Section: Community Medicine

Original Research Article

HEALTHCARE TELECONSULTATION TRENDS AMONGST PATIENTS IN BENGALURU CITY: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: The Covid-19 pandemic created a need to use Information and Communication Technology to provide basic healthcare so as to prevent infections amongst patients and health care workers. Teleconsultation use increased and with that, the problems with using teleconsultation also surfaced. The aim of this study was to evaluate the usage of telemedicine and to identify the barriers and reasons for usage of telemedicine amongst patients.

Materials and Methods: A cross-sectional study was conducted between April-May 2026 amongst 418 patients attending three private clinics in Bengaluru City. Data was collected using a pre-tested questionnaire by face-to-face interviews and circulation of online questionnaires. Data was analysed using SPSS version 26.

Results: Most of the study subjects belonged to the age group of 31-40 years, and 55% of them were male. 43.8% of them had a bachelor's degree and 38.27% had semi-professional jobs. 89.2% of the study subjects had used teleconsultation atleast once. Age, education and occupation were found to be significantly associated with use of teleconsultation. Telephonic consultations (61.5%) were most commonly used and specialists (56.6%) were consulted most often. 69.7% were follow-up consultations. The most common barrier for using teleconsultation was network issues, followed by inability to use technology. The most common reason for using teleconsultation was fear of spread of Covid-19.

Conclusion: Teleconsultation can help reduce the spread of communicable diseases during a pandemic and can also link doctors with patients living in hard-to-reach areas. With increasing network coverage even in rural and tribal areas, teleconsultation can be a method of improving healthcare delivery.

Keywords: Telephonic consultation, video consultation, telemedicine, barriers.

INTRODUCTION

The recent Covid-19 pandemic led to an increase in the requirement of medical services and doctor consultations. Due to the communicability of the disease, traditional form of doctor consultations were risky due to sharing of waiting areas and exposure to Covid-19 patients.[1]

Travel restrictions, lockdowns and home quarantine rules made it difficult for people to visit local clinics or hospitals. Alternate forms of consultation using information and communication technology (ICT) became popular during the time of Covid pandemic. Various methods like telephonic consultation, video consultation, consultation over SMS/chat portals were opted over the traditional methods of consultation.

Technology also gave birth to various online portals and applications where consultations could take place online, maintaining privacy and also recording all consultations, thus making it easier for both doctors

and patients to accept these forms of consultation, especially for primary care.[2]

In a developing country like India, where there are still several villages and remote areas which have poor access to qualified general practitioners, specialists and superspecialists, these alternate forms of consultation could be a blessing, making high quality health care more accessible.

Telemedicine is a term that is used to describe several alternate forms of consultation such as telephonic consultations, video consultations, internet-based app consultations and other forms of consultations which use information and communication technology as a tool of consultation.[3,4] Teleconsultation has been defined as synchronous or asynchronous consultation using ICT to overcome geographical and functional distance.[5]

WHO has specified the scope of teleconsultation and it includes patient consultation, prevention, diagnosis and treatment. It also incorporates research and continued medical education of healthcare workers, ensuring the health of the individuals and of the communities as a whole. WHO also released a consolidated guide for provision of efficient teleconsultation services so that telemedicine could be used to provide effective healthcare services in the situation of a pandemic.[6]

Telemedicine has already been incorporated in several health care set ups, as a method to reach out to the people who are living in areas with limited access to healthcare. Though these alternate forms of consultations have been present since several years, the acceptability of these methods has been poor in India.

At the beginning of the Covid-19 pandemic, India launched eSanjeevani, a telemedicine service provided by the National Teleconsultation Service, Ministry of Health and Family Welfare. eSanjeevani was India's flagship web-based portal for teleconsultation on a national level.[7,8]

There is a lack of studies in India regarding the use of telemedicine and the barriers and facilitators for its use following the Covid-19 pandemic. This study was conducted to evaluate the usage of teleconsultation and to understand the reasons for preference of teleconsultation and non-acceptability of these methods.

