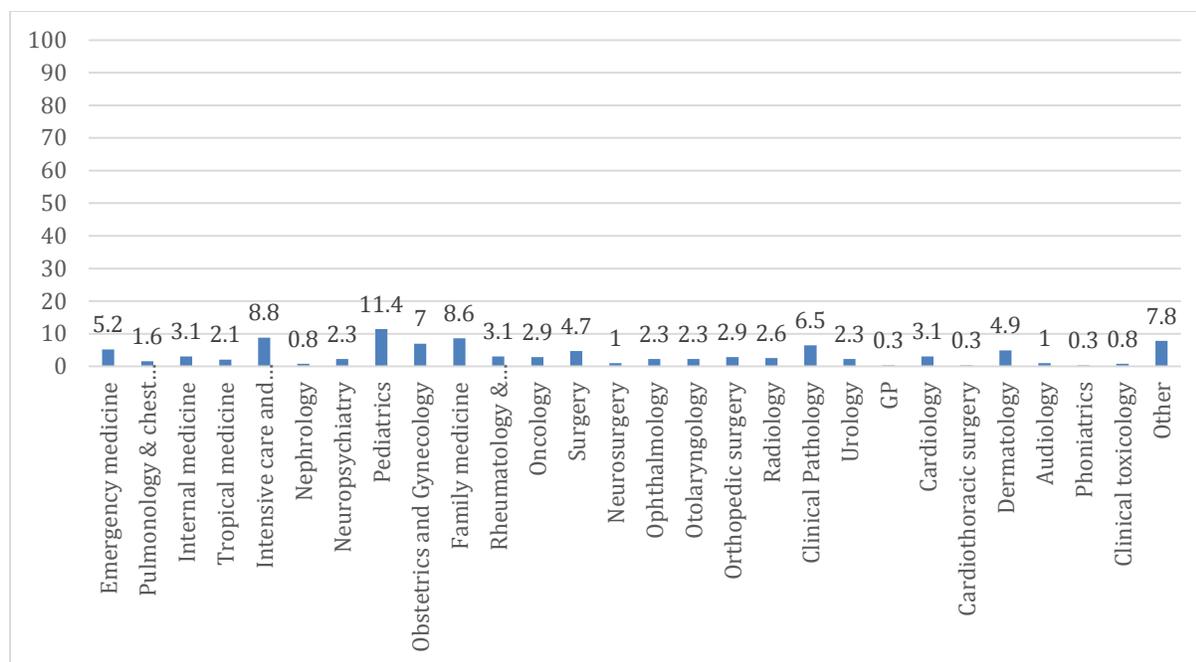


Figure 2: Distribution of participating Egyptian physicians according to their specialties (N=385).

- Section (B): Medico-legal liability

On asking participants about their opinions about the medico-legal liability during COVID-19, 62 % believed that physicians should be given legal protections in the form of a total exemption from medico-legal liability during COVID-19 pandemic. Similarly, 75% of physicians declared that they shouldn't be sued for working outside their specialty during the COVID-19 pandemic. 77% believed that sharing COVID-19 patients' medical records/ personal data on social media can expose physicians to legal risk. Only 6% agreed that in absence of personal protective equipment (PPE), physicians who refuse to treat patients during COVID-19 pandemic should be subjected to legal punishment (**Table 1**).

Regarding their opinions about strategies to compensate for shortage of physicians during the pandemic, 57 % of physicians agreed about stopping all obligatory leaves of the

medical team, 36 % agreed that retired physicians should be allowed to return back to duty, and 70% agreed that physicians from all specialties should help in COVID-19 triage. 47 % agreed that final year medical students should be allowed to help in the triage of suspected COVID-19 cases. 47 % declared that dentists and pharmacists should assist in the triage of suspected COVID-19 cases, and 63% agreed about allowing volunteer citizens to deliver therapies/health education for COVID-19 cases in home isolation (**Table 2**).

- Section (C): Telemedicine (Remote consultation) during COVID-19

It was noteworthy that 241 of the participating Egyptian physicians (62.6%) practiced telemedicine during the pandemic (**Figure 3**). Interestingly, 86% of the studied physicians believed that telemedicine provide protection from contact with Covid-19 cases.

84% believed that it reduces hospital staff workload. 37% declared that obtaining informed consent isn't required during telemedicine practice. On the other hand, 46% declared that telemedicine negatively affects doctor-patient relationship. 37% considered that telemedicine endangers patients' privacy. 35% considered that telemedicine endangers patients' confidentiality. About 58% denoted that telemedicine subjects the physicians to medicolegal liability in case of malpractice. About 57% of physicians agreed that they need to get a specified license from health authorities to practice telemedicine. 76% agreed that telemedicine requires training to be practiced efficiently (**Table 3**).

- **Comparative analysis of the correlations between both sections of the questionnaire**

Correlation between both sections' total scores among the study participants (results of Pearson's correlation coefficient) showed a statistically significant positive moderate correlation between medicolegal liability and telemedicine ($r=0.35$, $p<0.0001$) (**Table 4**).

