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A study to assess client satisfaction about telemedicine in West Bengal during COVID-19 pandemic

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Abstract: *Introduction:* Telemedicine is used for remote medical services including diagnosis and management during Covid 19 pandemic. Client satisfaction can maximize telemedicine acceptance during a pandemic because satisfied users are key to the success of any program. The present study was conducted to describe the clinicosocial profile of patients using telemedicine services for COVID-19-related morbidity and to assess client satisfaction with telemedicine among the beneficiaries. *Materials and methods:* It was an observational descriptive cross-sectional study conducted in IPGMER, Kolkata over6 months (April-September 2021) among the patients who availed the telemedicine service for Covid 19. They were approached over the telephone after informed verbal consent and interviewed. *Result:* The present study revealed that 85.15% of the respondents were symptomatic, whereas the most common symptoms were fever (57.27%) and cough and cold (67.58%). The commonest comorbidity present was hypertension (39.09%). No comorbidity was found among 42.73% of respondents. 59.69% were new patients and 98.18% enquired for Covid related matters and45.46% stayed within 1-5km from the hospital. Client satisfaction of 35.76% was good whereas only 2.42% had poor client satisfaction. They were satisfied with the doctor's response, contented with the teleconsultation service, and agreed to use it in the future. *Conclusion:* The variations in client satisfaction scores warrant the need for tailored approaches to ensure effective and satisfactory telemedicine services. Thus regular patients' feedback will help in strategic intervention in improving the operation of telemedicine which could impact the outcome of the telemedicine service in the future.

Keywords: Patient Satisfaction, COVID 19 Pandemic, Telecare, Telemedicine.

Introduction

Telemedicine is the use of telecommunication technologies for remote medical services including diagnosis and management [1]. It is a complex innovative technology developed with the interaction of medical care and telecommunication along with information technology [2]. It also has a significant role in health education along with health service management. The major contribution of telemedicine is to increase access to the health care delivery system [3].

During COVID-19 pandemic early diagnosis and treatment of both suspected and confirmed cases are essential. But the practice of social distancing, and home isolation impede the control of COVID-19 infection management. People are scared to attend healthcare service areas for fear of getting infected. Thus telemedicine came as an evidence-based solution for the first aid option for COVID-19 infection. Moreover, it provides rapid access and timely delivery thus reducing crowding in the hospital outpatient departments and reducing patient waiting time of the suspected patients [4].

The healthcare delivery system is more concentrated in urban areas than rural areas. Thus people from distant remote areas can avail of health care services with the help of telemedicine curbing their geographical

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barrier [2]. High quality of care and clinically useful service can confer patient satisfactory interaction and improve quality of care [5]. Several studies have been conducted on telemedicine but few have analyzed the perception of the beneficiaries. Thus quality of the interpersonal relationship of both provider and patient and their perception and satisfaction remained unexplored. This is of utmost concern for the successful utilization of tele-healthcare [6]. A study was conducted on the client satisfaction level of health service users of Jimma University Specialized Hospital in 2010. The overall satisfaction level was found to be 77% in that hospital [7].

Adult patients with signs and symptoms suitable for teleconsultation attended telehealth offered by Minute Clinic. One-third of study subjects preferred telehealth and 57 % of them liked telehealth compared to traditional health care [8]. Satisfaction of antenatal mothers was assessed during their antenatal visit in virtual care by videoconferencing compared to traditional care by physicians and midwives. It was found that overall satisfaction was significantly higher in patients receiving virtual care [9]. Research showed that technology acceptance increased with the increase in client satisfaction. Patient involvement was the key determining factor of patient satisfaction. Hence it is important to get insight into client satisfaction to maximize the telemedicine acceptance because satisfied users are key to the success of any program [10-11]. This is the implication of studying client satisfaction with telemedicine services.

Objective: Thus with this background, the present study was conducted to describe the clinicosocial profile of patients using telemedicine services for COVID-19-related morbidity and to assess the client satisfaction with telemedicine among the beneficiaries.

