Public Health Section

Awareness and Skills of Modern Telemedicine Practice among Doctors in Kerala- A Cross-sectional Study

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ABSTRACT

Introduction: In this modern era of technology, Information and Communication Technology (ICT) has made a very big revolution. Telemedicine is an emerging concept in healthcare services in Kerala, its implementation has not been satisfactory and successful. It is cost effective and provides easy access to healthcare services for people anywhere and especially during pandemic situations like this. A study is required in the domain of awareness and skill of doctors to facilitate its adoption and implementation. There was an urgent need to devise means for patients to consult doctors during Coronavirus Disease 2019 (COVID-19) pandemic.

Aim: To assess the level of awareness and skill among doctors practicing modern medicine during COVID-19 pandemic.

Materials and Methods: A cross-sectional study was conducted among 535 modern medicine doctors of Kerala from June 2020 to May 2021, using a structured self-administered questionnaire designed for the study. The total scores of awareness and skill calculated and categorised as poor, moderate, and good. Data was analysed by Statistical Package for the Social Sciences (SPSS) version 20.0 software by IBM. The Chi-square test/Fisher's-Exact test was used as test of significance.

Results: Mean age of the study participants was 40.44±10.66 years, with majority 326 (60.94%) being females. Among the 535 doctors participated, 68.22% had moderate skill, 27.85% had good skill and only 3.92% had poor skill. Years of experience of doctors ranged from 1 to 48 years, with mean of 13.47±10.46 years. In majority, 431 (80.56%) of the participants, had moderate awareness and 15.89% had good awareness, about the telemedicine practice. Poor awareness was present in 19 (3.55%) doctors. About 46.54% believed that specific software training is required for practicing telemedicine.

Conclusion: Even though, awareness and skill of doctors practicing modern medicine are favourable, more webinars or workshops are needed to improve their knowledge. Telemedicine is an emerging technology in the health sector in India, so it requires study to know health professional's awareness and skills towards telemedicine.

Keywords: Coronavirus disease 2019, e-health, Healthcare workers, Teleconsultation

INTRODUCTION

The Information and Communication Technology (ICT) enabled medical services are developing fast in today's world, especially after the COVID-19 pandemic. They are cost effective and provide access to healthcare services for people in remote areas [1]. There are many possible reasons why implementation of telemedicine is a challenging [2]. In a country like India, with large geographical distances and limited resources, providing healthcare can be challenging [3]. About 80% of doctors in India, are located in urban area [4]. Patients living in rural areas can save expenses on long distance travel for obtaining consultation. In some instances, where only a routine follow-up check is required patients can consult doctors using telemedicine, without much inconvenience or impact to the family or caregivers [5]. Telemedicine can decrease burden on hospitals by decreasing re-admission rates. By using telemedicine services patients can communicate with doctors from the comfort of their own home and take care of themselves in certain instances following the doctor's advice [6].

Telemedicine can give safety to patients, healthcare workers and doctors in situations where there is a risk of a contagious disease. The use of telemedicine services during this Coronavirus Disease 2019 (COVID-19) pandemic is a prime example [5]. Providing equal access to quality care and to digital health is essential for the overall development and improvement of health systems; hence, mainstreaming telemedicine in health systems can minimise inequity and barriers to access. Lack of clear-cut guidelines is one of the reasons why some doctors are reluctant to practice telemedicine. Most doctors in India are not aware of the guidelines for the practice of telemedicine, through video, phone, and internet-based platforms (web/chats/app). Gaps in legislation and the uncertainty of rules can pose risks for doctors, healthcare workers, and patients when using telemedicine services [5].

During the COVID-19 pandemic, to promote contact-less consultation, Ministry of Health and Family Welfare (MHFW), Government of India published guidelines for practicing telemedicine on 25th March 2020 [5]. The success of any new technology depends on many factors including the knowledge and understanding of the concept, skills acquired, attitude and the working environment by the concerned professionals [2]. Technology anxiety is one of the reasons doctors are reluctant to adopt telemedicine [2]. Telemedicine is an emerging technology in the health sector in India, so it requires study to know health professional's awareness and skills towards telemedicine. Travancore - Cochin Medical Council (TCMC) on 31st March 2020 in their circular (Order No: A1: 6898/2020/TCMC Dated: 31.03.2020) mentioned use of telemedicine in COVID-19 pandemics as "temporary measures" [7].