- **Logistic Regression analysis of the factors affecting sections' total scores among the participating Egyptian physicians.**

In **table (5)**, logistic regression models showed that regarding the participating Egyptian physicians' opinions about telemedicine; their medical/surgical specialty and working in COVID-19 triage were statistically significant predictors.

Considering practicing telemedicine; it was approximately 2 times more likely to be among physicians specialized in (Emergency medicine, ICU & Anaesthesia) and in (Internal medicine branches) than (diagnostic, non-invasive and "others" specializations) (OR= 2.32, CI= 1.16-4.66) (OR= 1.92, CI= 1.06-3.47) respectively, and approximately 2.5 times more likely to be specialized in surgical specializations than diagnostic, non-invasive and "others" specializations (OR= 2.54, CI=1.34-5.17).

On the contrary, regarding participating physicians' opinions about medicolegal liability during COVID-19 pandemic; there weren't any statistically significant predictors.

Table 1: Distribution of participating Egyptian physicians' opinions about medico-legal aspects of their practice during COVID 19 Pandemic (N=385).

Opinions about medico-legal liability during COVID-19 pandemic	Agree No.	%	Neutral No.	%	Disagree No.	%
Physicians may be subjected to medico-legal liability for the medical errors committed during COVID 19 pandemic.	244	63	79	21	62	16
During COVID-19 pandemic, physicians shouldn't be sued for working outside their specialty (e.g.: accepting to intubate a patient despite being unqualified).	287	75	66	17	32	8
Physicians should be given legal protections in the form of a total exemption from medico-legal liability during COVID-19 pandemic	239	62	83	22	63	16
Sharing COVID-19 patients' medical records/ personal data on social media can expose physicians to legal risk.	297	77	45	12	43	11
In absence of PPE, physicians who refuse to treat patients during COVID-19 pandemic should be subjected to legal punishment.	24	6	29	8	332	86

N:number of participants

Table 2: Distribution of participating Egyptian physicians' opinions regarding strategies of compensating for the shortage of physicians working during COVID-19 pandemic (N=385).

Opinions about strategies to compensate for the shortage of physicians during COVID-19 pandemic	Agree No.	%	Neutral No.	%	Disagree No.	%
Obligatory leaves of the medical team should be stopped.	92	24	75	19	218	57
Retired physicians should be allowed to return back to duty.	139	36	115	30	131	34
Physicians from all specialties should help in the triage of suspected COVID 19 cases.	269	70	83	21	33	9
Final year medical students should be allowed to help in the triage of suspected COVID 19 cases.	182	47	94	25	109	28
Dentists and pharmacists should assist in the triage of suspected COVID 19 cases.	182	47	107	28	96	25
Volunteered citizens could be allowed to deliver therapies/health education for COVID 19 cases in home isolation.	244	63	84	22	57	15

N:number of participants

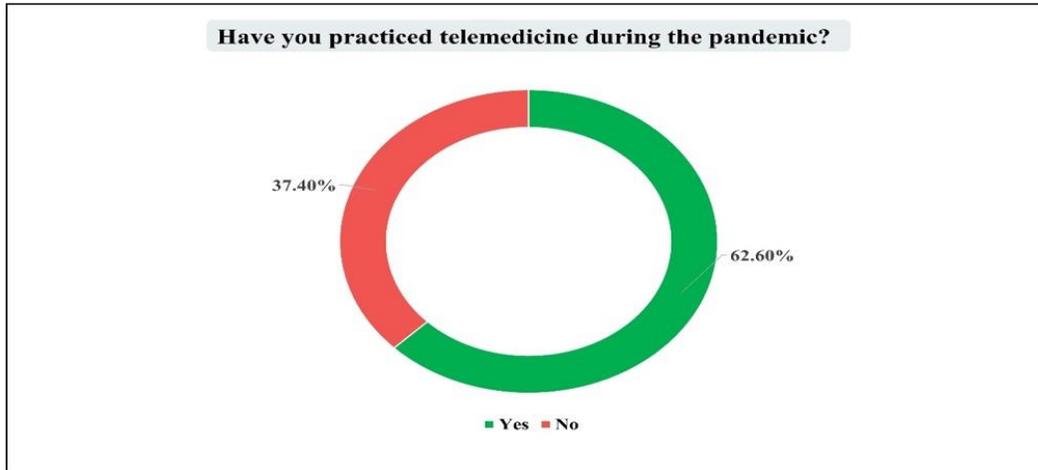


Figure 3: Distribution of participating Egyptian physicians regarding practicing telemedicine during COVID 19 Pandemic (N=385).

Table 3: Distribution of participating Egyptian physicians' opinions regarding telemedicine (N=385).

