

An Application of the Analytic Hierarchy Process (AHP) in Measuring the Service Quality of Telemedicine in the Philippines

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Abstract

Telemedicine is a service that provides remote clinical services by utilizing telecommunication services. It aims to provide medical care access to patients regardless of geographic challenges. The use of telemedicine in the Philippines was underutilized not until the occurrence of the Coronavirus (COVID-19) pandemic. Improving the service quality of telemedicine can help Filipinos improve their quality of life using such services. With the use of the service quality (SERVQUAL) framework to identify the factors affecting the satisfaction of the patients, online survey questionnaires via Google Forms were disseminated through different reliable and open access platforms to gather data, and Analytic Hierarchy Process (AHP) to evaluate and analyze the key indicators. Based on the result of this study, patients consider assurance as a key indicator of the service quality of telemedicine, with a priority rating of (37.2%). This is followed by reliability (27.1%), empathy (17.6%), responsiveness (12.7%), and tangibility (5.4%). It can also be inferred that among the two (2) sub-criteria under assurance, the competency of the telemedicine service affects their perception of its service quality. Furthermore, applying skills training for physicians in telemedicine services can further improve patient satisfaction.

Keywords

Analytic Hierarchy Process (AHP), Service Quality (SERVQUAL), Telemedicine, Patient Satisfaction, Philippines

1. Introduction

In today's age of technology, advancement and innovations in healthcare services are highly evident. One of which is telemedicine, a service that provides remote clinical services by utilizing telecommunication services (Centers for Disease Control and Prevention 2020). This service is said to improve affordability and accessibility to healthcare in the United States (Macariola et al. 2021). According to Haleem et al. (2021), because of the increasing cost and continuous changes in the current situation, healthcare facilities are gradually adapting to telemedicine services for cases that do not require physical consultation. In the Philippines, telemedicine was established in 1998. However, this service has been underutilized for years, not until the occurrence of the COVID-19 pandemic (Macariola et al. 2021). Because of the emergence of the Corona Virus Disease of 2019 (COVID-19) pandemic, healthcare services

have been disrupted due to the risks of further spreading the virus. To prevent further delays in delivering services to some patients, telemedicine was utilized.

In April 2020, the Department of Health (DOH) developed a framework, together with National Privacy Commission (NPC), to further utilize available telemedicine services in the country to help further improve the current healthcare systems despite the COVID-19 pandemic (Department of Health 2020). It was then after four months, Quezon City, the first city to do so, rolled out the first telemedicine to connect to the national COVID-19 surveillance system. DOH also partnered with trusted telemedicine services available such as KonsultaMD, SeeYouDoc, TelAventusMD, and Telimed. Aside from the aforementioned telemedicine services, DOH has COVID-19 hotlines that allow COVID positive patients to consult with doctors while limiting the possible spread of the virus. Although full acceptance of Philippine telemedicine has not yet been achieved due to the lack of proper implementation and promotion, during the first quarter of 2021, patient engagement in the Philippine Health department using a video conferencing tool: Cisco Webex exceeded 100,000 (Ong et al. 2022 and Cordero 2022).

Despite the many advantages of telemedicine, some struggles must be overcome seriously for telehealth to be successful. According to the Centers for Disease Control and Prevention (2020), poor internet connectivity, low cellular reception, technological illiteracy, and lack of access to gadgets are barriers to telehealth.

To date, there is no published research related to satisfaction with the service quality of telemedicine in the Philippines. Furthermore, there are existing studies on service quality with regard to telemedicine service, but the researchers have not found a study that measures service quality using Service Quality Model (SERVQUAL) Model and Analytic Hierarchy Process (AHP) in the Philippine context.

1.1 Objectives

This research generally seeks to evaluate the service quality of telemedicine services which accommodate both COVID-19 and non-COVID-19 consultations in the Philippines during the COVID-19 pandemic and propose interventions to maximize its utilization further. In order to adapt to the increasing use of technology in several services, such as in medical consultations, then barriers that affect the quality of telemedicine in the Philippines and the factor/s, based on the service quality (SERVQUAL) dimensions, that should be given more priority in order to improve the quality of telemedicine services in the Philippines will be identified. The researchers also aim to bridge the gap between the perceived and actual telemedicine service quality in the Philippines with the use of the SERVQUAL model and analytic hierarchy process (AHP). In addition, through this study, the labor hours of healthcare workers, travel expenses of patients, and waiting time for service could potentially be reduced. Furthermore, better employee motivation and the reputation of the healthcare institution can be improved by implementing the solutions proposed in this research.