Objectives

1. To estimate the use of teleconsultation among the study subjects
2. To determine the perception of study subjects towards teleconsultation
3. To identify the barriers in using teleconsultation.
4. To identify the reasons for preference of teleconsultation

MATERIALS AND METHODS

A cross-sectional study was carried out between April – May 2026, among patients aged above 18 years, visiting three private clinics in Bengaluru City. Patients who were consulting the clinicians practicing in these clinics over telephonic/video calls were also involved in the study.

A study by Jacqueline Lucas et al, published by the CDC in 2021 stated that the average percentage of people using telemedicine for consultations was 37%[9]. Based on this prevalence, the sample size was estimated using the formula[10]

$$N = Z^2P(1-P)/d^2$$

where P = 0.37, and d = absolute precision (5%)

The sample size was calculated to be 373. Considering 20% non-response to the online form, the total sample size was calculated to be 449. Based on the ratio of face-to-face consultations to teleconsultations in the three clinics, the samples were divided in such a way that 80% of the data was collected through face-to-face interview in the clinics and 20% through online questionnaires.

A questionnaire was prepared after doing extensive research on the topic and was approved by a subject expert. A pilot study was conducted to check the feasibility of the questionnaire and necessary modifications were done to the questionnaire. The tested questionnaire was administered by the investigator amongst patients who attended the clinic and it was circulated as a google form to all those patients aged above 18 years and having internet accessible cell phones who had consulted the doctors through other platforms after they had consented to be part of the study.

The questionnaire consisted of three parts – sociodemographic characteristics, use of alternate forms of consultation and feedback on use of alternate forms of consultation. Data was collected till the desired sample size was achieved. Completed forms were included in the study. Data was obtained in the form of google spreadsheets. The data was analysed using SPSS software version 26. Descriptive data was expressed in frequencies and proportions. Chi-square test was used to determine association between use of alternate methods of consultation and its predicator variables. P value of < 0.05 was considered as statistically significant.

Informed consent was taken from the study subjects and confidentiality was maintained.

RESULTS

A total of 449 patients participated in the study. Of these, 314 participants responded in the face-to-face interviews and 135 participants responded through the online questionnaire. Of the participants who responded through the online questionnaire, 104 forms were complete. The final number of study participants in the study was 418.

Amongst the study participants, majority were aged between 31-40 years (45.9%) and there was a higher number of male participants (55%). The educational level of 43.8% of the participants was a Bachelor's degree and 38.3% had a semi-professional job. Married subjects constituted 58.8% of the study and

75.4% had health facilities less than 1 km from their residence. [Table 1]

Teleconsultation had been used by 89.2% of the study population. The most preferred form of consultation was telephonic (61.5%). Most of them had used teleconsultation 2-4 times till date (46.7%). It was observed that the use of teleconsultation increased from 37.3% before Covid-19 pandemic to 89.2% after the onset of the Covid-19 pandemic. Specialists were most commonly consulted by 211 (56.6%) of 373 participants. Complaints associated with diseases under General Medicine were the most common reason for teleconsultation (49.6%). Majority of the consultations (69.7%) were follow-up consultations. [Table 2]

On comparing the sociodemographic characteristics with use of teleconsultation, it was found that age ($p = 0.001$), education ($p = 0.001$) and occupation ($p = 0.003$) were associated with use of teleconsultation and these were found to be statistically significant. [Table 3]

Perception of the study participants towards teleconsultation was evaluated. It was seen that 69.7% of the participants felt that teleconsultation is a necessary method of consultation. Cost compared to traditional consultation was perceived to be lesser by 55% of the participants. Most (78%) felt that the treatment is effective. Majority of the participants felt they were able to describe the problem well (85.3%) and that the doctor was able to understand their symptoms (90.6%) and diagnose accurately (63%). 64.3% were satisfied with the consultation and 78.8% said they would suggest teleconsultation to others. 30% of the study participants said they would use teleconsultation again. [Table 4]

Amongst the study participants who had used teleconsultation, 26.5% (136) of the participants faced issues with the use of these modes. [Figure 1].