Opinions regarding Telemedicine	Agree No.	%	Neutral No.	%	Disagree No.	%
Provide protection from contact with Covid-19 cases.	331	86	41	11	13	3
Reduce hospital staff workload.	322	84	41	10	22	6
Negatively affect a doctor-patient relationship.	177	46	125	32	83	22
Endanger patients' privacy.	142	37	128	33	115	30
Endanger confidentiality of patient's data.	135	35	134	35	116	30
Not require obtaining informed consent from patient/parents	142	37	127	33	116	30
Subject physician to medico legal liability in case of malpractice.	224	58	109	28	52	14
Require specified license from health authorities.	219	57	111	29	55	14
Require particular training to be practiced efficiently.	293	76	60	16	32	8

N:number of participants

Table 4: Correlation between total scores of both sections of the questionnaire among participating Egyptian physicians (results of pearson’s correlation coefficient).

	Section B	Section C
Section B		0.35 (<0.0001) *
Section C		

Section B: medicolegal liability- Section C: Telemedicine

Table 5: Logistic Regression analysis of the factor’s affecting sections’ total scores among participating Egyptian physicians.

Independent variables	Medicolegal liability (Section B)	Telemedicine (Section C)
	Odds ratio (p-value) [CI]	Odds ratio (p-value) [CI]
Age (<37 years vs. >= 37 years)	1.78 (0.119), [0.86-3.65]	2.01 (0.061), [0.97-4.17]
Gender (Female vs. male)	0.49 (0.784), [0.37-2.03]	0.56 (0.089), [0.29-1.09]
Marital status (single vs. ever married)	0.87 (0.784), [0.37-2.03]	1.44 (0.423), [0.59-3.50]
Live (Alone vs. with others)	0.74 (0.618), [0.23-2.37]	1.17 (0.798), [0.36-3.77]
Years of experience (< 10 years vs >= 10 years)	0.75 (0.511), [0.32-1.77]	0.99 (0.981), [0.41-2.41]
Working hours/week during the pandemic (<35 hours vs. >= 35 hours)	0.86 (0.658), [0.44-1.69]	1.22 (0.587), [0.60-2.45]
Specialty (Diagnostic, non-invasive and others vs. Emergency medicine, ICU & Anesthesiology)	0.73 (0.365), [0.37-1.45]	2.32 (0.018) *, [1.16-4.66]
Specialty (Diagnostic, non-invasive and others vs. Pulmonology and chest diseases)	4.65 (0.170), [0.52-41.75]	3.43 (0.170), [0.59-19.96]
Specialty (Diagnostic, non-invasive and others vs. Internal medicine branches)	1.06 (0.851), [0.59-1.89]	1.92 (0.032) *, [1.06-3.47]

Specialty (Diagnostic, non-invasive and others vs. Surgical specializations)	0.89 (0.741), [0.44-1.78]	2.54 (0.010)*, [1.34-5.17]
Place of work (University hospitals vs. Ministry of health hospital/Center,)	0.86 (0.626), [0.46-1.59]	0.84 (0.589), [0.45-1.59]
Place of work (University hospitals vs. Primary health care unit)	0.33 (0.117), [0.08-1.32]	0.34 (0.123), [0.08-1.34]
Place of work (University hospitals vs. Military hospital)	0.40 (0.282), [0.07-2.13]	0.36 (0.441), [0.36-10.37]
Place of work (University hospitals vs. Private sector)	0.89 (0.778), [0.40-1.99]	1.07 (0.873), [0.47-2.42]
Place of work (University hospitals vs. Insurance)	0.94 (0.923), [0.26-3.37]	0.97 (0.962), [0.27-3.52]
Title (GP vs. resident)	0.42 (0.184), [0.12-1.50]	0.55 (0.353), [0.16-1.93]
Title (GP vs. specialist)	0.64 (0.458), [0.19-2.10]	0.92 (0.855), [0.28-2.98]
Title (GP vs. consultant)	0.78 (0.678), [0.24-2.55]	1.12 (0.885), [0.35-3.60]
Title (GP vs. retired)	1.25 (0.795), [0.23-6.71]	0.83 (0.827), [0.16-4.30]
Work in COVID-19 isolation (No vs. Yes)	1.29 (0.500), [0.61-2.74]	1.95 (0.094), [0.89-4.26]
Work in COVID-19 triage (No vs. Yes)	0.70 (0.368), [0.33-1.51]	0.30 (0.004)*, [0.13-0.67]

Section B (Medicolegal liability)

Section C (Telemedicine (*Remote Consultation) during COVID-19 pandemic) GP (General practitioner)

IV. DISCUSSION

This study aimed to ameliorate medicolegal and ethical challenges during future pandemics through the assessment of the perception/attitude of Egyptian physicians towards the medicolegal liability of practicing medicine during the COVID-19 pandemic and exploring their perception/attitude and practice of telemedicine during the COVID 19 pandemic.

The COVID-19 pandemic has pushed medicolegal boundaries to

unprecedented heights. Currently, concepts such as medical neglect, malpractice, and quality of treatment are being redefined. In COVID times, medical neglect laws will be scrutinized through the prism of the epidemic diseases act (Vilanilam and John, 2020).