Material and Methods

During Covid 19 pandemic in 2020, lockdown was imposed throughout the country. It was very difficult for the patients to attend the hospital because of the isolation of the affected person. Thus telemedicine service was set up at the Institute of Post Graduate Medical Education and Research (IPGME&R) to combat the crisis due to lockdown. It provided service to the patients across the different districts of West Bengal.

It was an observational descriptive cross-sectional study conducted in IPGMER, Kolkata over 6 months (April-September 2021). All the patients who availed of the telemedicine service for Covid 19 were approached by the researcher over the telephone after informed verbal consent. Using the sample size formula of Z^2PQ/L^2, taking prevalence (P) of 57% as the prevalence of client satisfaction with virtual care [8], with a= 0.05, and allowable error of 10%, and non-response rate of 10%; the sample size was estimated to be 330.

The beneficiaries who availed of the telemedicine service for COVID-19 infection on the days of the survey constituted the sampling frame. The study population was selected by simple random sampling method (lottery method) using their registration numbers from the sampling frame. Those who gave informed verbal consent to participate during the study period were the total study population. The beneficiaries not willing to participate in the study were excluded from the study. The study was conducted with the help of a predesigned pretested semi-structured interview schedule having two parts.

The first part contained information regarding sociodemographic profile, and personal history, while the second part contained questions regarding client satisfaction for beneficiaries according to the Likert scale. Each client satisfaction question was marked 1 to 5 depending upon their response ranging from strongly disagree to strongly agree. The total satisfaction score for 11 questions was calculated for each participant, with the maximum possible score as 55 and a minimum of 11. A score of 11-27 was considered as poor, 28-41 as average and 42-55 as good. The client satisfaction questionnaire was previously validated by other researchers [8-9].

The Final schedule was validated by two subject experts and pretested among 20 patients attending the fever clinic of the same

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hospital. It was an anonymous survey and data confidentiality was assured. Ethical clearance was obtained from the Institute Ethics Committee (IPGME&R/IEC/2021/287 dated 09.04.2021).

Data were compiled with the help of MS Excel (Microsoft Inc.). Analysis was done in Epi Info. (CDC Atlanta) and SPSS version 16(IBM inc.) using Chi square test. Results were presented by tables and figures.

Results

In the present study, 330 respondents, who had availed telemedicine service during COVID -19 pandemic conducted by IPGME&R, Kolkata were interviewed for their clinical history, health care service utilisation and client satisfaction.

Table-1: Distribution of study subjects acc. to sociodemographic profile: n=330

Sociodemographic factors	Number	Percentages
Age(in yrs)		
18 - 40	113	34.24
40-60	119	36.06
>60	98	29.70
Sex		
Male	185	56.06
Female	145	43.94
Residence		
Urban	240	72.73
Rural	90	27.27
Occupation		
Homemaker	105	31.82
Service	152	46.06
Business	14	4.24
Student	15	4.55
Retired	44	13.33
Job situation during Covid pandemic		
Travelling to work	139	42.12
Work from Home	191	57.88

Among the respondents, 70.3% population belonged to working age group, 56.06% were male, 72.73% resided in urban area, 31.82% were homemaker and 57.88% were doing online work from home [Table 1].

Table-2: Distribution of study subjects acc. to Covid -19 infection related information: n=330

Covid 19 related information	Number	Percentages
Symptoms suggestive of Covid-19		
Present	281	85.15
Absent	49	14.85
Symptoms of Covid 19 infection:*		
Fever	189	57.27
Cough and cold	223	67.58
Anosmia & Ageusia	46	13.94
Abdominal pain	3	0.90
Diarrhoea	3	0.90
Chest pain	8	2.42
Respiratory distress	18	5.45
Others**	10	3.03
Co morbidity present*		
Heart Disease	13	3.94
Hypertension	129	39.09
Diabetes mellitus	99	30
Lung disease	31	9.39
Renal disease	6	1.82
Thyroid disease	26	7.87
Malignancy	4	1.21
Others***	21	6.36
None	141	42.73
Prime reason for teleconsultation		
First consultation for Covid 19	166	50.30
Consultation for clinical follow up or laboratory or imaging reports	91	27.58
Post Covid follow up	69	20.91
Vaccination related	4	1.21

*Multiple response; ** Others include Confusion, Bodyache, Loss of appetite, Nonspecific symptoms; *** Others include hypercholesterolemia, Parkinson's disease, abdominal tuberculosis, Psychiatric disorder.