2. Literature Review

2.1. Telemedicine

The potential of telemedicine in enhancing healthcare services has been proven to improve healthcare service efficiency, quality, accessibility, and cost-effectiveness. In fact, researchers predict that there will be a gradual shift in healthcare service delivery from healthcare facilities to homes, especially in industrialized countries (Macabasag et al., 2016). According to Pasco (2017), telemedicine is the use of information and communication technologies to manage patients from a distance. It was popularized around the 1950s and 1960s when NASA's manned space flight program needed to relay biomedical information through space along with transmitting broadcasts of medical procedures. Furthermore, telemedicine has often been used in consultations for non-communicable diseases, such as diabetes, skin diseases, and mental health disorders, and recently for COVID-19-related consultations (WHO 2021).

2.2 History of Telemedicine in the Philippines

As the COVID-19 Pandemic continues to mutate and spread, multiple solutions have been developed. Telemedicine in this situation is in the spotlight because of its ability to be an alternative solution to unreachable communities (Ahmed et al. 2020). In the Philippines, telemedicine made its first appearance at the University of the Philippines (Manila) National Telehealth Center (UPM-NTHC), where they offered open-source telemedicine and mHealth projects that helped remote patients have access to the available specialists at Philippine General Hospital (PGH) (Jaudian, 2021). At present, the Department of Health (DOH) is able to provide a website that includes a list of 3rd-

party telemedicine service providers, which includes its contact information, availability, and payment options. In addition, they were also able to launch an application called HealthNow, a platform that allows Filipinos to access healthcare with an easy-to-use application (Department of Health 2020).

2.3 Advantages of Telemedicine

Because of the convenience brought by technology, telemedicine has a strong point. One of its advantages is that it can be accessed when the patient needs to seek advice from a practitioner when experiencing flu-like symptoms such as cough, sore throat, fever, or any experience that needs an opinion from an expert. Through telemedicine, patients' conditions, such as their vital signs, medications, diet, and any symptoms, could be monitored by physicians even if they are not together in person. Telemedicine is also an efficient way that allows follow-up check-ups to be easier (Henderson, 2020).

2.4 Telemedicine in the Philippines during the COVID-19 Pandemic

Perception of telemedicine

The accessibility of cost-effective and sustainable telemedicine projects in the industrialized world is relatively few and even fewer in developing countries like the Philippines (Marcelo, 2019). As a developing nation, the Philippines still needs to work on infrastructure projects and healthcare services for the people to be encouraged to be a part of national health plans and initiatives to increase awareness and engagement of all stakeholders (Dela Cruz and Tolentino 2021).

Utilization of telemedicine

In the Philippines, the first case of COVID-19 was reported on January 30, 2020 (DOH 2020). Code Red and the State of Public Health Emergency were eventually declared around March 2020, and activities such as contact tracing and home quarantine for confirmed cases and close contacts were enhanced (UNICEF Philippines 2020). The government was urged to impose quarantine protocols that include lockdowns to prevent further transmission of the COVID-19 virus. Individuals, large groups, or community movement into and from quarantine regions was restricted (Inter-Agency Task Force 2020). With this, online medical consultations and monitoring were performed by certain hospitals (Dela Cruz & Tolentino 2021).

Feedback on telemedicine

According to Dela Cruz and Tolentino (2021), telemedicine is still underutilized in the Philippines, especially in far-flung areas. In their study, they pointed out that the country still needs more technologically trained healthcare workers that could easily navigate the software being used in telemedicine. Another factor that they pointed out is that although the government has passed the Universal Health Care Act, there are still no clear guidelines about the general implementation of telemedicine in the country. Furthermore, the discrepancy in the transparency of government funding and cybersecurity concerning telemedicine. However, due to its convenience, people still consider the advantages of increased efficiency and reduced data loss on data collection and other office procedures, together with its easier access to expert medical opinion through the network of specialists that the center could provide.

