A Cross Sectional Study On Limitations And Problems In Telemedicine Services During Covid-19 Pandemic In Eluru District Of Andhra Pradesh State, India

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Abstract :

Background : **Telehealth is defined as synchronous or asynchronous consultation using information and communication technologies such as telephone, video conferencing, or secure messaging to overcome geographical and functional distance. In the current pandemic scenario, telemedicine can supplement health-care delivery in the absence of in-person visit. There are many advantages of telemedicine services as well as challenges and limitations. As there has been a dearth in studies assessing challenges, our study aimed to identify limitations and problems of telemedicine services faced by population.**

Methods : **A community based Cross Sectional Study conducted in Eluru district was conducted. Study design is retrospective observational type. A total of 390 patients who used telemedicine services atleast once during COVID pandemic were considered by multistage random sampling technique and study was done for a period of 2 months. IEC clearance was obtained.**

Statistical analysis: **Collected data was entered in Microsoft Excel SPSS trial version-23**

Results : **Among study subjects, majority of them faced problems like follow ups, technical difficulties while utilizing telemedicine services. Lack of physical examination, dissatisfaction of patient were found to be major limitations in this study.**

Conclusion : **Majority of study subjects were in age group of 30-40 years and majority of participants were females. Few Illiterates and study subjects of lower economic status utilized telehealth as majority of them did not know how to operate telemedicine services and due to weak internet accessibility.**

Keywords : **Telemedicine, Problems, Limitations, COVID-19**

INTRODUCTION:

Telehealth is defined as synchronous or asynchronous consultation using information and communication technologies such as telephone, video conferencing, or secure messaging to overcome geographical and functional distance[1]. The COVID-19 pandemic is considered the greatest global economic and health challenge of this century[3] . To slow the spread and reduce the impact of the pandemic, a global shift towards telemedicine arose[4] . In the current pandemic scenario, telemedicine can supplement health-care delivery in the absence of in-person visit.

As there is a shift from in-person to video consultation of doctors, there is a risk for patient doctor interaction to get menaced as it is pivotal for trust, clinical care and deeply meaningful to both patients and clinicians. The problem is the inability to conduct direct physical examinations. While telemedicine is increasingly delivered via smart phone and tablet, the technology often requires both the clinician and patient to learn how to use a new platform. Despite the presence of numerous studies appraising the utility of telemedicine as well as the challenges and barriers hindering the optimal implementation of telemedicine services, there has been a dearth in studies assessing these challenges in the prevailing pandemic. Therefore recognisation of these challenges was deemed necessary. The rapid spread of cases made the utilization of telemedicine services essential to lessen contact and attenuate the transmission of cases and also aided in reducing the transportation charges and time consumed during in-person visits. There are many legal and ethical aspects of telemedicine. These include the medical responsibilities, the confidentiality and privacy of the patients cannot be maintained, and the jurisdictional problems[5]

Shortage of medical practitioners and specialists, shortage of internet facilities, low education levels in some patients all are problems facing the telemedicine in developing countries[6]. The evolution of telemedicine has several legal problems ranging from the authorization to the protection of patient confidentiality [7].

This study was aimed to identify and expose the limitations of telemedicine and the problems faced by the population during COVID-19 outbreak to underline recommendations for its future successful implementation.

MATERIALS & METHODS :

This was a community based Cross Sectional Study conducted in Eluru district of Andhra Pradesh state for a period of two months (july 2022 to august 2022). All the patients 30 years and above who used telemedicine services atleast once during COVID times were considered as study population. As a consequence, the study was categorized as a retrospective observational one.

INCLUSION CRITERIA:

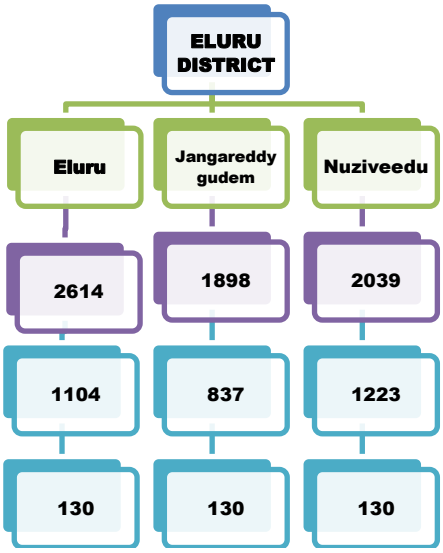
1. Subjects aged 30 years and above
2. The patients with mild COVID infection and chronic diseases that include diabetes, hypertension, tuberculosis, asthma.