The TCMC also put forward a lot of conditions on how doctors should consult patient using telemedicine [7]. The COVID-19 pandemic has brought forth a renewed focus on the role of telemedicine services. Telemedicine seems to be an appealing option for patients and doctors for medical consultations in this pandemic time, as there are severe movement restrictions throughout the state in an effort to control COVID-19. Even physicians who are in quarantine, can make use of telemedicine services for consulting patients. Follow-up check-ups for patients will also become easier [5]. The new telemedicine guidelines by MHFW provides norms and protocols

relating to physician-patient relationship, issues of liability and negligence, management and treatment; informed consent, referrals for emergency services; medical records; privacy and security of the patient records and exchange of information; prescribing; and reimbursement; health education and counselling. A study on the awareness of these new guidelines and the skills on telemedicine among doctors are urgently required to achieve the full utilisation of the advancements in technology for healthcare delivery.

Hence, present study was conducted to assess the awareness level of doctors in Kerala for practicing telemedicine, to assess the skill level of doctors in Kerala for using ICT in digital health delivery and to study the association between awareness and skills necessary for practicing telemedicine with various socio-demographic variables.

MATERIALS AND METHODS

A cross-sectional, questionnaire-based study was conducted in Kerala among doctors to assess the awareness and skill of telemedicine practice. Study period was from June 2020 to May 2021. Before conducting the study, Institutional Ethics Committee approval was secured from Sree Gokulam Medical College and Research Foundation, Thiruvananthapuram, Kerala (SGMCIEC No 37/523/10/2020).

Inclusion criteria: All doctors practicing modern medicine in Kerala were included in the study.

Exclusion criteria: The doctors who were not willing and did not give consent were excluded from the study.

Sample size calculation: The sample of the present study was calculated by using the formula:

$$n = \frac{Z_{(1-\alpha/2)}^2 \times p(1-p)}{d^2}$$

Where, $\alpha = 5\%$, $Z_{(1-\alpha/2)} = 1.96$, $p = 41\%$ [2].

Proportion of doctors having knowledge about telemedicine, d=20% of p, with 10% non response rate. The calculated sample size was 152.

Non probability chain referral sampling technique was performed to select participants from different districts of Kerala. All 535 doctors who participated by filling the questionnaire were included in the study.

Questionnaire

Data was collected by using a self-designed, structured questionnaire designed for the study by the investigators. The questionnaire was prepared after reviewing previous studies [2,3] pertaining to telemedicine and consultation with professionals with expertise in the field of telemedicine. Most of the questions for the domain of awareness section were constructed from the guidelines published by the MHFW, Government of India [5]. The self-administered questionnaire consisted of three main parts.

- Part one includes socio-personal information of the participants- 8 items and three questions on the training requirement, attendance in webinars/seminars about telemedicine, and their important concern about telemedicine.

- Part two is related to skill of ICT-5 items.

- Part three investigates the awareness level of the participants- 36 items. The content validity of the questionnaire was done by a panel of experts.

A pilot study was done among 30 doctors to assess the reliability of the tool, which was assessed using Cronbach's alpha and was obtained as 0.788. The questionnaire was made into a Google form and was disseminated through Messenger (Facebook), WhatsApp and e-mail to doctors from all districts and they were requested to send to further subjects from among their acquaintances. Consent was appended to the questionnaire. All doctors who agreed to participate were directed to fill the questionnaire. A total of 535 doctors participated in the study.

Responses: The responses in the skill part were scored as:

- never-0,
- rarely-1,
- sometimes-2,
- often-3 and
- most often-4

with minimum score of 0 and maximum score of 20.

Awareness of respondents was assessed by questions with answers "yes", "no" or "don't know". After collection was done, the data were checked, cleaned, edited and analysed. In the domain of awareness, correct answers were given a score of one and incorrect answers and "don't know" were given the score of 0, with minimum score of 0 and maximum of 36. The raw total scores were calculated for skill and awareness. The total scores were converted into percentage and were classified as:

- poor: <25%,
- moderate: 25%-75% and
- good: >75% [Annexure-1].