2.5 Challenges and Issues in Telemedicine

In a study concerning the barriers to the successful implementation of telemedicine in Quebec and Massachusetts (Breton et al. 2021), several factors have been identified, such as barriers related to technology and difficulties in assessing the patient's condition, which affects the delivery of telemedicine in the said area. In Southeast Asia, internet connectivity, cellular reception, technological literacy, and lack of access to gadgets are the most rampant problems when it comes to the accessibility of telemedicine (Centers for Disease Control and Prevention 2020). As telemedicine mostly utilizes online platforms, the success of the delivery of the consultation relies on the internet connectivity of the attending doctor and patient. In relation to this, Macariola et al. (2021) mentioned that poor internet connection results in poor video and audio quality, which also affects the quality of service being delivered by telemedicine. In 2020, the Philippines ranked 110 out of 139 with 18.49 Mbps and ranked 103 out of 176 with 28.69 Mbps in mobile internet and broadband internet connection, respectively (Dela Cruz and Tolentino 2021), which are relatively slow compared to other ASEAN countries. In addition to the utilization of technology in delivering medical consultation,

the country also needs to reinforce local healthcare workers to be technologically trained in order to maximize telemedicine.

2.6 Service Quality (SERVQUAL)

Service Quality (SERVQUAL) is a model and methodology used to measure the expectations, experiences, and satisfaction of the customer from a service provider. (Tripathi and Siddiqui 2020). According to the study by Tantarto et al. (2020), there are five important dimensions in assessing service quality; tangibility, empathy, responsiveness, reliability, and assurance. Moreover, assessing the service quality is linked to the satisfaction of the patient that can be measured through the actual experience, and the competitiveness of a health service provider can be improved by the patient's satisfaction. It has been used multiple times in the medical world by several different countries now, such as Romania, Turkey, Saudi Arabia, and Iran, where it has been used to assess the perceptions of service quality by medical students and by patients at hospitals and other health centers (Teshnizi et al. 2018). A meta-analysis in Iran was conducted by Teshnizi et al. (2018) about the assessment of the quality of health services with the SERVQUAL model; with the SERVQUAL model, they were able to find out that the quality of health services in Iran has not been satisfying to patients and needs to be improved, for all of the dimensions of service quality were negative.

2.7 Analytic Hierarchy Process (AHP)

Analytic Hierarchy Process (AHP) is a model that is considered to be one of the most inclusive systems that make decisions with multiple criteria because it allows for the formulation of a problem as a hierarchical structure and accepts a combination of quantitative and qualitative factors. (Taherdoost 2017).

2.8 Relevance of AHP in Improving Service Quality

Multiple studies have been conducted to assess the level of customer satisfaction with service quality by using the AHP. According to Yusuf (2021), using AHP Method on service quality is quite effective in simplifying and speeding up the decision-making process by solving problems in their parts.

Studies have shown that service quality plays an important role in ensuring continuity of service. As stated in related literature, many pilot programs of telemedicine fail to deliver quality service continuously. Furthermore, in the Philippines, a developing country, accessibility to telemedicine is available to only a few people. Telemedicine in the country is also reported to be unsatisfactory. The gap that exists between the quality of the actual telemedicine service received by users in the Philippines and their perceived quality is made clearer through the related literature. The researchers would also use the related literature as a guide in utilizing the SERVQUAL model and AHP in analyzing data since using these methodologies has a limited study conducted to assess the gap and the service quality of telemedicine in the Philippines.

3. Methods

This study utilized quantitative online survey questionnaires based on experiences with telemedicine service and will adopt applicable SERVQUAL frameworks. The identified factors were analyzed using causal relationships. AHP was used to supplement strategies and interventions to improve the service quality of telemedicine. SERVQUAL is a model and methodology used to measure the expectations, experiences, and satisfaction of the customer from a service provider (Tripathi and Siddiqui 2020). According to Tantarto et al. (2020), there are five important dimensions in assessing service quality; tangibility, empathy, responsiveness, reliability, and assurance, and these dimensions are used to determine what should be prioritized.