EXCLUSION CRITERIA:

1. Refusal to give consent for participating in the study.

2. Patients who required surgeries and hospitalization.

Sample size was calculated by taking Confidence interval (CI) at: 95%. The Allowable error (l): 10% and assumed prevalence (P) is 50% due to the limitation of studies. Using the formula (n): $(Z_{\alpha/2})^2 pq / l^2$, final sample size was rounded off to 390. The sample was achieved by adopting Multi stage random sampling method. Clearance from the Institutional Ethical Committee was obtained prior to the start of the study.



Three towns named Eluru, Jangareddygudem & Nuziveedu from Eluru district were selected randomly. Around 2614 patients from Eluru town, 1898 from Jangareddygudem town & 2039 from Nuziveedu town satisfying the inclusion criteria were enquired through telephone regarding utilization of telemedicine services. Among them 1104 from Eluru town, 837 from Jangareddygudem town & 1223 from Nuziveedu town had utilized telemedicine services. Out of those patients utilized the telemedicine services 130 were selected from each town by lottery method and included as study participants to achieve sample size of 390. The data was then collected using Prevalidated semistructured questionnaire.

STATISTICAL ANALYSIS: The data collected was analysed using Microsoft Excel and Trial version of SPSS 23 statistical packages. The data was then presented in proportions and percentages using bar charts and pie charts, etc.

Ethical clearance was obtained from ASRAMS BHR Ethics Committee. IEC ref no. ASRAMS BHR-EC/APPROVAL NO. 39/2022.

OBSERVATIONS AND RESULTS :

In the present study, Table 1 shows that majority of subjects were aged between 30years and 40 years i.e 28% and least subjects belong to 70-80 years of age group. It also shows that females were the majority study subjects. It also concludes that subjects with graduational level and beyond and high socio economic status utilized telemedicine services during COVID 19.

Table 2 shows that 71% of study subjects had internet accessibility and easy access to telemedicine services while 29% had weak or no internet access. Table 2 also shows that majority of subjects used computer for telemedicine services followed by mobile and laptop. It shows that 58% of study subjects did not know how to operate telemedicine services. Some study subjects also mentioned that they took the help of their children and grand children to operate the services.

Table 3 shows that major limitation of telehealth is lack of clinical examination followed by lack of knowledge in study subjects on operating the telemedicine services especially by the elderly and illiterates. It also shows that 38% of study subjects had vision and hearing impairments to utilize the telemedicine services.

Fig 1 shows the problems faced by study subjects during COVID 19. 63% of subjects had technical difficulties especially the elderly as they had vision and hearing problems. 64% of subjects had follow-ups as a problem. 59% of subjects were not satisified with the telehealth when compared to in person visits. 61% of subjects found privacy and data confidentialty to be one of the major problems as online documentation of everything might be dangerous. 52% of subjects found difficult to build a good doctor patient relationship as they were unable to trust doctors online. 47% of subjects had ethical concerns. 29% of study population had privacy as a concern as they couldn't talk freely to their physician.

Fig 2 shows that 58% of study population believed that telemedicine offers low quality health care and 59% of subjects believed that telemedicine services saves money. 72% of study subjects believed that telemedicine services are time consuming as there was no need to stand in long queues to meet doctors.

TABLE 1 : SOCIO-DEMOGRAPHIC CHARACTERISTICS

	FREQUENCY	PERCENTAGE
AGE		
1. 30-40	111	28
2. 40-50	84	22
3. 50-60	85	22
4. 60-70	67	17
5. 70-80	43	11
GENDER		

1. Male 2. Female	173 217	44 56
EDUCATIONAL LEVEL 1. Illiterate 2. Primary school 3. High school 4. Graduate 5. Post graduate	 43 54 80 112 101	 11 14 20 29 26
SOCIO-ECONOMIC STATUS (modified BG Prasad Classification) 1. Class I 2. Class II 3. Class III 4. Class IV 5. Class V	 128 82 63 74 43	 33 21 16 19 11

TABLE 2 : ACCESSIBILITY TO TELEMEDICINE SERVICES

	FREQUENCY	PERCENTAGE
Internet access 1. Yes 2. No	 278 112	 71 29
Device used 1. Mobile 2. Tablet 3. Computer 4. laptop	 118 40 168 64	 30 10 43 17
Knows how to operate the telemedicine services 1. Yes 2. no	 162 228	 42 58

