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## Public Awareness Towards Telehealth Services

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**Abstract:** The study is to identify the variables such as digitalization, convenience and privacy categories which includes the factors like telecommunication, smart watch, medical devices, social media, health apps, cost reduction, long travels, waiting time, potential adopters, specialist care, data privacy, security, doctor-patient interaction, confidentiality, patient's doubt clearance and electronic medical record, all together showing to what level it influences people to approach telehealth. Telehealth innovations influence the people with their services where technology has the potential to increase the quality of healthcare and make it available to more people. Telehealth provides opportunities for health care to become more efficient, better organised and closer to home. The study finds out people's understanding on Telehealth services and measures the relationship among various factors that influence Telehealth practices among people. The conclusion of the study states about various factors that influence people to prefer Telehealth, such as digitalization, convenience factors and privacy factors, where it all has a positive linear relationship towards telehealth approach.

**Keywords:** Telehealth, Healthcare, Electronic medical record, Digitalization, Innovation.

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### INTRODUCTION

Telehealth is distinct as the deliverance and facilitation of health and health-related programmes, together with patient education, medical care provider, self care and health information services through digital communication technologies and telecommunications. Examples of Telehealth include mobile health applications, live video conferencing, electronic "store and forward" transmission, and its remote patient monitoring (RPM). Telehealth is a collection of means or methods through telecommunications technology for civilising delivery and promotion of health care, public health and health education. Telehealth includes a broad range of technologies and techniques in order to deliver interactive medical, wellbeing, and education services. Telehealth is not a single agency, but a set of means to improve the provision of care and education. Telehealth solutions includes wearable devices as well as mobile applications which creates awareness among people regarding health aspects (Cannon, 2018). Some of the Telehealth examples are "virtual visit" via a phone call or a video chat with a healthcare professional. Remote patient monitoring allows you to be verified by your provider when you are at home. For instance, you could wear a device that monitors your heart rate and sends your provider that information. Our Team has published similar projects over the past three years. Our research idea is based on the rich knowledge acquired by our peer teams across the university. (A.C.Gomathi, S.R.Xavier Rajarathinam, A.Mohammed Sadiq, Rajeshkumar, 2020; Danda et al., 2009; Danda and Ravi, 2011; Dua et al., 2019; Ezhilarasan et al., 2019; Krishnan and Chary, 2015; Manivannan, I., Ranganathan, S., Gopalakannan, S. et al., 2018; Narayanan et al., 2012, 2009; Neelakantan et al., 2013, 2011; Neelakantan and Sharma, 2015; Panchal et al., 2019; Prasanna et al., 2011; Priya S et al., 2009; Rajeshkumar et al., 2019; Ramadurai et al., 2019; Ramakrishnan et al., 2019; Ramesh et al., 2016; Venugopalan et al., 2014)

### REVIEW OF LITERATURE

(Williams et al., 2003) made a study that Telehealth care is an area of clinical operation and technological advancement which is rapidly growing. These emerging innovations have captured clinicians, policy makers' attention as they appear to deliver quicker access to specialty treatment and the opportunity to address systemic challenges around service provision and delivery inequalities. Their review focuses on political projects set up in literature aimed at stabilising the development of Telehealth.

(Prinz et al., 2008) made a research where Telehealth is portrayed as a place for enhancing access to healthcare in disadvantaged communities through use of electronic devices that track and diagnose early problems in the patient's home. Overall, the advantages of using telehealth to expand care outweigh the concerns about efficiency, effects on patient outcomes, and viability. Federal telehealth funding through legislation.

(Krupinski et al., 2011) made a research on Telehealth allowing continuous professional growth and sharing of information over long distances and in difficult-to-access areas, and is suitable for reaching foreign markets and enabling health care practitioners to share expertise face-to-face without geographical restrictions. Planning and sustaining a viable telemedicine programme is difficult, and the implementation of effective telehealth services is often hindered.

(Weinstein et al., 2014) projected that there has been an increase in interest and usage of telehealth, recently catalysed by the planned compliance of the Affordable Care Act, which rewards healthcare delivery quality. Medicare lags behind Medicaid in reimbursement in some jurisdictions. Laws for interstate medical license remain controversial.