Present study revealed that 85.15% of the respondents were symptomatic, whereas most common symptoms were fever (189, 57.27%) and cough and cold (223, 67.58%). Commonest comorbidity present was hypertension (129, 39.09%). No comorbidity was found among 141 (42.73%) respondents. It was also observed that 166(50.30%) clients

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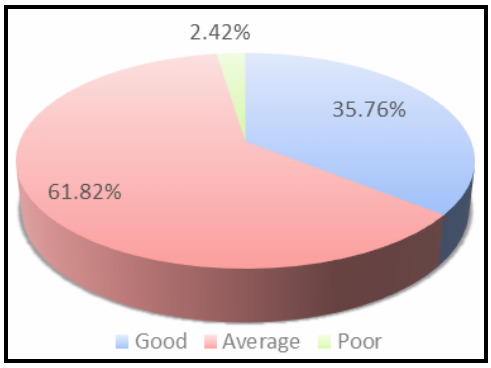
consulted for first time for COVID-19 infection related matters [Table 2].

Table-3: Distribution of study subjects acc. to factor related to health care service: n=330

Factor related to Health care service	Number	Percentages
Consultation type		
New	197	59.69
Existing	133	40.31
Visit to Health facility		
Yes	285	86.36
No	45	13.64
Home to Hospital Distance (in Km)		
< 1	37	11.21
1-5	150	45.46
5-10	99	30
>10	44	13.33

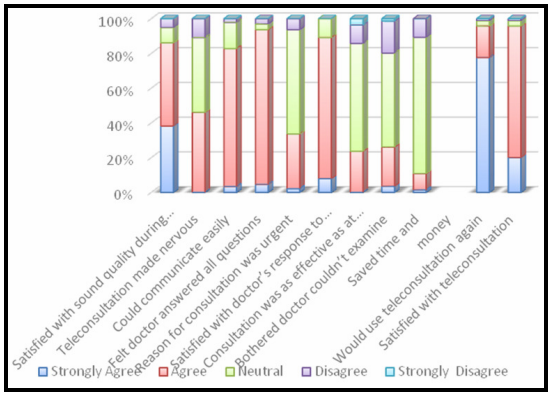
It was found in the present study, 197 (59.69%) were new patients and 324(98.18%) enquired for COVID-19 related matter. 285(86.36%) respondents visited other health facility and 150(45.46%) stayed within 1-5km from hospital. [Table 3]

Fig-1: Distribution of study subjects acc. to beneficiary satisfaction score: n=330



Present study revealed that client satisfaction of 35.76% (118) was good whereas only 2.42% (8) had poor client satisfaction [Fig 1].

Fig-2: Distribution of study subjects acc. to perception of quality of service: n=330



Most of the study subjects were satisfied with the sound quality and they could communicate easily although nervous. They were satisfied with the doctor's response. They were contented with the teleconsultation service and agreed to use it in future [Fig:2].

Present study revealed that young adults (18-40yrs) had significantly high satisfaction score (45.13% vs 21.01%, 42.86) There was no significant sex difference in the client satisfaction. Rural beneficiaries had significantly high client satisfaction score compared to urban ones.(46.67%vs31.67%). Retired people had significantly better satisfaction compared to other profession (50% vs 39.47%, 31.43%,20%). Those beneficiaries who were travelling for work had significantly better client satisfaction compared to those who were doing online jobs (46.04% vs 28.27%) [Table 4].

