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PERSPECTIVES OF TELEMEDICINE: A CROSS-SECTIONAL STUDY ON ASSESSING THE LEVEL OF AWARENESS, KNOWLEDGE AND PERCEPTION OF TELEMEDICINE SERVICES IN EBONYI STATE

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ABSTRACT

Telemedicine is the act of making available medical care remotely via the utilization of information technology and telecommunications such as remote monitoring, electronic transmission of medical records and video consultations. This term Telemedicine is mostly vital technology that makes it very easy for people to access preventive treatment and equally help their chronic health conditions. Especially for those who are having financial or regional causes that prevent them from receiving quality treatment. Therefore, this work presents the assessment of the level of awareness, knowledge and equally the perception of telemedicine services in Ebonyi State. The researcher carried out a cross-sectional study among the general public, physicians and some patients in different clinics or medical centres in Ebonyi State. A structured, self-administered online and hardcopy questionnaires were distributed. 342 responses were retrieved amongst diverse distribution of genders, occupations, ages, and frequencies of using technology daily, accessibility of electricity and stable internet connection. The SPSS (Statistical Package for Social Sciences) version 23 was utilized for the analysis of the data. Validation of the questionnaire was performed through calculation of Cronbach's alpha test for the consistency of the following item statements (i) Awareness and knowledge of telemedicine (0.738), (ii) Experience and use (0.799) (iii) Perceptions and beliefs (0.828), Kaiser- Meyer-Olkin (KMO) test for sampling adequacy (0.878) and Bartlett's test of sphericity (<0.001). The frequencies of all the parameters in this study were expressed and means±standard deviation (SD). Independent sample

t-test was equally used by the researcher to compare between means of different categories. The analysis revealed that 77.2% respondents revealed that they have not used Telemedicine services. This therefore entails that greater number of people living in Ebonyi State, do not use telemedicine service for remote healthcare delivery which implies that they are not enjoying the benefits associated with telemedicine services such as timely intervention, enhanced patient monitoring, no inconveniences due to long wait times, no missed appointments etc. I therefore recommend that training, meetings, and orientation programs should be organized for the healthcare personnel, general population, and information technologists to equip the people of Ebonyians with the knowledge of telemedicine which will enhance their method of receiving medical attention.

Keywords: *Telemedicine, Store-and-forward, remote monitoring, Telecommunication, Telehealth*

INTRODUCTION

Steady availability of network services with highly developed technologies help individuals to remotely perk up healthcare delivery as well as make it accessible to a good number of people. Telemedicine is a helpful technology which makes it very easy for people to acquire preventive treatment as well as enable them take care of their prolonged health conditions. This is really true for those going through financial or regional causes that prevent them from accessing good treatment. Telehealth equally has the capabilities of making healthcare effective the more, available, and organised. This research area is seriously expanding, take For instance, the telemonitoring and telephone-based care of the important signs in persons with heart disease reduced the danger of mortality and hospitalisation and increased quality of life. Alot of compelling reasons instigate people to acquire a diagnosis or recovery plan which convinces patients that they are getting the highest treatment. When it comes to treating mental health issues, telemedicine is the best choice. It eliminates some of the causes that prevent patients from receiving this critical form of treatment (Wilson *et al*., 2015; Hajesmaeel *et al.*, 2021; Lupton *et al.*, 2017).

There are three basic types of telemedicine and they include Store-and-Forward, Remote Monitoring, and Real-Time Interactive Services (Garavand *et al.,* 2022). Each of the three basic types of telemedicine has an important role to play in the entire healthcare and when used very well, can give outstanding benefits for both patients and physicians. Store-and-forward telemedicine (SFT) is bigger than the need for the healthcare workers to meet face to face with the patient. Rather, the information of the patient such as medical images or biosignals will be forwarded to the specialist as required once it has been gotten from the patients. It is the asynchronous sharing of short video clips or photo images from patients to healthcare providers, with patients using their own digital devices. This is a common practice in the medical fields of pathology, dermatology, and radiology. Store-and-forward telemedicine, with adequate structure and care, saves ones time and allows physicians to serve the people with their services more fully. Nevertheless, this type of telemedicine depends on documented information or images, a history report and rather than a in-person examination, which can cause complications like misdiagnosis. Telemedicine includes real-time (synchronous) digital communication in clinical practice, store-and-forward (asynchronous) or and helps in