4. Data Collection

This study utilized an online survey questionnaire to gather the information needed. The researchers used Google Forms as a platform to create an online survey questionnaire to conduct the gathering of the data. The survey questionnaire comprised questions about the experiences and satisfaction levels of the respondents in using telemedicine, focusing on the dimensions and sub-dimensions of service quality, as seen in table 1. The table shows the dimensions of SERVQUAL, its corresponding code for each sub-dimensions, and the explanation of why it is considered. This table is also adapted from Tantarto, Kusnadi, Sukandar (2020), and Singh. and Prasher (2019). Google Forms was disseminated to patients that experienced using telemedicine services through the different reliable and open access platforms of communication. Recent studies relating to telemedicine in the Philippines have chosen respondents aged from 18 to 64 years old due to the age group's literacy, experience, reasonability, and capability to answer questionnaires responsibly. A study from Spain also revealed that people around the ages 25 to 65 years old

were eHealth and mHealth users, which is within the age group used in studies in the Philippines (Elarco et al. 2021; Mahou et al. 2021 and Ong et al. 2022). Thus, patients aged between 18 - 64 years old residing in the National Capital Region (NCR) that experienced using telemedicine services during the COVID-19 pandemic were considered as the subjects for this study.

Table 1. Telemedicine SERVQUAL dimensions and sub-dimensions

Dimension	Code	Sub-dimension	Explanation
Tangibility	TAN_1	Equipment	Accessibility to mobile devices; technology used to assess the condition of the patient.
	TAN_2	Infrastructure	Easy to use web or application layout and interface.
	TAN_3	Literacy	Technological (equipment) literacy of the patient and personnel.
Empathy	EMP_1	Politeness	Manner of treatment
	EMP_2	Grievances	Patient complaint acceptance
	EMP_3	Concern	Individual attention
	EMP_4	Interaction	Personnel-patient interaction
	EMP_5	Understanding	Understanding needs and requirements
Responsiveness	RES_1	Quickness	On-time service
	RES_2	Reception	Internet connection and signal strength
	RES_3	Completeness	Service availability
	RES_4	Promptness	Readiness
	RES_5	Procedure	Service process
	RES_6	Wait	Time spent waiting for service
Reliability	REL_1	Consistency	Accuracy and consistency of service
	REL_2	Skills and Knowledge	Personnel competence
	REL_3	Image	Word of mouth
	REL_4	Confidentiality	Secured data
Assurance	ASS_1	Cost	Uniform costing for all patients
	ASS_2	Confidence	Impart belief among patients
	ASS_3	Guarantee	Accomplishment of successful treatment; treatment effect
	ASS_4	Ignorance	Minimal mistakes

	ASS_5	Consideration	Post-treatment problems
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5. Results and Discussion

5.1 Numerical Results

The researchers gathered a total of 157 respondents for the said study. Of these, 151 respondents answered that they had their telemedicine consultation during the COVID-19 Pandemic. Hence, they were found to be suitable given the qualifications imposed by the researchers. 141 of the respondents, 93.4%, answered that the outcome of their consultation and availed service/s in telemedicine was impressive and effective. In contrast, the remaining 10, or 6.6% of the respondents, did not find the telemedicine service they received impressive and effective. Furthermore, the data gathered was analyzed using Factor Analysis and AHP.

Factor Analysis was conducted to determine which variables (questions) from each criterion are relatively independent of one another. Using SPSS, identifying the factors underlying the variables was done by clubbing the related variables in the same factor. The Rotated Component Matrix for each criterion is shown below, which tells how each variable loads onto each of the newly extracted components after rotation.

Table 2. Rotated Component Matrix (with one component)

Rotated Component Matrix			
Tangibility		Reliability	
TAN_3	a. Only one component was extracted. The solution cannot be rotated	REL_2	a. Only one component was extracted. The solution cannot be rotated
TAN_2		REL_4	
TAN_1		REL_3	
	REL_1		

Table 2 consists of the criteria that are extracted with only one component; this means that the three and four sub-dimensions under Tangibility and Reliability have no distinction from each other, hence a high relationship and resulted in clubbing the sub-dimensions into one (1). For Tangibility, its component one was named 'Ease of Navigation,' and for Reliability, its component one was named 'Trustworthiness'.