On asking participants about their opinions about the medico-legal liability during COVID-19, majority of participants 86% disagreed that in absence of PPE, physicians who refuse to treat patients during COVID-19 pandemic should be subjected to legal punishment. This agrees with what the

British Medical Association (BMA) declared in the guidance for doctors treating COVID-19 patient, since it acknowledges that doctors will be afraid that their acts may result in criminal, civil, or professional liability. The main goal seems to persuade participants that they will be protected and to alleviate fears about future liability (Hurford, 2020). In the current pandemic, physicians are the most important commodity to humanity, and risking a clinician's life without sufficient PPE is likely considered reckless. This could put a lot of pressure on healthcare providers to take appropriate action without breaking any ethical standards or having any medicolegal Implications (Chamsi-Pasha et al., 2020).

In this study 75% of our participating physicians agreed that during COVID-19 pandemic, physicians shouldn't be sued for working outside their specialty. This agrees with the raised concept of "staff redeployment" during a pandemic. Such redeployment steps are critical components of a pandemic response, especially in terms of augmenting a healthcare institution's surge potential and compensating for unavoidable personnel absences. Redeployment may necessitate that healthcare practitioners be agile and operate outside of their usual scope of practice or in various settings, but they are not required to work outside of their area of expertise (Department of Health, Government of Ireland, 2020; Royal College of Physicians, 2021).

On the other hand, requiring physicians to work beyond their profession is challenging them to abandon their primary duty (Redmann et al., 2020). As a result, healthcare agencies should make every effort

to alleviate the burden and stress involved with such transitions (Department of Health, Government of Ireland, 2020)

Our results showed that 62 % believed that physicians should be given legal protections in the form of a total exemption from medico-legal liability during COVID-19 pandemic. This is consistent with the recent practice in pursuing crisis standard of care (SOC), which are acceptable improvements in SOC in an emergency due to personnel and supply shortages, as well as statutes providing exemption from criminal and civil litigation in handling COVID-19 where such shortages occur, provided that providers meet these standards, behave in good conscience, are not incompetent, and do not deliberately damage patients (Klitzman, 2020). The biggest question is whether such immunity would extend exclusively to patients with Covid-19, or whether it would apply uniformly, covering all Covid-19 and non-Covid-19 cases in acknowledgment of the enormous scale of this pandemic (Duignan and Bradbury, 2020).

Absolute immunity, on the other hand, is deemed unjustified by some authors. When providing crisis services, healthcare providers should not be shielded from the effects of their offenses, recklessness, intentional neglect, or professional misconduct. Such safeguards do not apply for caregivers who are under the influence of alcohol beverages or other intoxicants. Providers who indulge in unethical racism during disaster care rationing, such as making a decision based on the patient's ethnicity, color, gender, or religion, should not be exempted from penalties. Accountability must never be totally abandoned, otherwise,

the public's confidence in the profession would dwindle (Jerry, 2020).

Majority of our participating physicians (77%) believed that sharing COVID-19 patients' medical records/personal data on social media can expose physicians to legal risk. This contradicts the notion that, while doctors have an ethical obligation to safeguard patient confidentiality, preserving the confidentiality and privacy of COVID-19 positive patients, becomes an ethical quandary when doing so brings injury to other society members (Kramer et al., 2020).

Decision-makers, on the other hand, have a duty to shield people from stigma and injustice. This can be accomplished by protecting human privacy to the greatest degree possible and only sharing details that provides a practical picture of the extent of the pandemic's effect (Department of Health, Government of Ireland, 2020; Vilanilam and John 2020)

Regarding their opinions about strategies to compensate shortage of physicians during the pandemic: 70% agreed that physicians from all specialties should help in COVID-19 triage, 36 % considered that retired physicians should be allowed to return back to duty, 47 % believed that final year medical students should be allowed to help in the triage of suspected COVID 19 cases, 47 % declared that dentists and pharmacists should assist in the triage of suspected COVID 19 cases, and 63% agreed about allowing volunteer citizens to deliver therapies/health education for COVID 19 cases in home isolation. These concerns are consistent with the fact that the COVID-19 pandemic is crippling some countries'

healthcare systems and, in several cases, dramatically reducing the quality of treatment that can be given (Gallagher and Schleyer, 2020).

As regards, telemedicine (Remote consultation) during COVID-19 (Section C), there is no doubt that the use of remote consultation is becoming more common throughout the world, particularly since the outbreak of the Corona virus in 2019 (Bhaskar et al., 2020). Nowadays, health-care systems use a variety of tools to ensure the continuity of health-care services, particularly during times of crisis; telemedicine is regarded as one of these critical methods (Bokolo, 2021). During the pandemic, approximately 63% of the participants practiced telemedicine. This is similar to results reported by Elsaie et al (2020) who stated that about 235 (83.9%) of Egyptian dermatologists agreed that telemedicine is a practical and applicable solution during the COVID 19 pandemic (Elsaie et al., 2020). Parvin and Shahjahan (2016), found that majority of respondents (112) (90%) suggested total implementation of eHealth in hospitals; additionally, 78 % believed that the use of telemedicine could improve workplace productivity (Parvin and Shahjahan, 2016).