referring medical practitioners to find out and possibly treat patients with advice of remote medical specialist (i.e HealthCare Providers). Self monitoring equally known as remote monitoring or self-testing, utilizes a wide range of technological devices to remotely check the health status and clinical signs of patients. It is seriously utilized in the management of long-term diseases like diabetes mellitus, cardiovascular disease, and asthma. There are alot of benefits associated with self monitoring or remote monitoring which include more frequent monitoring, cost effectiveness, and greater patient satisfaction. There are equally some risks that tests carried out by the patients might be incorrect/inaccurate; Nevertheless, the results are generally thought to become the same to professional-patient tests. Remote patient monitoring (RPM) is a distinct form of telemedicine that involves the "collection, transmission, evaluation, and communication of individual health data from a patient to their healthcare provider or extended care team from outside a hospital or clinical office (i.e., the patient's home) using personal health technologies including wireless devices, wearable sensors, implanted health monitors, smartphones, and mobile apps (American Telemedicine Association 2021). *Real-time Interactive Services:* Interactive services equally provide on the spot advice to patients requiring healthcare services. Several diverse mediums can be used for this purpose, such as online, phone, and home visits. Consultation and A medical history concerning symptoms presentation could be undertaken, followed by an assessment similar to that which is always carried out during facial appointments.

Significant strides has actually been made by telemedicine across different domains of medical services, relying on technological innovations to improve accessibility and patient care. Within the realm of surgical processes, improvements in telemedicine have changed traditional/previous practices. Surgeons can now carry out surgical consultations remotely, helping them to make available expert support and guidance irrespective of geographical barriers. Telementoring has come up as a vital tool for skill development, enabling experienced/expert surgeons to coach/mentor their peers in real time, enhancing expertise sharing and knowledge transfer. Moreover, the advent of telerobotic surgery has pushed the boundaries of surgical capabilities, enabling surgeons to perform intricate procedures from remote locations with the assistance of robotic systems, thereby expanding access to specialized surgical care (Sikander *et al.*, 2023). Moreso, diagnostic telemedicine has actually transformed the process of diagnosis, especially by interpreting medical signs/images remotely, like MRIs and X-rays. The platforms of Telemedicine facilitate the smooth transmission of medical signs/images, helping specialists and radiologists to remotely analyze signs/images and ensures than diagnostic assessments are done early. Moreover, telepathology came up as a very important component/parts of diagnostic telemedicine, enabling pathologists to scrutinize samples of tissue remotely and make diagnostic interpretations. This remote analysis enhances diagnostic accuracy and expedites treatment decisions, particularly in underserved areas where access to pathology expertise may be limited (Sikander *et al.*, 2023).

Enhanced telemedicine communication systems and devices have in a big way improved the remote monitoring of patients. These technologies help medical practitioners to monitor patients' vital signs remotely, disease progression, medication adherence, and personalized care plans and facilitating proactive

interventions. Moreover, telemedicine encourages ongoing communication/interaction between patients and medical practitioners, fostering patient empowerment and engagement. From remote virtual visits and consultations, individuals/patients can have access to timely medical support and advice from medical professionals, irrespective of location. This consistent support and monitoring improves patient satisfaction and outcomes while reducing the burden on traditional healthcare facilities (Sikander *et al.,* 2023). The invention of the Internet has really played a vital role in improving telemedicine abilities/capabilities, making easy the transmission of medical data over long distances. Medical Practitioners can securely change medical report/records, patient information, and diagnostic images via telecommunication channels, ensuring coordinated/organized care delivery and collaborative/ cooperative decision-making. Furthermore, the development of telemedicine platforms and medical applications have equally streamlined the storage and exchange of health/medical information, improving efficiency and accessibility in healthcare services. These Internet-based technologies have democratized access to healthcare services, breaking down geographical barriers and expanding the reach of medical expertise to remote and underserved populations (Jagarapu *et al.*, 2021).