Table 3. Rotated Component Matrix (with two components)

Rotated Component Matrix								
Empathy		Responsiveness			Assurance			
	Components			Components			Components	
	1	2		1	2		1	2
EMP_3	0.926		RES_6	0.887		ASS_4	0.940	
EMP_4	0.885		RES_5	0.854		ASS_2	0.937	
EMP_2	0.887		RES_1	0.791		ASS_5		0.890
EMP_5		0.897	RES_3		0.865	ASS_3		0.883
EMP_1		0.861	RES_4		0.834	ASS_1	0.506	0.547
			RES_2		0.687			

Table 3, on the other hand, contains the criteria that extracted two components; this means that from five to six sub-dimensions, it is reduced and grouped into two new sub-dimensions. For Empathy, three variables load onto component one; this factor is named 'Attentiveness,' and the second component, which consists of two variables, is named 'Patience.' For Responsiveness, three variables also load onto component one; this factor was named 'Time Efficient'. On the other hand, its second component, which consists of three variables, was titled 'Overall Service

Availability’. Moreover, lastly, for Assurance, component one, which has two variables, is named ‘Competency.’ In addition to that, component two, which has three variables, is titled ‘Affordability and After-sales Service.’

5.2 Graphical Results

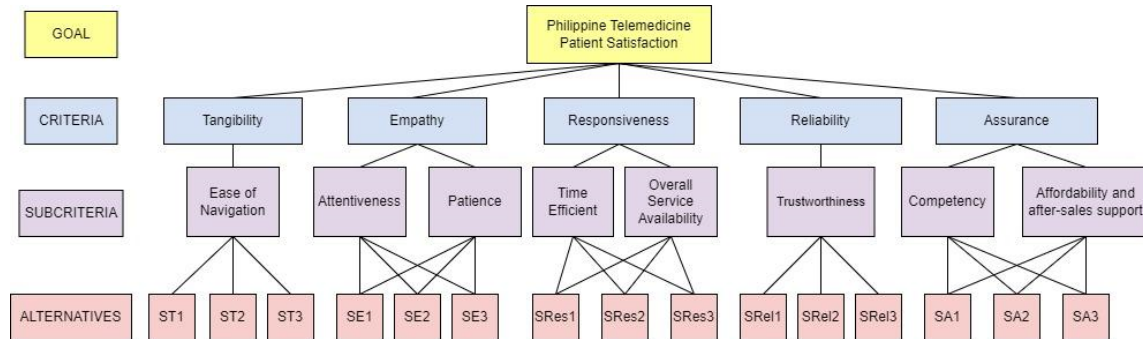


Figure 1. Tree Diagram with Alternative Solutions

Figure 1 illustrates the created tree diagram, which is composed of the following: 1) goal, 2) criteria based on five dimensions of SERVQUAL, 3) the newly named sub-criteria or sub-dimensions based on the result of factor analysis, and 4) three alternative solutions for each criterion were developed from research. Table 4 shows the list of corresponding alternative solutions for each criterion, reflected on the tree diagram, and the reason why it is developed.

Table 4. Alternative Solutions

Criteria	Alternatives	Solution	Reason
Tangibility	ST1	Adoption of User Centered Design for the design and development of telemedicine systems	The user-centered design will help fit the telemedicine system to what the patients need which could further increase patient satisfaction
	ST2	Promotion of e-health literacy	Increasing e-health literacy increases the ease of use of telemedicine services which will significantly affect satisfaction.
	ST3	Application of navigation buttons and language options	Different parts of the country speak different languages, and old age could increase cognitive, dexterity, and visual demand. Addressing these concerns could further increase the level of patient satisfaction
Empathy	SE1	Implementation of Communication Skills on Physicians	There could still be a lack of understanding and response regarding the implementation of the technology-based data gathering of physicians. By implementing communication skills training, physicians can compensate for the lack of visual cues in appointments.
	SE2	Application of Active Listening on Conversational exchange	There could still be an inadequate amount of attentiveness to the conversational exchange between the patient and the physician. By applying active listening, patients are more likely to feel heard and create a safe space for the patient to share