Interestingly, in the current study, about 86% of the participants believed that telemedicine could provide protection from contact with Covid-19 cases. Similarly, this finding is in line with the study done by Elhadi et al (2021), which found that 94.8% of participants thought that telemedicine could be used to limit the spread of COVID-19 (Elhadi et al., 2021).

Obviously, teleconsultation has a number of advantages, including providing protection from contact with covid-19 cases, instant medical care, reduction in health care costs, accessibility of medical care for patients, save time and reduction of health staff workload (Malasanos et al., 2005; Elbert et al., 2014)

Majority of participants (84%) agreed with the statement that remote consultation would reduce hospital staff workload. This is in accord with a recent study indicating that 93.6% of participants believed that telemedicine could result in fewer hospital visits in order to prevent COVID-19 transmission (Elhadi et al., 2021). According to Parvin and Shahjahan (2016) study, 82% of their participants believed that the use of remote consultation would lead to a decrease in outpatient hospital visits (Parvin and Shahjahan, 2016). However, our study finding is contrary to the previous study of Biruk and Abetu (2018) which suggested that telemedicine would increase staff workload, and that 68.2 % of the study group believed that telemedicine would create a new responsibility for staff (Biruk and Abetu, 2018). Furthermore, MacNeill et al 2014 stated that some physicians were concerned that telemedicine would undermine their professional autonomy and increase their workload (MacNeill et al., 2014).

In the current study, number of concerns were raised about the implementation of telemedicine, 46 % of the study group believed that telemedicine would have a negative impact on the doctor-patient relationship. This study supports evidence from previous observations Ashfaq et al (2020), and Waschkau et al (2020) which

reported that half and 42.9% of the participants respectively, anticipated a negative impact on the physician-patient relationship (Ashfaq et al., 2020; Waschkau et al., 2020). This finding may be explained by the fact that telemedicine may cause patients discomfort and inconvenience, as well as a lack of patients' sense of closeness or relation to their doctors and technical issues (Chang et al., 2009; Guinart et al., 2021).

Patients' privacy and confidentiality were another major concern among participants. This was in line with a number of previously published studies (Isabalija et al., 2011; Alaboudi et al., 2016). In accordance with this result, Elsaie et al. (2020) study found that 44 % of responding dermatologists believed that telemedicine would threaten patient confidentiality and privacy and Biruk and Abetu (2018) declared that 66% of the participants agreed that telemedicine threatens patient's privacy and information confidentiality (Biruk and Abetu, 2018; Elsaie et al., 2020).

Our research may throw light on the urgent need for the development of additional legislation to protect patients' data privacy during practice of telemedicine and the rights of treating providers (Alaboudi et al., 2016). Based on these findings, we can conclude that a significant effort should be made to ensure that telemedicine maintains mutual trust, transparency and communication among physicians and patients (McLean et al., 2013; White et al., 2021). Furthermore, obtaining informed consent from patients could be a valuable solution for avoiding ethical issues, not only supports patients' ethical rights but also eliminates any concern about data

confidentiality (Langarizadeh et al., 2017; Silva and Schwamm 2012). It's also important to consider presence of parent or caregiver when using telehealth to treat vulnerable groups like older adults or children (Cahan et al., 2020).

Nearly 37% of our participants believed that obtaining informed consent from the patient or parents prior to remote consultation is unnecessary. Patients must understand that telemedicine virtual visits may pose inherent safety risks and are not necessarily standard of care. As a result, their autonomy must be considered, and their informed consent must be stated clearly (Langarizadeh et al., 2017; Nittari et al., 2020). Informed consent is considered the cornerstone of any medical practice and it is a requirement for many telemedicine programs (Odhiambo and Mars, 2018). Many studies also emphasize the necessity of informed consent when sharing health photographs (Kotsopoulou et al. 2015; Kramer et al., 2015; Martí-Amengual et al., 2020) According to Balestra (2018), unless it is an emergency, informed consent should be obtained before any telemedical transmission (Balestra, 2018).

Another critical concern is that approximately 58 % of our participants agree that telemedicine exposes physicians to medicolegal liability in case of malpractice. This was consistent with Sheikhtaheri et al. (2016) who found that participants were worried about telemedicine's administrative and legal obligations (Sheikhtaheri et al., 2016).

In the present study, 57 % of participants agreed that obtaining a specific license from health authorities was needed in

order to practice telemedicine. This result is consistent with other research that have shown an increase in telemedicine-related malpractice (Chang et al., 2009; Fogel et al., 2021). According to Ashfaq et al. (2020), approximately 34.8 % of doctors supported the idea of introducing national standards for practicing telemedicine, and 33.5 % of doctors agreed to provide a legal explanation of telemedicine to patients (Ashfaq et al., 2020). There are no legislative or administrative guidelines in Egypt to practice telemedicine (Elsaie et al., 2020). The increased fear of medical malpractice considered as a barrier to telemedicine adoption. Meanwhile, most physicians thought that the main reason for not using remote consultation is a lack of standard legal frameworks and some current regulations are insufficient (Chang et al., 2009; Helou et al., 2020). Adequate regulations are needed to ensure the continuation of telemedicine activities following the COVID-19 crisis (Ly et al., 2017; Daniel et al., 2018).