The growth of telemedicine has called for the development of security measures and robust regulatory to protect data security and patient privacy. Agreeability with HIPAA regulations provides patient data/information confidentiality and safeguards from unauthorized disclosure or access. Moreover, encryption technologies and secure information transmission protocols are utilized to do away with data breaches and equally make sure that the integrity of data that is transmitted. While these security measures and regulatory are important for maintaining patient's confidentiality and trust, they equally present issues in terms of standardization of communication methods, interoperability, and policy changes. Addressing these challenges requires collaborative efforts from policymakers, healthcare providers, and technology developers to establish uniform standards and guidelines that facilitate the widespread adoption and utilization of telemedicine technologies (Jagarapu *et al.*, 2021; Sharma *et al.*, 2022). Recently in Ebonyi State, significant number of people are not aware or do not have the knowledge of telemedicine services and as such do not benefit from telemedicine services which include the following: it saves time for both the patients and physician, cost effectiveness, better scheduling flexibility visits etc. Based on the above, this work presents the assessment of the level of awareness, knowledge and equally the perception of telemedicine services in Ebonyi State and a cross-sectional study was carried out among the general public, medical practitioners and some patients in different medical centres(hospitals) in Ebonyi State.

Methods

Observational cross sectional study was conducted among the general public, including doctors and patients from different hospitals in Ebonyi State. The researcher's method of data collection was via structured, self administered online and hardcopy questionnaires. The questions were distributed among the general public, including doctors and patients from different hospitals in Ebonyi State who were accessible during the time of data collection via emails and WhatsApp groups. The questionnaire was delivered through goggle form and was given the privileged of editing their answers before final submission. At the

beginning of the survey, a plain language informative statement describing what a telemedicine is all about, the aim of the study, the number of items and full details about data confidentiality and storage were given to all participants. The Section A of the questionnaire included the respondents characteristics/demographic information which are their gender, age, marital and educational level. The second section handled technology usage. In this section, participants were accessed on smartphone ownership, availability of electricity and the stability of internet connection. The third section identified the awareness and knowledge of telemedicine. In this section, questions were asked about having a general understanding of telemedicine, recognizing the existence and having a deeper comprehension of telemedicine. The forth section asked about experience and usage. In this section, questions were asked on the practical knowledge through direct participation, observation or involvement in the usage of telemedicine. The fifth section which is the last section identified the perception and belief of the participants towards telemedicine. In this section, the questions were about the reliability, the viability, the flexibility, and the helpfulness of telemedicine as well as its ability to preserve resources, to be integrated with the current practices, moreso, rating of doctor's performance and reminder system. Lickert scale ranging from score one to five was utilized to assess the participants (strongly disagree (1), disagree (2), Neutral (neither agree nor disagree) (3), agree (4), and strongly agree (5)). SPSS (Statistical Package for Social Sciences) version 23 was utilized to perform the data analysis. Validation of the questionnaire was performed through calculation of Cronbach's alpha test for the consistency of the following item statement (i) Awareness and knowledge of telemedicine (0.738), (ii) Experience and use (0.799) (iii) Perceptions and beliefs (0.828), Kaiser- Meyer-Olkin (KMO) test for sampling adequacy (0.878) and Bartlett's test of sphericity (<0.001). Frequencies and means±standard deviation (SD) were used to express all parameters in this study. The researcher equally used the Independent sample t-test compare between means of different categories.