STATISTICAL ANALYSIS

Qualitative variables were expressed in frequency and percentage. Mean and SD calculated for quantitative variables like age. Analysis of data was done with Statistical Package for the Social Sciences (SPSS) version 20.0 software by IBM. Chi-square test was done to test the association between the socio-personal variables and skill and awareness. If 20% of the cells have expected frequency less than 5, Fisher's-Exact test was applied. Spearman's correlation coefficient was calculated between scores of skill and awareness. The p-value <0.05 was considered as significant.
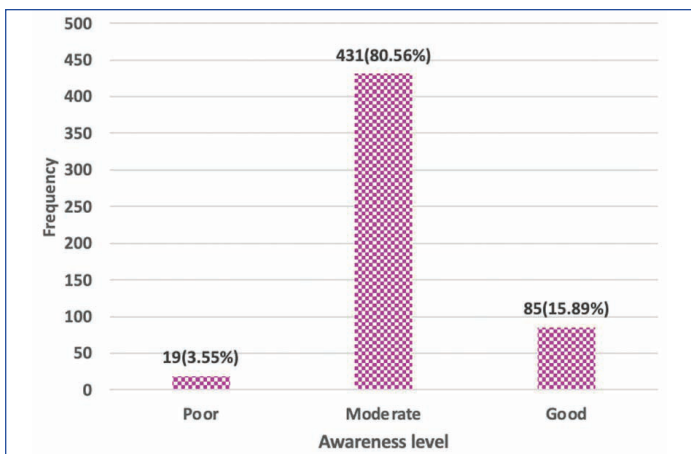
RESULTS

Mean age of the study participants was 40.44±10.66 years. Majority 326 (60.94%) were females. Characteristics of the sample were described in [Table/Fig-1]. Years of experience of doctors ranged from 1 to 48 years with mean of 13.47±10.46 years. In the present study, 535 doctors participated, among this 389 (72.71%) were working in a teaching hospital. Out of the 535, only 183 (34.20%) reported to have facility for telemedicine in their hospital. A total of 365 (68.22%) had moderate skill and only 21 (3.92%) had poor skill and the rest, 149 (27.8%) had good skill. Level of awareness among doctors about telemedicine guideline is given in [Table/Fig-2]. In majority, 431 (80.56%) of the participants, had moderate awareness

Variables	Poor (n, %)	Moderate (n, %)	Good (n, %)	Total (N, %)	Chi-square/ Fisher's-Exact test value	p-value
Gender						
Male	12 (5.74)	129 (61.72)	68 (32.54)	209 (100%)	7.712	0.021
Female	9 (2.76)	236 (72.39)	81 (24.85)	326 (100%)		
Age group (in years)						
<30	4 (3.10)	88 (68.20)	37 (28.68)	129 (100%)	13.108	0.512*
30-40	12 (7.55)	104 (65.41)	43 (27.04)	159 (100%)		
41-50	1 (0.71)	96 (68.09)	44 (31.20)	141 (100%)		
51-60	3 (3.61)	63 (75.90)	17 (20.48)	83 (100%)		
>60	1 (4.35)	14 (60.87)	8 (34.78)	23 (100%)		
Years of experience						
<5	6 (3.35)	117 (65.36)	56 (31.28)	179 (100%)	17.59	0.025
5-10	6 (10.71)	41 (73.21)	9 (16.07)	56 (100%)		
11-20	4 (2.90)	90 (65.22)	44 (31.88)	138 (100%)		
21-30	2 (1.69)	90 (76.27)	26 (22.03)	118 (100%)		
>30	3 (6.82)	27 (61.36)	14 (31.82)	44 (100%)		

Qualification						
Under-graduate	8 (4.00)	147 (73.50)	45 (22.50)	200 (100%)	4.1	0.33
Post graduate	12 (3.85)	203 (65.06)	97 (31.09)	312 (100%)		
Doctorate/Super-speciality	1 (4.35)	15 (65.22)	7 (30.43)	23 (100%)		
Type of hospital						
Government	2 (2.74)	49 (67.12)	22 (30.14)	73 (100%)	0.476	0.778
Private	19 (4.11)	316 (68.40)	127 (27.49)	462 (100%)		
Level of health facility						
Primary care	5 (7.14)	47 (67.14)	18 (25.71)	70 (100%)	2.931	0.572
Secondary care	3 (5.08)	41 (69.48)	15 (25.42)	59 (100%)		
Tertiary care	13 (3.20)	277 (68.23)	116 (28.57)	406 (100%)		
Teaching hospital						
No	8 (5.48)	101 (69.18)	37 (25.34)	146 (100%)	1.716	0.424
Yes	13 (3.34)	264 (67.87)	112 (28.79)	389 (100%)		

[Table/Fig-1]: Association between skills and socio-personal variables [PART-1].
*Fishers-Exact test

[Table/Fig-2]: Level of awareness about telemedicine practice among doctors.

about the telemedicine practice. Poor awareness was present in 19 (3.55%) doctors.