Regarding telemedicine training, nearly three-quarters of participants (76%) agreed that in order to practice telemedicine effectively, training programs for physicians should be implemented. Likewise, Eshita (2017) recorded that none of the study respondents (200) had received any formal telemedicine training, and most respondents (82.5%) agreed to attend telemedicine training sessions (Eshita, 2017). According to a recent Saudi survey, 77 % of physicians agree that continuous training is needed to practice telemedicine (Albarrak et al., 2021). The current study supports evidence regarding the necessity of training from previous observations (Stovel et al., 2020;

Yaghobian et al., 2020; Pourmand et al., 2021). Therefore, lack of education/training on telemedicine is one of the major factors that delay the implementation of eHealth (Schreiweis et al., 2019). For that, continuous training will be the most effective way to increase knowledge among health professionals in order to lay the groundwork for successful and sustainable adoption of future utilization of telemedicine (Stovel et al., 2020; Albarrak et al., 2021)

Our study denoted a positive moderate correlation between “Medicolegal liability” section and “Telemedicine” section. This could be explained by that telemedicine would become a source of clinical liability, with the possibility of increased lawsuits for damages and malpractice, which would be detrimental to such a valuable and critical activity for the patient (Nittari et al., 2020). This was in concurrence with some studies, where one of the main limitations of the use of telemedicine was reported to be Legislation (Dickens and Cook, 2006). The legal and regulatory aspects of telemedicine include licensing, accreditation, liability for medical negligence, and payment for services (Gupta and Sao, 2011; Spradley, 2011; Lilly et al., 2014).

The biggest issue with telephone conversations is receiving written consent by proxy in situations where it is constitutionally required to be in written. Therefore, when communicating with non-competent patients and for medicinal reasons, it is appropriate to seek verbal agreement on the phone in this unusual case, always keeping a record of it in the medical records. If the case is not life-threatening, but it is highly desirable, legal permission should be requested. In all cases

when telemedicine is utilized, doctor-patient relationship's core principles should not be jeopardized (Arimany-Manso and Martin-Fumadó, 2020).

Logistic regression models showed that regarding participants' opinion about medicolegal liability during COVID-19 pandemic; there was no statistically significant predictors. Regarding participants' opinions about telemedicine; the specialty and working in COVID-19 triage hospitals/departments are statistically significant predictors. This could be explained by the realization of those working in COVID-19 triage of the need to lessen the risk of COVID-19 transmission and thus telemedicine could fulfill that by lowering the number of face-to-face visits (Elhadi et al., 2021). Moreover, as regards specialty, there is a belief that in some specialties, telemedicine could be an effective alternative during the pandemic. This is in line with research by Kane et al. utilizing information from the American Medical Association's Physician Practice Benchmark Survey to examine how telehealth is used by doctors in their practices. They discovered significant differences in medical specialties' utilization of telehealth. (Kane et al, 2018).

V. CONCLUSION & RECOMMENDATIONS

Our study concluded that most of the participating Egyptian physicians had medicolegal and ethical concerns during the COVID-19 pandemic. This draws attention to the need to propose reform plans to address such challenges during future possible pandemics, not only on a national level but also globally.

As regards telemedicine, despite that most of the participating Egyptian physicians practiced telemedicine during the pandemic, about 58% denoted that telemedicine subjects the physicians to medicolegal liability in case of malpractice. Most of the participating physicians considered that in order to practice telemedicine effectively, training programs for physicians should be implemented. Accordingly, we advocate stakeholders to put up guidelines to regulate practicing telemedicine in Egypt and execute regular trainings for Egyptian physicians on such uprising aspect.

VI. LIMITATIONS OF THE STUDY

Our use of quantitative method has limited digging deeper behind the revealed attitudes/perceptions. Moreover, the usage of a convenience sampling technique is one of the limitations of our study as this limits the generalizability of our findings. Although generalizability of our findings cannot be assured, strong trends were revealed by this survey, which revealed major medicolegal and ethical concerns during the current COVID-19 pandemic among Egyptian physicians. Addressing such concerns is needed for the current and future pandemics in Egypt and worldwide.

VII. CONFLICTS OF INTEREST

The authors have no financial, personal, academic, or other conflicts of interest in the subject matter discussed in this manuscript.