RESULTS

The population demographics information

The total of 342 responses were retrieved after the survey from the general public including doctors and patients from different hospitals in Ebonyi State, Respondents' gender breakdown was males: 62.6% and females: 37.4% who are both physicians and patients from different hospitals in Ebonyi State and equally the general public. It was interesting to find out that the middle age group (35-44 years) participated predominantly in this study (32.7%) with variable participations from different age groups as detailed in Table 1. Moreover, 99.1% of participants declared that they have smartphone which enables them to connect online while 0.9% stated that they don't have smartphone. However, 97.1% of the respondents mentioned that they have access to electricity while 2.9% said they don't have access to electricity. Regarding the use of internet, 96.2% of the respondents revealed that they use internet for communication and other online activities on daily basis, 1.8% of the respondents declared they use internet on weekly basis while 0.9% of the respondents said that they use internet on monthly basis, 0.9% of the participants equally said they make use of the internet rarely and 0.3% of the respondents revealed that they don't use internet at all. Talking about the stability of internet connection, 74.9% of the respondents revealed

that they have stable internet connection while 25.1% of the respondents vehemently stated that they don't have stable internet connection.

Table 1: Distribution of demographic information on the characteristics of participants

Items		Number	Percent
Gender	Female	128	37.4
	Male	214	62.6
Age Bracket	18-24	27	7.9
	25-34	94	27.5
	35-44	112	32.7
	45-54	74	21.6
	55 and above	35	10.2
SmartPhone Ownership	No	3	.9
	Yes	339	99.1
Access to Electricity	No	10	2.9
	Yes	332	97.1
Internet Use	None	1	.3
	Rarely	3	.9
	Monthly	3	.9
	Weekly	6	1.8
	Daily	329	96.2
Stable Internet Connection	No	86	25.1
	Yes	256	74.9
	Total	342	100.0

Awareness and knowledge of telemedicine

Interestingly, as can be seen from Table 2 below, 60.8% of the participants accepted that they have heard of a term called telemedicine in Ebonyi State while 39.2% of the respondents said that they have not heard about telemedicine with mean±SD (1.61±0.48) as shown in Table 3, which displays the different parameters in awareness and knowledge section. 44.7% respondents revealed that they are familiar with telemedicine while 55.3% said that they are not familiar with telemedicine with mean±SD (1.45±0.49). Respondents equally revealed their knowledge of different types of telemedicine hence this breakdown: 20.2% (69 respondents) declared their knowledge of video consultations, 9.9% (34 respondents) declared their awareness of remote monitoring, 24.0% (82 respondents) while 45.9% (157 respondents) revealed that they know any type of telemedicine with mean±SD (2.04±1.16). In addition, 84.5% revealed that doctors have never attended to them through video conferencing while 15.5% said they have been attended to with

mean±SD of 1.15±0.362. Moreso, 58.8% wished using telemedicine services for their own health and for others too while 41.5% never wished for the telemedicine service with the mean±SD of 1.58±0.49.

Table 2: Distribution of frequency level of the different parameters under the awareness and knowledge section

Heard about Telemedicine

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	134	39.2	39.2	39.2
	Yes	208	60.8	60.8	100.0
	Total	342	100.0	100.0	

Familiar with Telemedicine

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	189	55.3	55.3	55.3
	Yes	153	44.7	44.7	100.0
	Total	342	100.0	100.0	

Telemedicine Type you are aware of

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	157	45.9	45.9	45.9
	Online Check-ups	82	24.0	24.0	69.9
	Remote monitoring	34	9.9	9.9	79.8
	Video Consultations	69	20.2	20.2	100.0
	Total	342	100.0	100.0	

Attended to by a doctor through video conf.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	289	84.5	84.5	84.5
	Yes	53	15.5	15.5	100.0
	Total	342	100.0	100.0	

Wished using telemedicine Service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	142	41.5	41.5	41.5
	Yes	200	58.5	58.5	100.0
	Total	342	100.0	100.0	

Ever attended to anyone using video Conf.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	317	92.7	92.7	92.7
	Yes	25	7.3	7.3	100.0
	Total	342	100.0	100.0	