A higher proportion of females (72.39%) had moderate skill compared to 61.72% in males. Also, skill for telemedicine was found to be significantly different in doctors with different years of experience (0.025). A higher percentage of doctors with 5-10 years of experience had poor skills compared to others. None of the variables had a statistically significant association with awareness. [Table/Fig-3-6] shows the response to awareness questions regarding telemedicine practice guidelines.

A toal of 374 (69.99%) participants, knew that the patient consulting with the registered medical practitioner for the first time is called first consult. All the participants knew that the medical record from each consultation need not be sent to medical council. Only 198 (37.01%), knew that the patient who has consulted with the practitioner earlier, but more than six months have lapsed since the previous consultation is included as first consult. Only 246 (45.98%) knew that the patient has consulted with the practitioner earlier, but for a different health condition is included in first consult. A total of 401 (74.95%) knew that "Follow-up consultation" can be done in situations of a chronic disease or a treatment (e.g., renewal or change in medications) when a face-to-face consultation is not necessary.

A 75.70% knows that telemedicine should be avoided for emergency care to the possible extent especially when in-person care is available.

There was no statistically significant difference in awareness about telemedicine according to variables like age group (p-value=0.512), gender (p-value=0.365), years of experience (p-value=0.315), their postgraduate qualification (p-value=0.144), type of hospital working (p-value=0.887). In the ongoing COVID-19, scenario, many webinars and seminars were conducted all around the world regarding telemedicine. Question regarding how many webinars and seminars have the respondents participated within the last six months were asked. The following were the results: "0"-325 (60.75%), "1"-74 (13.83%), "2"-65 (12.14%), "3"-19 (3.55%) and "more than 3"-52 (9.71%). Total 249 (46.54%) believed that specific software training is required for practicing telemedicine. About 262 (48.97%) were concerned about being sued, if something goes wrong with the

Skills in information and communication technology	Never (n, %)	Rarely (n, %)	Sometimes (n, %)	Often (n, %)	Most often (n, %)	Total (N)
How often do you use desktop computer or laptop at home/hospital?	27 (5.05)	99 (18.50)	201 (37.57)	133 (24.86)	75 (14.01)	535
How often do you search for information online?	3 (0.56)	17 (3.18)	68 (12.71)	207 (38.69)	240 (44.86)	535
In your role as a doctor, how often do you interact with patients via e-mail or through social media?	139 (25.98)	185 (34.58)	139 (25.98)	56 (10.47)	16 (2.99)	535
How often do you use internet for searching literature?	5 (0.93)	36 (6.73)	156 (29.16)	173 (32.34)	165 (30.84)	535
How often have you used telemedicine services for being in touch with other healthcare professionals?	129 (24.11)	149 (27.859)	144 (26.92)	85 (15.89)	28 (5.23)	535

[Table/Fig-3]: Individual response to questions on skills in ICT [PART-2].

S. No.	Awareness	Correct answer (n, %)	Incorrect answer (n, %)	Don't know (n, %)
Telemedicine can be used for:				
1	Minor ailments	436 (81.49%)	26 (4.86%)	73 (13.64%)
2	Routine follow-up	399 (74.58%)	81 (15.14%)	55 (10.28%)
3	Patients whose medical history is known by doctor	433 (80.93%)	47 (8.79%)	55 (10.28%)
Explicit consent from patients is needed if:				
4	Patient initiates telemedicine	111 (20.74%)	276 (51.59%)	148 (27.66%)
5	Health worker initiates telemedicine	310 (57.94%)	78 (14.58%)	147 (27.48%)
6	Medical practitioner initiates telemedicine	330 (61.68%)	56 (10.46%)	149 (27.86%)
7	Care giver initiates telemedicine	288 (53.83%)	84 (15.70%)	163 (30.47%)
Which category of medicines can be prescribed through telemedicine?				
8	List O e.g., Paracetamol, Oral Re-hydration Solution (ORS) packets, Antacids	461 (86.17%)	14 (2.62%)	60 (11.21%)
9	List A e.g., Re-fill medications for chronic diseases such as Diabetes, Hypertension, Asthma	336 (62.80%)	110 (20.56%)	89 (16.64%)