Table-4: Distribution of study subjects acc. to beneficiary satisfaction score and sociodemographic profile: n=330

Sociodemographic factors	Beneficiary satisfaction score			Total
	Good	Average	Poor	
	No.(%)	No.(%)	No.(%)	No.(%)
Age(in yrs)				
18 - 40	51(45.13)	58(51.33)	4(3.54)	113(100)
40-60	25(21.01)	90(75.63)	4(3.36)	119(100)
>60	42(42.86)	56(57.14)	0(0)	98(100)
X^2=18.95***p=0.000805***				

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Sociodemographic factors	Beneficiary satisfaction score			Total
	Good	Average	Poor	
	No.(%)	No.(%)	No.(%)	No.(%)
Sex				
Male	65(35.14)	112(60.54)	8(4.32)	185(100)
Female	53(36.55)	92(63.45)	0(0)	145(100)
X^2=4.0871*p=0.129565*				
Residence				
Urban	76(31.67)	160(66.67)	4(1.66)	240(100)
Rural	42(46.67)	44(48.89)	4(4.44)	90(100)
X^2= 9.5484***p=0.008445***				
Occupation				
Homemaker	33(31.43)	72(68.57)	0(0)	105(100)
Service	60(39.47)	90(59.21)	2(1.32)	152(100)
Business	0(0)	12(85.71)	2(14.29)	14(100)
Student	3(20)	10(66.67)	2(13.33)	15(100)
Retired	22(50)	20(45.45)	2(4.55)	44(100)
X^2= 27.2206***p=0.000648***				
Job situation during Covid pandemic				
Travelling to work	64(46.04)	71(51.08)	4(2.88)	139(100)
Work from Home	54(28.27)	133(69.64)	4(2.09)	191(100)
X^2= 11.7894***p=0.002754***				

Discussion

The present study explored beneficiary satisfaction among the participants who availed of telemedicine services during the COVID-19 pandemic. They were also enquired about COVID-19 infection-related information and healthcare service-related information. It was observed that 70.3% population belonged to the productive age group, 31.82% were homemakers and 57.88% were doing online work from home. It was also found that 85.15% of the respondents were symptomatic, whereas the most common symptoms were fever (57.27%) and cough and cold (67.58%). Several studies have found that fever, myalgia, cough, sore throat, fatigue, etc. had increased the likelihood of Covid 19 infection during a pandemic [12-13].

These findings are consistent with the known clinical presentation of COVID-19, indicating that fever and respiratory symptoms remain prominent among patients seeking telemedicine services. No comorbidity was found among 42.73% whereas the commonest comorbidity present was hypertension (39.09%). It observed that age-related comorbidities such as hypertension, diabetes, Parkinson's disease, cancer, and cardiovascular diseases may lead to life-threatening complications in COVID-19-infected patients [14]. Underlying co-morbidities posed a relatively high risk of severity of COVID-19 infection and also mortality even in younger patients during a pandemic [15]. These results highlight the importance of assessing and managing pre-existing health conditions, particularly hypertension, in the context of COVID-19 telemedicine services.

In the present study, 59.69% were new patients, and 98.18% enquired for COVID-19 related matters. 86.36% of respondents visited other health facilities and 45.46% stayed within 1-5km from the hospital. It was observed by a study conducted with outpatient cardiology telehealth. Greater satisfaction was

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among those with 1-way travel distance greater than 10 miles (49.0%, $P < .001$) and 1-way travel time greater than 1 hour (22.3%, $P < .001$) [16]. A study conducted to assess the application of telemedicine services in the Gansu province of China during the COVID-19 pandemic revealed that most patients were satisfied with remote location tele consultation [17]. The present study revealed that good client satisfaction among 35.76% of beneficiaries whereas only 2.42% had poor client satisfaction. However, Deriba BS et al. observed that overall patient satisfaction was 44.6% [18].

A systematic review of patient satisfaction with telemedicine during the COVID-19 pandemic found teleconsultation a useful tool for beneficiaries. A high level of satisfaction was observed in every medical specialty. During the Covid-19 pandemic, telemedicine was used conveniently replacing face-to-face consultation because of lockdown [19]. The majority of the respondents (45.13%) in the young adult age group (18-40 years) reported a high satisfaction score, while a smaller proportion (21.01%) had a lower satisfaction score. Gender was not found to be a significant factor in determining client satisfaction. However, rural beneficiaries reported significantly higher satisfaction scores (46.67%) compared to their urban counterparts (31.67%).