Table 3: Displays the difference parameters in awareness and knowledge section

		Heard about Telemedicine	Familiar with Telemedicine	Telemedicine Type you are aware of	Attended to by a doctor through video conf.	Wished using telemedicine Service	Ever attended to anyone using video Conf.	Received Information about telemedicine Service
N	Valid	342	342	342	342	342	342	342
	Missing	0	0	0	0	0	0	0
Mean		1.61	1.45	2.04	1.15	1.58	1.07	1.33
Median		2.00	1.00	2.00	1.00	2.00	1.00	1.00
Std. Deviation		.489	.498	1.169	.362	.493	.261	.471
Sum		550	495	699	395	542	367	455

Experience and Use

In the table 4 and 5 below, the analysis of data revealed that 77.2% of participants expressed that they have not used telemedicine, 19.0% respondents revealed that they have been attended to as a patient using telemedicine services while 3.8% respondents have attended to a patient as a doctor with mean±SD of 2.73±0.52. In addition, 20.8% of participants said that they are satisfied with the experience they gained in the use of telemedicine service, 2.0% revealed that they were not satisfied with the use of telemedicine service while 77.2% vehemently said that they have not used telemedicine service with the mean±SD of 2.53±0.81. Another item statement investigated respondents to ascertain if the use of telemedicine made their healthcare experience more difficult, 2.3% of respondents said yes that it made their healthcare experience more difficult, 20.5% of participants said that it didn't make their healthcare experience more difficult while 77.2% of respondents said that they have not used telemedicine service mean±SD of 2.75±0.48. Moreso, an enquiry was equally made on whether the telemedicine service automatically reminds one of his/her next appointment two hours before the scheduled time, 13.2% of the respondents said that it doesn't remind them of the appointment, 9.6% revealed that it reminds them of the appointment while 77.2% of participants stated that they have not used telemedicine service for remote healthcare delivery mean±SD of 2.0.4±0.47. Further investigation was equally done on the current telemedicine system having a rating feature that rates the doctor's performance, 11.4% of respondents revealed that the telemedicine system has rating feature that rates the doctor's performance, 11.4% of respondents stated that it doesn't have rating feature while 77.2% of participants said they have not used telemedicine at all.

Table 4: Distribution of frequency level of the different parameters under the experience and use section

Reason for using telemedicine

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Attending to a patient	13	3.8	3.8	3.8
	Being attended to as a patient	65	19.0	19.0	22.8
	Not Used	264	77.2	77.2	100.0
	Total	342	100.0	100.0	

Level of satisfaction using telemedicine

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfied	71	20.8	20.8	20.8
	Not Satisfied	7	2.0	2.0	22.8
	Not Used	264	77.2	77.2	100.0
	Total	342	100.0	100.0	

Your experience using telemedicine

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfied	70	20.5	20.5	20.5
	Not Satisfied	8	2.3	2.3	22.8
	Not Used	264	77.2	77.2	100.0
	Total	342	100.0	100.0	

Did Telemedicine usage made healthcare experience diff.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	8	2.3	2.3	2.3
	No	70	20.5	20.5	22.8
	Not Used	264	77.2	77.2	100.0
	Total	342	100.0	100.0	

Will telemedicine address challenges seen while access healthcare

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	48	14.0	14.0	14.0
	No	30	8.8	8.8	22.8
	Not Used	264	77.2	77.2	100.0
	Total	342	100.0	100.0	

Does telemedicine automatically remind of next appointment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	33	9.6	9.6	9.6

	No	264	77.2	77.2	86.8
	Not Used	45	13.2	13.2	100.0
	Total	342	100.0	100.0	

Does the telemedicine rate Doctor's performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	39	11.4	11.4	11.4
	No	39	11.4	11.4	22.8
	Not Used	264	77.2	77.2	100.0
	Total	342	100.0	100.0	