65 participants (17.4%) said that network issue was the main reason to avoid teleconsultation whereas 9.4% said they had lack of knowledge in using apps to book appointments or use video calling apps. [Figure 2].

The most common reasons for using teleconsultation were Covid-19 pandemic restrictions, for emergency consultations and due to time convenience. [Figure 3]

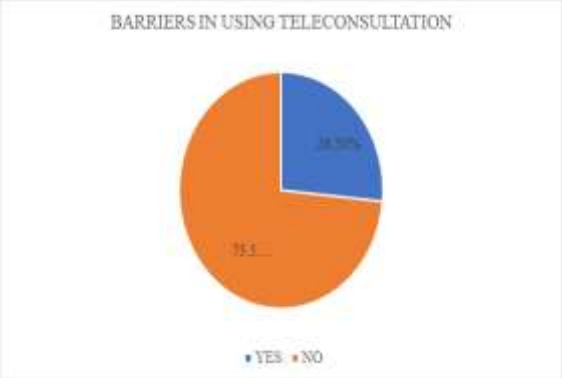


Figure 1: Presence of Barriers in Using Teleconsultation

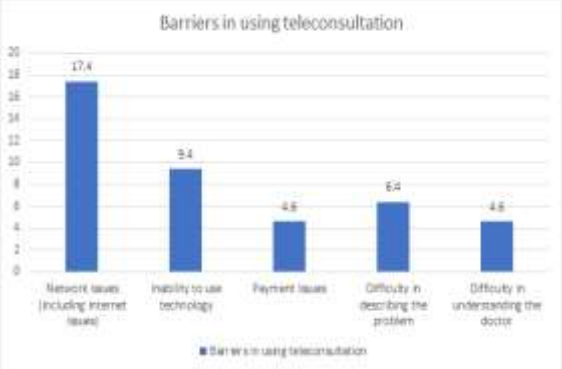


Figure 2: Barriers In Using Teleconsultation

Table 1: Sociodemographic Characteristics of The Study Subjects

Sociodemographic Characteristics		Number	Percentage
Age	18-30 years	171	40.9
	31-40 years	192	45.9
	41-50 years	38	9.1
	51-60 years	11	2.6
	>60 years	6	1.4
Sex	Male	230	55
	Female	188	45
Education	Upto Primary School	4	1
	Upto High School	4	1
	Pre-University	35	8.4
	Bachelor degree	183	43.8
	Masters degree	127	30.4
	Professional degree	65	15.6
Occupation	Unemployed/Retired	14	3.34
	Unskilled worker	34	8.13
	Skilled worker	93	22.24
	Clerical/shop/farmer	10	2.39
	Semi-professional	160	38.27
	Professional	107	25.59
Marital Status	Married	246	58.8
	Unmarried	167	40
	Separated/Divorced/Widowed	5	1.2
Distance From Nearest Health Facility	<1 Km	315	75.4
	>1 Km	103	24.6

Table 2: Use of Teleconsultation

Characteristics		Number	Percentage
Use Of Alternate Forms of Consultation (N=418)	Yes	373	89.2
	No	45	10.8
Alternate Mode of Consultation (N = 373)	Telephone	257	61.5
	SMS/Messages	109	26.1
	Video consultation	156	37.3
	Through apps	30	7.2
Number Of Times Used (N = 373)	<2 times	93	24.9
	2-4 times	195	52.3
	>4 times	85	22.8
First Use of Alternate Mode of Consultation (N = 373)	Before Covid-19	139	37.3
	After onset of Covid-19	234	62.7
Doctor Consulted	General Practitioner	123	33
	Specialist	211	56.6
	Superspecialist	39	10.5
Department Consulted	General Medicine	124	49.6
	OBG	35	14
	Surgery	9	3.6
	Pediatrics	23	9.2
	ENT	8	3.2
	Endocrinology	16	6.4
	Nephrology	16	6.4
	Neurology	7	2.8
	Pulmonary Medicine	12	4.8
Type Of Consultation	Primary	113	30.3
	Follow-up	260	69.7