(Lamprinakos et al., 2015) researched that Healthcare tracking software solutions have recently achieved a wide penetration in the ICT sector and are undoubtedly a major contributor to improving quality of life of older and reducing costs. It is of particular significance that the platform facilitates the assessment of an elderly person's simultaneous health, emotional and psychological status.

(Singh et al., 2016) made a research that a huge and inevitable transition and change is currently underway in the health care sector. Time is approaching when, considering its sluggish growth in India, telemedicine / e-health can initially be visibly practised in most Indian hospitals separate departments before gradually fusing into corresponding medical specialties. These are primarily bottlenecks in India's telemedicine growth. The latest research discusses the positive and weak points of telemedicine.

(Dart et al., 2016) projected that Telehealth is commonly referred to as the use of communication devices and other assistive technologies to provide skilled health care to clients in remote areas. Telehealth, pioneered by the medical industry, is becoming increasingly prevalent in other areas of human care, such as clinical psychology, and appears to be an effective, efficient, and appropriate medium for service delivery.

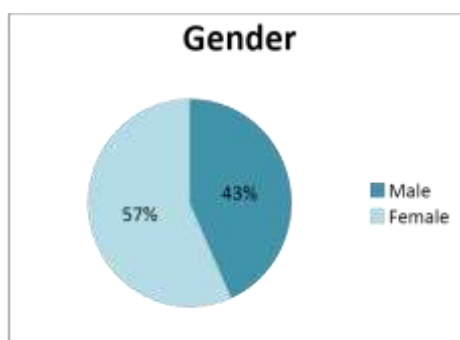
(Vesselkov et al., 2018) made a research by developing new business positions and attracting new stakeholders, wearables and consumer technology will bring improvements to the existing telehealth industry value network. However, it may be unable to embrace unregulated non-medical devices in historically regulated telehealth industries.

(Tsai et al., 2019) made a research that in order to enhance patient quality and performance, Telehealth used to establish advanced healthcare services. The present research clarifies on individual support and also opposes the use of telehealth. This paper indicates that there are important roles in technology anxiety. The development, enhancement of telehealth acceptance may be influenced by this.

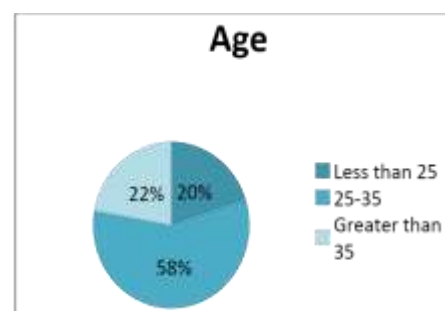
(John, 2020) protruded that for a long time, telehealth and telemedicine have been portrayed as something exotic, out of this world with tele-as the main component. Many ventures have had problems related to high system costs, poor stakeholder orientation, accessibility, and obsolescence, as new technologies have arisen with little or full disuse.

## RESEARCH METHODOLOGY

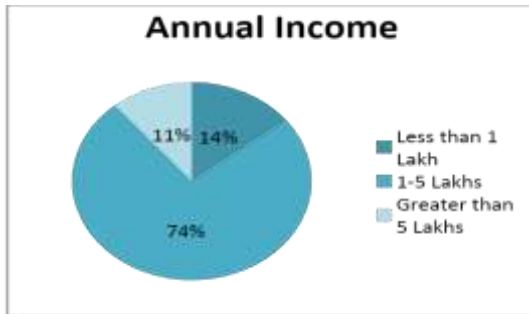
The aim of the study is to inspect the knowledge of the public towards telehealth practices with respect to digitalization, convenience and privacy factors. This is done by employing a questionnaire which contains various views with respect to telehealth digitalization, its convenience and its privacy factors. The sample size for the study is 90. The responses were collected from all age groups of people.



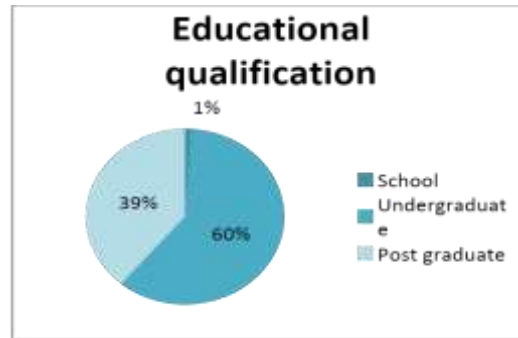
**Fig.1:** The above mentioned pie chart depicts the percentage of gender in the sample. 43% of the samples were Male and 57% were Female.