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المخلص العربي

المسؤولية الطبية الشرعية وممارسة التطبيب عن بُعد أثناء جائحة كوفيد19: وجهات نظر الأطباء المصريين

مقدمة البحث: خلال جائحة كوفيد 19 ، واجه الأطباء معضلات طبية شرعية متنوعة ، ووجدوا أنفسهم مشاركين بشكل متزايد في ممارسة التطبيب عن بُعد ؛ والتي تنطوي في حد ذاتها على العديد من الاهتمامات الأخلاقية والطبية الشرعية. **الهدف من البحث:** تقييم تصور/ موقف الأطباء المصريين تجاه المسؤولية الطبية الشرعية لممارسة الطب أثناء جائحة كوفيد 19 واستكشاف تصورهم/ موقفهم وممارستهم للتطبيب عن بُعد أثناء الجائحة. **طريقة البحث:** أجرينا دراسة استقصائية عبر الإنترنت بين 385 طبيباً مصرياً من تخصصات مختلفة ؛ التي ركزت على قضيتين صعبتين : (1) المسؤولية الطبية الشرعية للممارسة الطبية أثناء الجائحة (2) التطبيب عن بعد. **النتائج:** أظهرت نتائجنا أن 62% يعتقدون أنه ينبغي منح الأطباء الحماية القانونية في شكل إعفاء كامل من المسؤولية الطبية القانونية أثناء جائحة كوفيد 19. بالإضافة إلى ذلك ، وافق 77% على أن مشاركة بيانات المرضى على وسائل التواصل الاجتماعي قد تعرضهم لمخاطر قانونية. مارس حوالي 63% التطبيب عن بُعد أثناء الجائحة ؛ حيث صرح 58% أنه يُخضع الأطباء للمسؤولية القانونية الطبية في حالة سوء الممارسة ، ووافق 57% على ان التطبيب عن بُعد يستوجب ترخيص محدد ، ووافق 76% على انه يستوجب التدريب ، بينما اعتقد 37% أن ممارسة التطبيب عن بُعد لا تتطلب موافقة مستنيرة. كان هناك ارتباط إيجابي متوسط بين الدرجة الإجمالية لكلا القسمين من استبياننا. أظهرت نماذج الانحدار اللوجستي فيما يتعلق بآراء الأطباء حول التطبيب عن بُعد ان تخصصهم وعملهم في فرز كوفيد 19 تنبؤات ذات دلالة إحصائية. **الخلاصة و التوصيات:** خلصت دراستنا إلى أن معظم الأطباء المصريين المشاركين لديهم مخاوف طبية قانونية وأخلاقية خلال جائحة كوفيد 19 . وهذا يلفت الانتباه إلى الحاجة إلى اقتراح خطط إصلاح لمواجهة مثل هذه التحديات أثناء الأوبئة المحتملة في المستقبل، ليس فقط على المستوى الوطني ولكن أيضاً على الصعيد العالمي.

Appendix 1 (online questionnaire)

Participant's information sheet

Dear colleague, you are invited to voluntarily participate in this anonymous survey study entitled: Medicolegal Liability and Telemedicine Practice during COVID-19 Pandemic: Egyptian Physicians' Perspectives

We aim to explore the attitudes of physicians towards medicolegal liability and telemedicine during COVID 19 Pandemic

VOLUNTARINESS/REFUSAL/WITHDRAWAL

Participation in the study is completely voluntary. You can withdraw from completing the survey at any time if you feel any inconvenience or distress.

CONFIDENTIALITY: this survey is anonymous and there is no way to link to the identity of participants. It is also not possible to recognize who completed the survey or not.

POTENTIAL BENEFITS: your participation will provide us with beneficial information about the challenges that might be faced by physicians from the medicolegal point of view. There is no anticipated direct benefit for you.

POTENTIAL RISKS: Confidentiality will be secured as the survey is anonymous. In case of finding any question inconvenient or stressful, you are ensured not to answer it.

ETHICS APPROVAL: The current study is approved by the Research Ethics Committee of Faculty of Medicine at Suez Canal University.

CONTACT INFORMATION: In case of further inquiries about the study, you can contact any of the following investigators:

If you wish to participate in this survey, please click the “next” button.

Continuing with the next page of the survey is considered giving your informed consent to participate in the study.

Agreement to participate * (Mark only one oval)

- I Agree
- I Disagree

Section A: Demographic Data

1. Age: * -----

2. Gender: *
 - 1) Male
 - 2) Female

3. Marital status: * (Mark only one oval)
 - 0) Single
 - 1) Married
 - 2) Divorced
 - 3) Widowed

4. Whom do you live with? (During the COVID-19 pandemic) * (Mark only one oval)
 - 1) Parents
 - 2) Wife/Husband/Sons/Daughters
 - 3) Alone
 - 4) Workmates

5. Primary Specialty: * (Mark only one oval)
 1. Emergency medicine
 2. Pulmonology & Chest diseases
 3. Internal medicine
 4. Tropical medicine
 5. Intensive care & anaesthesiology
 6. Nephrology
 7. Neuropsychiatry
 8. Pediatrics
 9. Obstetrics & gynaecology
 10. Family medicine
 11. Rheumatology & immunology
 12. Oncology
 13. Surgery
 14. Neurosurgery
 15. Ophthalmology
 16. Otolaryngology
 17. Orthopedics surgery
 18. Radiology
 19. Clinical pathology

- 20. Urology
- 21. General practitioner
- 22. Cardiology
- 23. Cardiothoracic surgery
- 24. Dermatology
- 25. Audiology Phoniatics
- 26. Clinical toxicology
- 27. Other