10	List B (e.g., add-on medications which are used to optimise an existing condition like Thiazide diuretic with Atenolol, Sitagliptin to Metformin)	164 (30.65%)	214 (40.00%)	157 (29.35%)
11	Schedule X (e.g., Anti-cancer drugs; Narcotics such as Morphine, Codeine etc.,)	393 (73.46%)	37 (6.92%)	105 (19.62%)
12	Practitioner can prescribe all injectable drugs	403 (75.33%)	38 (7.10%)	94 (17.57%)
According to the guidelines laid down by the Ministry of Health and Family Welfare, which among the following modes of telecommunication can be practiced?				
13	Video e.g., Skype	351 (65.61%)	54 (10.09%)	130 (24.30)
14	Audio e.g., Phone	328 (61.31%)	92 (17.20%)	115 (21.49%)
15	Text e.g., WhatsApp	281 (52.52%)	114 (21.31%)	140 (26.17%)
16	Asynchronous e.g., e-mail, fax.	206 (38.50%)	142 (26.54%)	187 (34.96%)
Awareness regarding fee for telemedicine practice:				
17	Practitioner may charge an appropriate fee for the telemedicine consultation provided.	337 (62.99%)	74 (13.83%)	124 (23.18%)
18	Fee is fixed by Ministry of Health and Family Welfare	32 (5.98%)	381 (71.21%)	122 (22.81%)
19	Practitioner should also give a receipt/invoice for the fee charged for providing telemedicine-based consultation	312 (58.32%)	41 (7.66%)	182 (34.02%)

[Table/Fig-4]: Awareness about telemedicine practice guidelines [PART-3].

S. No.	Awareness	Correct answer (n, %)	Incorrect answer (n, %)	Don't know (n, %)
1	Prescription should be on the letter head of the registered doctor.	381 (71.21%)	32 (5.98%)	122 (22.80%)
2	Prescription letter can be sent as image, scan or digital copy via messaging platforms.	373 (69.72%)	35 (6.54%)	127 (23.74%)
3	Patients history and serial number should be there in the letter head.	407 (76.07%)	27 (5.05%)	101 (18.88%)
4	Prescription can be sent by Text Messaging. (i.e., with no prescription letter)	277 (51.78%)	117 (21.87%)	141 (26.35%)
5	The identity of who the prescription is given to through online mode should be collected and recorded.	431 (80.6%)	23 (4.30%)	81 (15.14%)
6	The practitioner should retain report, documents, images, diagnostics, data etc.,	424 (79.25%)	29 (5.42%)	82 (15.33%)
7	Practitioner has the liberty to attend teleconsultation request made by the patient.	307 (57.38%)	87 (16.26)	141 (26.36%)
8	Giving due notice to the patient a practitioner can discontinue teleconsultation.	315 (58.88%)	62 (11.59%)	158 (29.53)
9	In case of an emergency a patient cannot insist for an advice, if the practitioner chooses not to reply or give any specific advice.	236 (44.11%)	96 (17.94%)	203 (37.94%)

[Table/Fig-5]: Awareness regarding mode of prescription, record keeping, telemedicine practice [PART-3].

S. No.	Awareness	Correct answer (n, %)	Incorrect answer (n, %)	Don't know (n, %)
1	Can a practitioner insist on telemedicine, when the patient is willing to travel to a facility and/or requests an in-person consultation?	318 (59.44%)	92 (17.20%)	125 (23.36%)
2	Can a practitioner use patient data (especially of private and sensitive in nature) for other purposes?	398 (74.39%)	35 (6.54%)	102 (19.07%)
3	Can a practitioner solicit patients for telemedicine through any advertisements or inducements?	362 (67.66%)	48 (8.97%)	125 (23.36%)
4	Telemedicine should be avoided for emergency care to the possible extent especially when in-person care is available.	405 (75.70%)	33 (6.18%)	97 (18.13%)

[Table/Fig-6]: Awareness regarding actions not permissible in telemedicine practice [PART-3].

patient in telemedicine practice. To assess, whether there is any correlation between scores of awareness and skill, Spearman's Rank correlation was done, and found to have a significant weak positive correlation (Spearman's coefficient=0.20, p-value <0.0001).