Table 5: displays the difference parameters in experience and use section

		Reason for using telemedicine	Level of satisfaction using telemedicine	How experience with using telemedicine	Telemedicine usage made healthcare experience diff.	Will telemedicine address challenges seen while access healthcare	Does telemedicine automatically remind of next appointment	Does the telemedicine rate Doctor's performance
N	Valid	342	342	342	342	342	342	342
	Missing	0	0	0	0	0	0	0
Mean		2.73	2.56	2.57	2.75	2.63	2.04	2.66
Median		3.00	3.00	3.00	3.00	3.00	2.00	3.00
Std. Deviation		.522	.814	.810	.485	.718	.477	.674
Skewness		-1.839	-1.373	-1.383	-1.751	-1.619	.104	-1.716
Std. Error of Skewness		.132	.132	.132	.132	.132	.132	.132
Sum		935	877	878	940	900	696	909

Perception and Belief

Interestingly, from Table 6 below, 16.4% and 6.1% (agreed and Strongly agreed) of the participants expressed a good perception towards telemedicine, stating that the level/quality of care accessed through telemedicine service is better than in-person care while 38.3% of participants don't know if it is better or not with mean±SD (3.00±1.052). The item statement that asked if telemedicine is a safe and reliable way of receiving medical care, 36.5% and 9.9% (Agree and Strongly Agree) of the participants believed that it is safe for one to receive medical attention through telemedicine service while 33.0% are undecided, they don't know if it is safe or not with mean±SD (3.31±1.017).

In addition, some item statements aroused debates between different demographic information group in the form of significant differences in their inputs. Smartphone ownership consideration in perception showed no significant difference between the input of Yes and No in the viability of telemedicine approach in making available healthcare services to individuals/patients with mean±SD (3.52±0.73) for Yes input while mean±SD (3.66±0.43) for No input with p=0.36 as shown in table 7 and 8 below.

Table 6: Distribution of frequency level of the different parameters under the perceptions and beliefs section

Is quality of care through telemedicine better than in-person care

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	40	11.7	11.7	11.7
	Disagree	94	27.5	27.5	39.2
	Neutral	131	38.3	38.3	77.5
	Agree	56	16.4	16.4	93.9
	Strongly Agree	21	6.1	6.1	100.0

Is telemedicine safe reliable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	18	5.3	5.3	5.3
	Disagree	52	15.2	15.2	20.5
	Neutral	113	33.0	33.0	53.5
	Agree	125	36.5	36.5	90.1
	Strongly Agree	34	9.9	9.9	100.0

Can telemedicine improve access to healthcare services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	22	6.4	6.4	6.4
	Disagree	25	7.3	7.3	13.7
	Neutral	60	17.5	17.5	31.3
	Agree	152	44.4	44.4	75.7
	Strongly Agree	83	24.3	24.3	100.0

can telemedicine help reduce the cost of healthcare

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	5.0	5.0	5.0
	Disagree	32	9.4	9.4	14.3
	Neutral	69	20.2	20.2	34.5
	Agree	153	44.7	44.7	79.2
	Strongly Agree	71	20.8	20.8	100.0

Is it better for telemedicine to automatically remind appointments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.3	2.3	2.3

	Disagree	15	4.4	4.4	6.7
	Neutral	66	19.3	19.3	26.0
	Agree	154	45.0	45.0	71.1
	Strongly Agree	99	28.9	28.9	100.0

Is it better for telemedicine to rate doctor's performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	3.2	3.2	3.2
	Disagree	11	3.2	3.2	6.4
	Neutral	52	15.2	15.2	21.6
	Agree	147	43.0	43.0	64.6
	Strongly Agree	121	35.4	35.4	100.0
	Total	342	100.0	100.0	

Table 7: Shows the comparison between the smartphone owners and perception

	SmartPhone Ownership	N	Mean	Std. Deviation	Std. Error Mean
PERCEPTION	No	3	3.6667	.43644	.25198
	Yes	339	3.5225	.73521	.03993

Table 8 shows the independent t test analysis conducted.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
PERCEPTION	Equal variances assumed	.809	.369	.339	340	.735	.14412	.42553	-.69289	.98113
	Equal variances not assumed			.565	2.102	.627	.14412	.25512	-.90421	1.19245

Analysis of the results in table 9 and 10 below also showed that the item statement that accessed those respondents with access to a stable internet connection showed that the Yes input has mean±SD of 3.57±0.71 while the No input has mean±SD of 3.37±0.77 with p=0.34. With this analysis you can observed that the respondents that have access to stable internet connection are greater that the respondents that don't have access to stable internet connection.