Fig 1: PROBLEMS FACED BY POPULATION DURING COVID 19

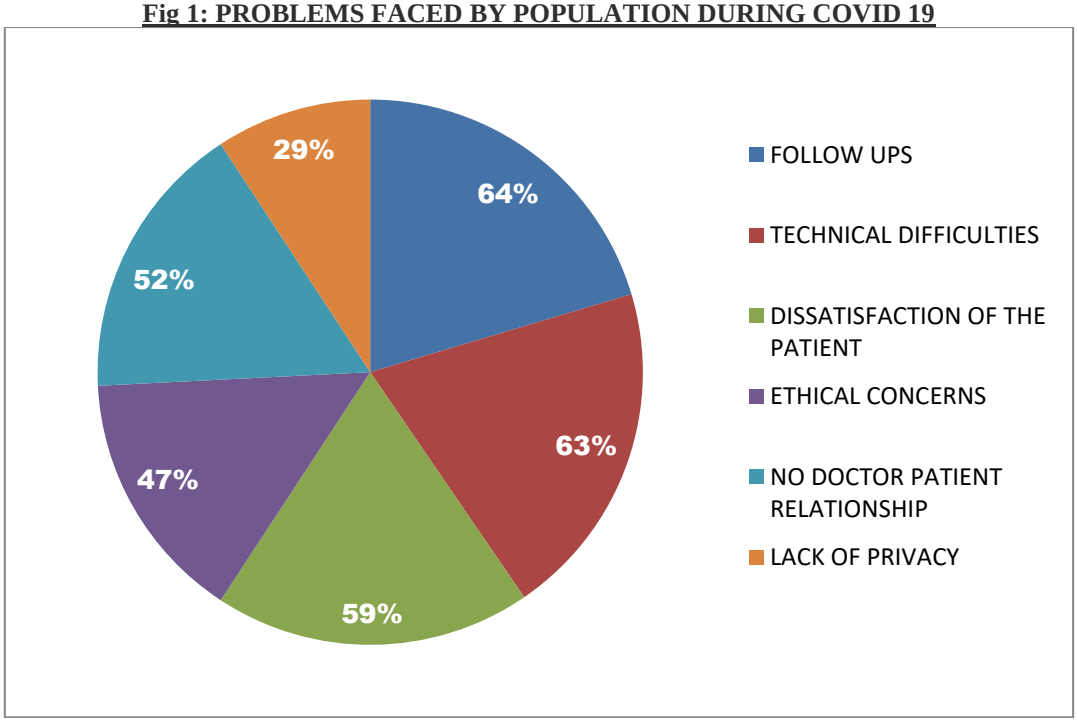


Fig 2 : QUALITY AND COST OF TELEMEDICINE SERVICES :