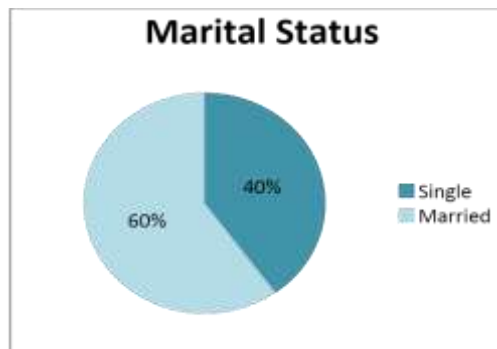
**Fig.2:** The above mentioned pie chart describes the age of the respondents. 20% of respondents were of age less than 25 years, 58% of respondents were of age 25 - 35 and 22% were of age greater than 35.



**Fig.3:** The above mentioned pie chart describes the annual income of sample respondents 14% of respondents were earning less than Rs. 1 lakh. 75% of respondents were earning Rs. 1 – 5 lakhs whereas only 11 % were earning above 5 lakhs.



**Fig.4:** The above mentioned chart depicts the Education background of sample respondents. 39% of respondents were Post graduates. 60% of respondents have completed undergraduate courses whereas only 1 % have completed only School.



**Fig.5:** The above-mentioned pie chart describes marital status of respondents. 60% of the samples were married and the remaining 40% were married.

**Table: 1** Analysis of mean for Digitalization, Convenience factors & Privacy factors

S. No.	Digitalization, Convenience & Privacy factors	Mean	Rank
1	Telecommunication networks makes Physician consultation easier (Telecommunication).	2.11	11
2	Using Smart watch helps to track my health (Smart watch).	2.12	9
3	Medical devices such as Blood Glucose monitors are very helpful (Medical devices).	1.88	13
4	Social media promotes Telehealth a lot (Social media).	2.11	10
5	Different Health apps are available according to my health concern (Health apps).	2.20	8
6	Telehealth helps in cost reduction (Cost reduction).	2.37	3
7	Telehealth seems to be very helpful in reducing waiting times in Hospitals (Waiting time).	1.86	14
8	It gratefully helps for potential adopters from rural, remote as well as metropolitan areas (Potential adopters).	2.28	5
9	Specialist care can be opted (Specialist care).	2.22	6
10	It helps us to reduce long travels (Long travels).	1.73	15
11	Data privacy and security is there while using Telehealth (Data privacy & security).	2.42	2
12	Doctor-Patient interaction and communication seems to be very effective using this way (Doctor-Patient interaction).	2.43	1
13	Confidentiality is maintained (Confidentiality).	2.36	4
14	Patient's doubt towards any health conditions are made clear (Patient's doubt clearance).	2.22	7
15	Electronic Medical Record plays a vital role in improved continuity of care (Electronic Medical Record).	1.94	12

This analysis displays the mean values for 15 variables. It is evident from mean analysis that the Doctor-Patient interaction variable possess highest mean followed by other variables data privacy & security, cost reduction, confidentiality, potential adopters, specialist care, patient’s doubt clearance, health apps, smart watch, social media, telecommunication, electronic medical record, medical devices, waiting time and long travels.

**Table 2: ANOVA Analysis**

<b>Analysis of Age with respect to variables</b>			
<b>Variables</b>		<b>F</b>	<b>Sig.</b>
telehealth approach	Between Groups	6.879	.005
	Within Groups		
	Total		
Digitalization	Between Groups	3.481	.035
	Within Groups		
	Total		
Convenience factors	Between Groups	3.517	.034
	Within Groups		
	Total		
Privacy factors	Between Groups	3.641	.030
	Within Groups		
	Total		
<b>Analysis of marital status with respect to the variables</b>			
<b>Variables</b>		<b>F</b>	<b>Sig.</b>
Telehealth approach	Between Groups	9.124	.006
	Within Groups		
	Total		
Digitalization	Between Groups	6.467	.013
	Within Groups		
	Total		
Convenience factors	Between Groups	6.240	.014
	Within Groups		
	Total		
Privacy factors	Between Groups	7.308	.008
	Within Groups		
	Total		