6. Job title: * (Mark only one oval)

- 0) House officer
- 1) General practitioner
- 2) Resident
- 3) Specialist
- 4) Consultant
- 5) Retired physician

7. Years of experience as a physician: * (Mark only one oval)

- 1) < 5 years
- 2) 5 - <10 years
- 3) 10 - <15 years
- 4) More than 15 years

8. Where do you work? * (Mark only one oval)

- 1) University hospital
- 2) Ministry of health hospital/Center
- 3) Primary health care unit
- 4) Military hospital
- 5) Private sector
- 6) Health insurance organization

9. Working hours/week during the pandemic: * (-----)

10. Did you work in an isolation department/hospital? * (Mark only one oval)

- 0) No
- 1) Yes

11. Did you work in the first line triage of COVID 19 cases, outside the limits of your primary specialty? * (Mark only one oval)

- 1) Yes
- 2) No

Section (B): Medico-legal liability

12. Please mention the degree of your agreement or disagreement to the following:

A) Physicians may be subjected to medico-legal liability for the medical errors committed during COVID 19 pandemic
 الاطباء معرضون لمخاطر المسؤولية الطبية إذا ما أرتكبوا اخطاء طبية اثناء الجائحة (Mark only one oval)

- Strongly agree (5)
- Agree (4)
- Neutral (3)
- Disagree (2)
- Strongly disagree (1)

B) During COVID-19 pandemic, physicians shouldn't be sued for working outside their specialty (e.g: accepting to intubate a patient despite being unqualified).

اثناء جائحة فيروس كورونا المستجد؛ لا يجب مقاضاة الاطباء في حال أداء مهام خارج تخصصهم مثل قيام طبيب بتركيب أنبوبة حنجرية للمريض رغم كونها خارج مهارات تخصصه.

- Strongly agree (5)
- Agree (4)
- Neutral (3)
- Disagree (2)
- Strongly disagree (1)

C) Physicians should be given legal protections in the form of a total exemption from medico-legal liability during COVID-19 pandemic.

لابد ان يحصل الطبيب على حماية قانونية وأن يعفى تماما من احتمالية التعرض للمسئولية الطبية أثناء مناظرة مرضى جائحة فيروس كورونا المستجد

- Strongly agree (5)
- Agree (4)
- Neutral (3)
- Disagree (2)
- Strongly disagree (1)

D) Sharing COVID-19 patients' medical records/ personal data on social media can expose physicians to legal risk.

مشاركة الاطباء لبيانات المرضى أو فحوصاتهم عبر وسائل التواصل الاجتماعي قد تعرضهم لمخاطر قانونية

- Strongly agree (5)
- Agree (4)
- Neutral (3)
- Disagree (2)
- Strongly disagree (1)

E) In absence of personal protective equipment (PPE), physicians who refuse to treat patients during COVID-19 pandemic should be subjected to legal punishment.

إذا لم تتوفر التجهيزات الطبية الوقائية للأطباء و قاموا برفض علاج المرضى لهذا السبب فيجب محاسبتهم قانونياً

- Strongly agree (5)
- Agree (4)
- Neutral (3)
- Disagree (2)
- Strongly disagree (1)

13. Please mention your degree of agreement or disagreement to each of the following strategies to compensate for shortage of physicians during COVID 19 pandemic:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)
A) Obligatory leaves الاجازات of the medical team should be stopped					
B) Retired physicians اطباء المعاش should be allowed to return to duty					
C) Physicians from all specialties should help in the triage of suspected COVID 19 cases.					
D) Final year medical students should be allowed to help in the triage of suspected COVID 19 cases.					
E) Dentists and pharmacists should assist in the triage of COVID 19 cases					
F) Volunteered citizens could be allowed to deliver					

therapies/health education for COVID 19 cases in home isolation					
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Section (C): Telemedicine (*Remote Consultation) during COVID-19 pandemic

التطبيب عن بُعد (الاستشارات الطبية عن بُعد)

*Remote consultation: is provision of online diagnosis, and treatment through telecommunication systems e.g: phone, email, web or video chat.

14. Are there Egyptian laws that prohibit diagnosis or prescription of drugs without clinical examination?

- 0) Not sure
- 1) Yes
- 2) No

15. Please mention your degree of agreement or disagreement to each of the following. I believe that telemedicine may:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)
A) Provide protection from contact with COVID 19 cases.					
B) Reduce hospital staff workload					
C) Negatively affect doctor-patient relationship.					
D) Endanger patients' privacy.					
E) Endanger confidentiality of patients' data.					
F) Not require obtaining informed consent from patient/parents.					

G) Subject physician to medicolegal liability in case of malpractice.					
H) Require specified license from health authorities.					
I) Require particular training to be practiced efficiently.					

16. Have you practiced telemedicine/remote consultation during COVID 19 pandemic?
(Mark only one oval)

- 1. Yes
- 2. No

End of questionnaire (Thank you for your time)