Table 3: Association of Sociodemographic Characteristics with Use Of Teleconsultation

Characteristics		Uses Telemedicine	Does not use telemedicine	Total	Chi-Square value	P Value
Age	18-30 years	151	20	171	38.98	0.001*
	31-40 years	172	20	192		
	41-50 years	38	0	38		
	51-60 years	11	0	11		
	>60 years	1	5	6		
Sex	Male	210	20	230	2.281	0.154
	Female	163	25	188		
Education	Upto Primary School	3	1	4	38.257	0.001*
	Upto High School	0	4	4		
	Pre-University	30	5	35		
	Bachelor degree	168	15	183		
	Masters degree	117	10	127		
	Professional degree	55	10	65		
Occupation	Unemployed/Retired	14	0	14	22.54	0.003*
	Unskilled worker	34	0	34		
	Skilled worker	83	10	93		
	Clerical/shop/farmer	5	5	10		
	Semi-professional	140	20	160		
	Professional	97	10	107		
Marital Status	Married	221	25	246	0.951	0.791
	Unmarried	147	20	167		
	Separated/Divorced/ Widowed	5	0	5		
Distance From Nearest Health Facility	< 1 Km	285	30	315	2.052	0.198
	>1 Km	88	15	103		

Table 4: Perception of Study Subjects Towards Alternate Forms of Consultation Perception

Perception		Number	Percentage
Necessity of alternate forms of consultation	Necessary	260	69.7
	Unnecessary	30	8.0
	Not sure	83	22.3
Cost compared to traditional consultation	More	98	26.3
	Less	205	55.0
	Same	70	18.8
Effective treatment	Yes	291	78
	No	82	22
Ability to describe the problem well	Yes	318	85.3
	No	55	14.7
Doctor's ability to understand the symptoms well	Good	338	90.6
	Poor	35	9.4
	Good	235	63

Doctor's ability to diagnose accurately	Poor	14	3.8
	Not sure	124	33.2
Satisfaction	Yes	240	64.3
	No	133	35.7
Suggestion to others	Yes	294	78.8
	No	79	21.2
Usage of alternate forms of consultation again	Yes	112	30
	No	59	15.8
	Maybe	202	54.2

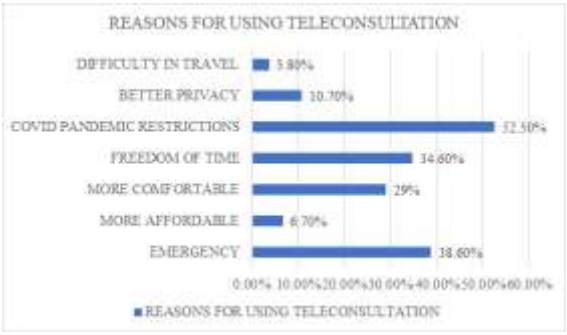


Figure 3: Reasons for Using Teleconsultation

DISCUSSION

The aim of the present study was to determine the use of alternate modes of consultation, reasons for using them and barriers to use these forms of consultation amongst people living in Bangalore City.

The study found that 89.2% of the study participants used teleconsultation. As the study participants were living in an urban area, most of them were familiar with the use of basic mobile phone features and apps such as SMS, WhatsApp and video calling features. A study done by Andre Hajek in Germany.[11] showed that the use of internet-based doctor consultation was used by 10.02% of the study population. The use of teleconsultation has not been well accepted in a few countries due to local policies on telemedicine and general acceptability of study participants.[12]

There was 68% increase in the use of alternate modes of consultation after the onset of the Covid-19 pandemic. This pattern of increase in alternate modes of consultation was also observed in studies done by Fengli Zhou et al,.[13] where they reported an increase of 36.1%. A systematic review done on subjects in Netherlands and Hong Kong reported an increase in use of teleconsultation in Netherlands whereas there was no change in Hong Kong.[14] Teleconsultation was opted over face-to-face consultations during the Covid-19 pandemic to prevent spread of infection.[15]

Age played a major role in the use of teleconsultation in our study, with people below the age of 40 years using it more than those above that age. Similar findings were observed in a study done by Asmaa Abdel Nasser A[16]. Age plays a role as younger age groups are more familiar with technology when compared to older age groups.