DISCUSSION

In the present study, 235 (43.93%) of the participants had less than 10 years of experience. In the domain of skill, there were 21 (3.92%) of the participants with poor skills, while 149 (27.85%) with good skill, while 365 (68.22%) had moderate skill. Skill necessary for using ICT is very much essential for providing telemedicine services. The skill is higher when compared with the study done by Zayapragassarazan Z and Kumar S, in which the majority of participants that is 56% were having poor skill [2]. The current pandemic situation where there is increased need for telemedicine, must have contributed to the increase in the skill level. In the domain of awareness, 3.55% (19) had poor awareness.

The questions regarding the domain of awareness were constructed from the guidelines published by MHFW [5]. According to the current study in the domain of awareness, 431(80.56%) of the participants had moderate awareness about the telemedicine technology. This result is in par with study by Ashfaq A et al., in which the awareness among doctors in terms of remote diagnosis and treatment of patient by means of telecommunication technology was 80.4% [8]. In the current study, only 85 (15.89%) had good awareness.

Lack of awareness regarding telemedicine is one of the reasons why doctors are reluctant to provide telemedicine services [2]. The present study, also warrants the need for training for the practice of telemedicine [8-11].

No significant relationships were seen between socio-personal variables and awareness. In the present study, only 183 (34.20%) of participants said they have availability of telemedicine facility in the current working hospital, so there is a need for increasing these facilities in hospitals. In the study by Meher SK et al., they found that doctors were more interested in using telemedicine if it was available at their desktop [3]. So provision of more infrastructure and facilities can improve the knowledge and usage of telemedicine. Majority of participants in each age group had moderate level of awareness and moderate skill with regard to telemedicine. This finding was at par with the study by Meher SK et al., in which doctors were asked about whether telemedicine was essential, majority of study participants felt, that it was important and their opinions were similar in all age groups [3].

According to Dash S et al., there is a skewed healthcare force distribution in India, where in 60% of the force caters to 30% of the population that lives in urban India and the urban to rural doctors ratio is 3.8:1 [12]. This difference in healthcare can be solved to an extent by telemedicine. Remote access to Registered Medical Practitioners (RMPs), or those who have a MBBS degree, using

telemedicine can reduce widespread quackery [12], which is still a major problem in rural areas where heath care needs are not met adequately. There are many uses of telemedicine. Many such benefits are explained in an article by Agarwal N et al., such as ongoing management of chronic diseases such as bronchial asthma, hypertension, and diabetes mellitus, particularly during a time when social distancing is encouraged [13]. Telemedicine can also be used for providing psychological support to patients and their family members without getting exposed to the infection. During COVID-19 pandemic, telemedicine can also help in reducing the burden on the tertiary hospitals by providing diagnosis and treatment to patients in their own geographical location and reducing chances of patient's exposure due to hospital visits. Telemedicine can also help in providing training to the care providers of sick and disabled children and elderly [13]. There is a high demand for expanding the telemedicine services during the COVID-19 pandemic and the recent expansion of information and communication technologies around the country has helped a lot in managing the healthcare delivery during pandemic period. Telemedicine services can be a solution to the challenge of inadequate access to healthcare services in the developing nations, especially in rural areas and in situations like the current pandemic.

Limitation(s)

The present study was conducted during COVID-19 pandemic period in Kerala, the questionnaires were sent, via online platforms and all the responses obtained were included in the study. The study had a non probability chain referral sampling method, but authors had included higher number of doctors than calculated sample size. Only those who filled the questionnaire sent, via online platforms were included. The participation of doctors above 60 years was comparatively lesser. This could be a limitation and future research studies are required to generalise results to the whole healthcare professionals.

CONCLUSION(S)

Majority of doctors (80.56%) had moderate awareness in telemedicine guidelines in the present study and more than two third (68.22%) had moderate skills. Also from the present study, it is found that 46.54% believed that specific software training is required for practicing telemedicine and 48.97% were concerned about being sued, if something goes wrong with the patient in telemedicine practice. By providing adequate training, addressing the concerns of doctors and with implementation of adequate

infrastructure facilities, telemedicine can be used as a solution in healthcare delivery system.

Additional Information

Data collection for the study started during the lockdown months of COVID-19 pandemics in the year 2020. The guidelines for the practice of telemedicine were published in March of 2020 by the MHFW. These guidelines were used for assessment in the domain of awareness. Since the data collection for the study was initiated three months after its release, many doctors were unaware about many aspects in the guidelines.