**Table 2.1:**

<b>Analysis of Educational qualification with respect to variables</b>			
<b>Variables</b>		<b>F</b>	<b>Sig.</b>
Telehealth approach	Between Groups	.012	.988
	Within Groups		
	Total		
Digitalization	Between Groups	.649	.525
	Within Groups		
	Total		
Convenience factors	Between Groups	.213	.809
	Within Groups		
	Total		
Privacy factors	Between Groups	.021	.979
	Within Groups		
	Total		

**Table 2.2:**

<b>Analysis of Annual income with respect to variables</b>			
<b>Variables</b>		<b>F</b>	<b>Sig.</b>
Telehealth approach	Between Groups	.645	.527
	Within Groups		
	Total		
Digitalization	Between Groups	.424	.656

	Within Groups		
	Total		
Convenience factors	Between Groups	.002	.998
	Within Groups		
	Total		
Privacy factors	Between Groups	.765	.468
	Within Groups		
	Total		

Table 2 shows ANOVA analysis of Age, Marital status, Educational qualification and annual income with respect to telehealth approach, digitalization, convenience and privacy factors. It is visible that ‘p’ value (0.005, 0.035, 0.034 and 0.030) is greater than 0.05 which means that there is no significant difference among age with respect to telehealth approach, digitalization, convenience and privacy factors. In the next table it is visible that ‘p’ value (0.006, 0.013, 0.014 and 0.008) is greater than 0.05 which means that there is no significant difference among marital status with respect to telehealth approach, digitalization, convenience and privacy factors. In the next table it is visible that ‘p’ value (0.988, 0.525, 0.809 and 0.979) is greater than 0.05 which means that there is no significant difference among educational qualifications with respect to telehealth approach, digitalization, convenience and privacy factors. In the next table it is visible that ‘p’ value (0.527, 0.656, 0.998 and 0.468) is greater than 0.05 which means that there is no significant difference among annual income with respect to telehealth approach, digitalization, convenience and privacy factors.

**REGRESSION ANALYSIS**

**Table 3: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.827 <sup>a</sup>	0.683	0.672	0.34725

a. Predictors: (Constant), Privacy factors, Digitalization, Convenience factors  
 The table above contains the values for R and R<sup>2</sup>. The simple correlation is expressed by the R value and is 0.827, which indicates the correlation degree. The R<sup>2</sup> value shows how much of the overall variance can be explained by the independent variable in the dependent variable. In this scenario, an average of 68.3% can be clarified.

**Table 3.1: ANOVA**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.366	3	7.455	61.827	.000 <sup>b</sup>
	Residual	10.370	86	.121		
	Total	32.736	89			

a. Dependent Variable: telehealth approach; b. Predictors: (Constant), Privacy factors, Digitalization, Convenience factors  
 ANOVA table shows that significant value is less than 0.05 that is 0.000, which means dependent variable telehealth approach is significantly predicted by independent variables namely privacy factors, digitalization, convenience factors at 99% confidence level.

**Table 3.2: Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.346	0.153		2.255	0.027
	Digitalization	0.163	0.105	0.150	1.546	0.126
	Convenience factors	0.445	0.105	0.442	4.247	0.000
	Privacy factors	0.303	0.075	0.332	4.048	0.000

a. Dependent Variable: telehealth approach  
 The above table indicates regression analysis with B & Beta value for the independent-dependent variables which are assumed. From analysis it found Convenience factors and privacy factors have significant impact on Telehealth approach as their significance value is less than 0.05. But digitalization does not possess any impact on the Telehealth approach as compared to convenience and privacy factors.

## CONCLUSION

The use of telehealth technology has the ability to have a beneficial effect on patients' healthcare lives. It provides flexible health care, for example, on the time schedule of the patient, thereby saving travel time for those in rural areas. Moreover, it lowers patient treatment expenses and increases access to healthcare professionals. The use of two-way video, mobile apps on smartphones and other tools such as sensors and monitors facilitates consistency, life-saving routines or preventive healthcare. Telehealth and its numerous applications are a modern mode of healthcare that is improving. Healthcare practitioners and patients can be more knowledgeable and educated about how Telehealth will transform their healthcare environment with more data and research on the risks and benefits. The other studies portrayed that telehealth services have improved technological advancements in the healthcare industry. Also, telehealth services towards patients' homes helps in earlier diagnosis of diseases.

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