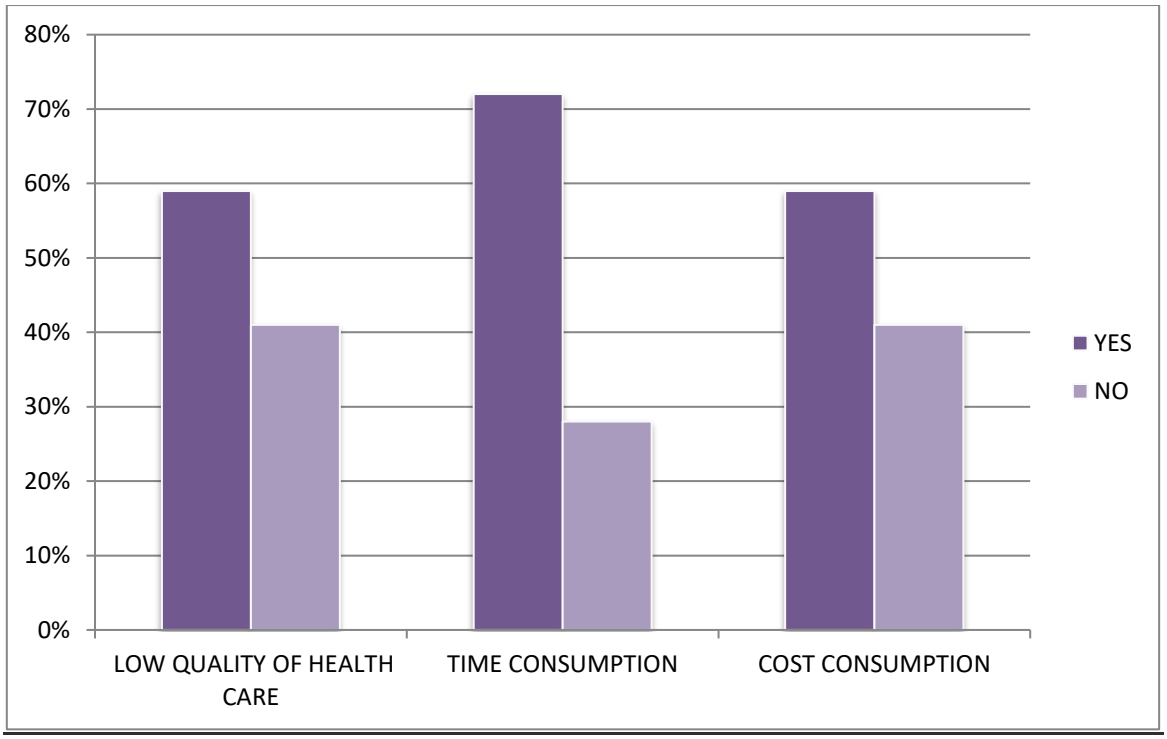


TABLE 3 : LIMITATIONS OF TELEMEDICINE SERVICES

	FREQUENCY	PERCENTAGE
Lack Of Clinical Examination	256	66%
Lack Of Knowledge In Accessing And Operating Telemedicine Services	216	55%
Physical Barriers : Vision And Hearing Impairment	152	39%
Cyber Crimes	42	10.7%

DISCUSSION :

Accessing healthcare services via telehealth is easier and more convenient for some patients than face-to-face appointments. Patients do not need to travel to and from their appointments, take as much (or any) time off work, or spend time in waiting rooms. In our study, no need to travel was perceived as an advantage as it saves both time and transit costs. This was considered particularly beneficial for patients who experienced physical or financial barriers to access, including the elderly, those with mobility impairments, those living in rural areas, and those with low incomes. This was also concluded through study done by breton et al[6]
The common challenges identified in recent qualitative studies on rapid implementation of telehealth that have reported on impacts on teamwork, access to care, technical problems, and relational issues that involve consultation, therapeutic relationships, confidentiality, and the ability to assess patients remotely [7-9]. Our study identified technical problems, follow ups, ethical concerns, to be the major problems faced by population. Hjelm et al[10] study concluded that patients suffering from reduced vision and hearing problems have some difficulty following the information presented in video consultation which is similar finding to our study. Hjelm et al[10] study also described that patients seem satisfied with teleconsultations which was contradicted to our study.
It was proved that the teleconsultation came with the risk of malpractice problems[14.] Kalal N[15] et al study concluded that Issues such as high cost of implementation and absence of legal framework related to policies that include patient privacy and confidentiality as major obstacles for telemedicine uptake and application which was also concluded in our study. Ethical issues in telemedicine including the autonomy, patient doctor relationship, non-maleficence, and beneficence were so important to be studied before using telemedicine. Comparative study was also done[16] to compare between the telemedicine ethics guidelines AMA (American Medical Association), WMA (The World Medical Association), and the HPCSA (The Health Professions Council of South Africa). It was found that there is a gap between these guidelines and the practitioner perspectives, this gap is due to variability in the international practice, and the complexity of patient provider interactions[17]

Yassa et al[17] study stated that Doctors who refused the telemedicine concluded that the disadvantages of telemedicine services were inability to reach the diagnosis, to perform examination and to perform even small maneuvers. The limitation of telemedicine to be clinical examination which was similar to our study. Fear of cyber crimes to use the telemedicine services was seen as one of the limitation in our study.

CONCLUSION :

The objective of this study was to explore the problems faced by population and limitations of telemedicine services during the COVID-19 pandemic. We conducted in person interviews through semi structured questionnaire, and our analysis revealed implications of major issues such as technical difficulties, not knowing how to operate telemedicine services, internet accessibility especially to rural areas. To ensure that utilization of telemedicine services meets the needs of both patients and providers, it is utmost necessary to support the implementation of telemedicine services in rural as well as urban areas, provide guidelines and training to physicians to address any types of challenges, and pay keen attention to both technological barriers and human relationship needs. We believe that addressing all these issues might help to alleviate barriers and aid in successful implementation of safe and effective virtual care.

CONFLICTS OF INTEREST: None declared.

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