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ANNEXURE -1

Questionnaire

Part One
Baseline variables

Age:

Gender:

Years of Experience:

Qualification: Undergraduate/Postgraduate/Super-speciality

Working in: Private sector/Government sector

Type of Hospital: Primary/Secondary/Tertiary

Whether Teaching hospital: Yes/No

Is there a dedicated facility for telemedicine in their hospital? Yes/No

How many webinars and seminars about telemedicine have you participated within the last six months?

Do you think you require specific software training for telemedicine practice?

What is your major concern in telemedicine practice?

Part Two

S. No.	Skills in ICT Never/Rarely/Sometimes/Often/Most often
1.	How often do you use desktop computer or laptop at home/hospital?
2.	How often do you search for information online?
3.	In your role as a doctor, how often do you interact with patients via e-mail or through social media?
4.	How often do you use internet for searching literature?
5.	How often have you used telemedicine services for being in touch with other healthcare professionals?

Part Three

S. No.	Awareness/Yes/No/Don't know
Whether telemedicine can be used for:	
1.	Minor ailments.
2.	Routine follow-up.
3.	Patients whose medical history is known by doctor.
4.	Practitioner can prescribe all injectable drugs.
According to the guidelines laid down by the Ministry of Health and Family Welfare, which among the following modes of telecommunication can be practiced?	
5.	Video e.g., Skype.
6.	Audio e.g., Phone.
7.	Text e.g., WhatsApp.
8.	Asynchronous e.g., e-mail, fax.
What are the situations in which explicit consent from patients is needed in telemedicine practice?	
9.	When a patient initiates telemedicine.
10.	When a health worker initiates telemedicine
11.	When a medical practitioner initiates telemedicine:
12.	When a caregiver initiates telemedicine:
Which category of medicines can be prescribed through telemedicine?	
13.	List O e.g., Paracetamol, Oral Re-hydration Solution (ORS) packets, Antacids etc.
14.	List A e.g., Re-fill medications for chronic diseases such as Diabetes, Hypertension, Asthma etc.,
15.	List B e.g., add-on medications which are used to optimise an existing condition. (Thiazide diuretic with Atenolol).
16.	Schedule X eg: Anti-cancer drugs; Narcotics such as Morphine, Codeine etc.,

S. No.	
Awareness regarding fee for telemedicine practice:	
17.	Practitioner may charge an appropriate fee for the telemedicine consultation provided.
18.	Fee is fixed by Ministry of Health and Family Welfare.
19.	Practitioner should also give a receipt/invoice for the fee charged for providing telemedicine-based consultation.
How are prescriptions to be given to patients after teleconsultation?	
20.	Prescription should be on the letter head of the registered doctor.
21.	Prescription letter can be sent as image, scan or digital copy via messaging platforms.
22.	Patient's history and serial number should be there in the letter head.
23.	Prescription can be sent by text Messaging. (i.e., with 1 prescription letter)
Awareness Regarding record keeping in telemedicine practice:	
24.	The identity of who the prescription is given to through online mode should be collected and recorded.
25.	The practitioner should retain report, documents, images, diagnostics, data etc.,
26.	Do the practitioner has the liberty not to attend teleconsultation request made by the patient?
27.	Is it needed to send medical record from each consultation to medical council?
28.	Can a practitioner discontinue teleconsultation giving due notice to the patient?
First consult in telemedicine means:	
29.	The patient is consulting with the registered medical practitioner for the first time
30.	The patient has consulted with the practitioner earlier, but more than six months have lapsed since the previous consultation.
31.	The patient has consulted with the practitioner earlier, but for a different health condition.
32.	Follow-up consultation can be in situations of a chronic disease or a treatment (e.g., renewal or change in medications) when a face-to-face consultation is not necessary. Examples of such chronic diseases are: asthma, diabetes, hypertension and epilepsy etc.,
Actions not permissible by the doctor practicing telemedicine are:	
33.	Can a practitioner insist on telemedicine, when the patient is willing to travel to a facility and/or requests an in-person consultation?
34.	Can a practitioner use patient data (especially of private and sensitive in nature) for other purposes?
35.	Can a practitioner solicit patients for telemedicine through any advertisements or inducements?
36.	Telemedicine should be avoided for emergency care to the possible extent especially when in-person care is available.