It was also observed that people with higher education levels and occupations had a higher chance of using teleconsultation. This can also be explained due to the familiarity of these people with use of technology and apps.

Telephonic consultation continues to be the preferred mode of teleconsultation in our study due to the ease of use. Telephonic consultations do not require internet and do not need much knowledge on the use of technology.[17] With several social apps such as Whatsapp and Google duo providing free video calls, video consultation is also on the rise amongst people. The use of apps focussing on teleconsultation is still less used due to difficulty in using the apps due to poor understanding of technology by the aged population and the illiterate population.

Most teleconsultation users prefer the convenience of the method once they use it and this is seen in the study with most participants having used the method repeatedly. The easy access to specialists without having to wait for several hours in the waiting rooms, risking exposure to other diseases is an advantage of use of teleconsultation.[17]

Cost factor also plays a major role in choosing the form of consultation. It was observed in our study that most participants felt that teleconsultation was more economical than face-to-face consultation. This could be due to additional charges applied by the hospital, the cost of travelling to and fro and the loss of wages.[18,19]

Several participants in our study consulted specialists through teleconsultation. The most commonly consulted specialists were physicians (general medicine). A similar finding was observed in a study done by Ashwin Ramaswamy et al in New York[20], where 26.8% of the participants had consulted physicians. The reason for this could be due to follow up of various chronic illnesses such as Diabetes Mellitus and hypertension.

Teleconsultation is the preferred method for follow-up consultations, with people who are suffering from chronic diseases such as diabetes and hypertension opting for teleconsultation rather than face-to-face consultations as the patients would have already undergone an examination during their primary visit. A study done by Magdalena Kludacz-Alessandri in Poland.[21] also showed similar results where 12.1% of the participants used teleconsultation for a primary consultation whereas 30.1% of them used it for follow-up consultations.

The general perception towards teleconsultation in our study has been positive, with 69.7% of the participants saying that teleconsultation is necessary. Overall satisfaction is good with teleconsultations. A similar finding was seen in a study done by Maja Maria Weißenfeld in Germany.[22] where 60% of the participants had a positive outlook on teleconsultation.

More than 3/4th of the study population did not face any problems when trying to use teleconsultation.

Amongst those who faced problems with teleconsultation, the most common barriers were phone network or internet issues, inadequate knowledge regarding use of necessary technology for teleconsultation and inability to explain the symptoms to the doctor. Poor digital literacy and internet connectivity issues were recognised as barriers in a study done by Denise D. Payan in USA.[23] This can be one of the reasons why telephonic consultations were preferred in our study as it requires less proficiency with technology.

Most studies have shown an increase in the use of teleconsultation during and after the Covid pandemic. The most common reason for using teleconsultation in our study was due to the lockdown restrictions during the pandemic. The second most common reason was immediate access to doctors during an emergency. People also reported of freedom of choosing the time for the consultation as they could get a consultation at their convenient time. A systematic review done by Andrea Fernandez Coves14 on studies in Netherlands and Hong Kong also showed that a major facilitator for using teleconsultation was the patient's fears regarding Covid-19 and its spread.

Teleconsultations were preferred during the pandemic to also maintain social distancing and reduce the risk of exposure to infected individuals.

CONCLUSION

Teleconsultation is an effective tool as a primary health care method. This technique, if effectively applied in rural and tribal areas can help overcome the acute shortage of doctors in these areas and improve the healthcare delivery of the country.

Training of selected individuals in the use of these technologies in these rural areas, including anganwadi and ASHA workers, can assure primary healthcare delivery for most common ailments. Access to specialist and superspecialist consultation will also become easier for people living in these places.

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