Table 9 shows comparison between the respondents with stable internet connection and perception

	Stable Internet Connection	N	Mean	Std. Deviation	Std. Error Mean
PERCEPTION	No	86	3.3721	.77762	.08385
	Yes	256	3.5748	.71153	.04447

Table 10 shows the independent t test analysis conducted.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
PERCEPTION	Equal variances assumed	.891	.346	-2.232	340	.026	-.20268	.09081	-.38131	-.02406
	Equal variances not assumed			-2.135	135.953	.035	-.20268	.09492	-.39039	-.01498

DISCUSSION

Telemedicine refers to the distant provision of medical services via the use of information technology when the medical practitioners and patients are at distance. The main target for telemedicine is to improve the health of recipients through the exchange of useful information, facilitating the training of healthcare providers, and conducting research (Hajesmaeel-Gohari S, Bahaadinbeigy K. 2021). A cross sectional study was carried out by the researcher to assess the awareness and knowledge, the rate of experience, use, as well as perception and belief of telemedicine system in Ebonyi State. The outcome of the current study revealed that good number of people in Ebonyi State are not aware of telemedicine services, including its role in moving information among physicians and patients. This is in accordance to the study conducted in Germany and expressed the awareness of the participants that telemedicine can help to transfer information across sectoral boundaries (Waschkau A, Flägel K, Goetz K, Steinhäuser J. 2020). The ease of integrating telemedicine into the existing practice expressed the lowest level of perception as out of 99.1% of respondents who have smartphone, 55.3% of respondents are not familiar with telemedicine. However, still in the course of analyzing the data, it was revealed that 44.7%% of the participants are aware of the telemedicine and believe if added to their existing clinical workflows will make great impact. (Alqahtani *et al.,* 2022) Also, Srinivasan et al reported that the physicians in the general primary care clinics believed that telemedicine could be a part of the applied medical practice. (Srinivasan *et al* 2020). The viability of telemedicine in providing medical care services to patients and the

importance of information and communication technology in health care was not highly perceived among participants in the current study because of the low level of awareness (Albarrak *et al.,* 2021) and this calls for serious sensitization of telemedicine system in Ebonyi State. The sensitization of telemedicine will generally be dependent on multiple factors that might improve the quality of physician life. For instance, it saves time for both patients and physicians, cost-effectiveness, including better scheduling flexibility visits.(Malouff TD *et al.* 2021. Also, 45.0% and 28.9% (agree and strongly agree) of the respondents revealed that if appointment reminder system will be inculcated in the telemedicine system, it will be extremely helpful as it will help to remind both the physicians and patients of their appointment before the scheduled time. Others considered that telemedicine will reduce the quality of healthcare delivery and they were doubtful about patients' competence for virtual health care and equally reported that healthcare service is best achieved via face- to-face visits (El Kheir et al 2022). In addition, some recent studies mentioned that the poor understanding of telemedicine regulations is a matter of concern for future practice. (Lehrer et al 2016). Although, this reduced awareness of guidelines did not affect the use of technology in patient care through different applications. (Alanzi T, 2019) This boils down to the lack of orientation about this technology in Ebonyi State and limitation of the knowledge to self-learning (Pathipati et al 2016).

CONCLUSION

In conclusion, telemedicine is a rising positive scope in healthcare systems. Even though, it had a positive perception and eagerness to included in clinical workflow, the people of Ebonyi State still has low/little knowledge of this telemedicine. Factors like patient privacy, equipment costs, physician training, information technology and social awareness are still deficient and face against the application of telemedicine. It is suggested that orientation and training programs should be conducted for both physicians and general population in Ebonyi State.

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