Additionally, retired individuals expressed significantly better satisfaction (50%) with telemedicine services compared to other professions (39.47%). Moreover, beneficiaries who were travelling for work demonstrated higher satisfaction (46.04%) compared to those engaged in online jobs (28.27%). Ramaswamy A et al. elicited that video consultations were associated with a high level of patient satisfaction. Younger age, female gender, and new visit type were associated with lower patient satisfaction scores [20]. Similar to the present study findings were observed in research conducted by Cho D et al. Higher satisfaction was noted among younger age group patients (P =.006) and female gender (P = .007) [16].

Wali R et al. also observed a high level of client satisfaction among the pregnant mothers attending phone clinic appointments. Although score varies according to the mother's education, occupation, husband's occupation, addiction, gravida, parity, gestational age, pregnancy complication, number of phone clinics attendance during pregnancy, visiting another health facility, and reason for visiting phone clinic [21]. Most of the study subjects in our study were satisfied with the teleconsultation and agreed to use it in the future. However, they disagreed that the service was as effective as the hospital service. Similarly, research on patient satisfaction with remote-location healthcare elaborated that patients preferred face-to-face consultation over remote healthcare services [22].

However, another systematic review on patient satisfaction with teleconsultation during Covid 19 pandemic found that Telemedicine could replace face-to-face consultation in particular situations because of the high level of beneficiary satisfaction [19]. Aneja J et al however found that 98.4% of beneficiaries were very much satisfied with the time spent on the consultation and explanation provided by the doctors regarding their health concerns. Doctors showed their concern for patient's problems in 97.3% of cases and they perceived good voice quality [23].

A study was conducted on the impact of telemedicine on patient satisfaction and quality of radiation oncology care in the United States. It was observed that 90% of beneficiaries had confidence in the physician, 88% understood the treatment plan and 87% expressed confidence in treatment. Thus 66% preferred telemedicine over face-to-face consultation [24]. A systematic review conducted on client satisfaction with telemedicine noticed that most of the beneficiaries were satisfied with the service provided during the COVID-19 pandemic[25].

Telemedicine plays an important role in minimizing discrepancies in health care services between urban and remote rural areas. Travel distance was an important predictor of the option of telemedicine. There was a shortage of health care service delivery to the 45.17% of the world's population who were living in remote areas. Remote delivery of health care services regarding diagnosis, treatment, and prevention of disease could

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alleviate the gap in the health service. Growth in telemedicine might improve access to healthcare services in those disadvantaged regions with limited amenities [26-27].

Although telemedicine was viewed as a safe, efficient and affordable alternative to face-to-face consultation, negative perceptions of the quality of telehealth care might hinder its widespread use by the patients. There was an inherent limitation in the diagnosis and management of patients along with poor connectivity and other technological issues. These barriers need to be addressed for the widespread successful implementation of telehealth care [28].

Limitation: It is important to acknowledge the limitations of this study. Firstly, the study relied on self-reported data, which may introduce recall bias or subjectivity in reporting symptoms and satisfaction levels. Secondly, the study was conducted in a specific geographical area, limiting the generalizability of the findings to other settings. Future studies with larger sample sizes and diverse populations are warranted to validate and expand upon our results.

Conclusion

This study provided insight into COVID-19 symptoms, co-morbidities, and satisfaction of beneficiaries in Kolkata, West Bengal, India. The findings underscore the prevalence of fever and respiratory symptoms in COVID-19 patients seeking telemedicine support. Additionally, the study highlights the importance of addressing hypertension as a common co-morbidity. The variations in client satisfaction scores based on age, location, and profession emphasize the need for the adoption of tailored approaches to ensure effective and satisfactory telemedicine outcomes. Thus regular patients' feedback will help in strategic intervention in improving the operation of telemedicine which could impact the outcome of the telemedicine service and thus affect the quality of health care service in the future.

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