			openly.
	SE3	Implementation Non-Verbal Cues on Virtual Appointments	The attention given by the telemedicine personnel to the patients could still be slightly disagreeable. Maintaining eye contact with patients and practicing cautiousness to the facial expressions being shown will help strengthen the relationship between patients and telemedicine service providers. This could lead to higher patient satisfaction.
Responsiveness	SRes1	Implementing Artificial Intelligence-Powered Chatbots on Telemedicine	The service that is being rendered by the physician/providers could still be tedious and could be lacking responsiveness. Adding AI-powered chatbots reduces the barriers to the accessibility of patients in terms of healthcare information.
	SRes2	Application of 5G technology in telemedicine	The responsiveness of wireless networks could still be inadequate in fulfilling the needed video quality and real-time communication of the patient and physician. Implementation of 5G technology can enable a proper telemedicine environment that augments online health consultancy.
	SRes3	Provision of online assistance options	It is important to ensure that there is assistance available since different patients could have different needs and some might want assistance in using the service. Online assistance is a way of accommodating patient needs and thus could affect patient satisfaction
Reliability	SRel1	Provide customers opportunities to give feedback on service received	Providing patients opportunities to provide feedback would help telemedicine service providers address patient concerns regarding their services more accurately, especially since different people could have different needs and preferences and thus could increase satisfaction.
	SRel2	Conduct trainings for Physicians	Telemedicine personnel need to be knowledgeable and continuously updated on the processes and/or tools used in the service in order to ensure smooth service delivery and patient satisfaction
	SRel3	Conduct Security Assessment	Patient data is private information. In order to ensure the security of patient data, regular assessments such as but not limited to assessing suspicious activity and regular updating of software must be performed. Securing the privacy of such data makes patients feel safe and affects patient satisfaction with the service.
Assurance	SA1	Application of skills training for physicians who wish to engage in telemedicine	This could still be improved because there could still be a lack of knowledge, attitude, and technological skills from the physicians conducting the consultation. Conducting skills training for physicians is needed to assure high-quality

			telemedical care
	SA2	Integrating Electronic Medical Record on Telemedicine Software	Mistakes and ineffective implementation of the telemedicine service could still take place. In order to address this, the integration of Electronic Medical Records into Telemedicine Software can ensure the accuracy of the patient's data and the efficiency of the service.
	SA3	Apply proactive monitoring to telemedicine patients after availing of service	After-sales service is slightly not agreeable for the respondents of this research. Proactive monitoring monitors patient progress without waiting for the patient's initiative. This will help ensure positive progress in the recovery or maintenance of patient health after availing of the service which could improve patient satisfaction

5.3 Proposed Improvements

AHP was used to evaluate and identify the attributes of service quality of telemedicine that needs to be given more attention for improvement, and to propose interventions to further maximize its use. Moreover, MS Excel was used to compute the weights for the corresponding criteria and alternatives available in figure 1 and its corresponding computed weights are shown in table 5.

Table 5. Decision Matrix for Alternative Solutions

		Tangibility	Empathy		Responsiveness		Reliability	Assurance	
		0.054	0.176		0.127		0.271	0.372	
		Ease of Navigation	Attentiveness	Patience	Time Efficient	Overall Service Availability	Trustworthiness	Competency	Affordability and after-sales support
		1.000	0.227	0.773	0.737	0.263	1.000	0.643	0.357
Combined (Criteria & Sub-criteria)		0.054	0.040	0.136	0.093	0.033	0.271	0.239	0.133
Tangibility	ST1	0.750							0.040
	ST2	0.060							0.003
	ST3	0.190							0.010
Empathy	SE1		0.655						0.115
	SE2		0.187						0.033
	SE3		0.158						0.028
Responsiveness	SRes1				0.211				0.027
	SRes2				0.686				0.087
	SRes3				0.102				0.013
Reliability	SRel1						0.074		0.020
	SRel2						0.643		0.174
	SRel3						0.283		0.077
Assurance	SA1							0.724	0.269
	SA2							0.083	0.031
	SA3							0.193	0.072

Table 5 shows that the weight of Tangibility is 5.4%, Empathy is 17.6%, Responsiveness is 12.7%, Reliability is 27.1%, and Assurance is 37.2%. Among the five criteria, assurance has the highest weight which means that this attribute matter the most for the patients in availing telemedicine services since it is about the competency of the telemedicine personnel, reasonable price, and after-sales service such as addressing post-treatment concerns of telemedicine services, followed by reliable services provided under reliability, traits of telemedicine personnel such as attentiveness in the health concerns of the patients, and accommodating and understanding under Empathy, Responsiveness, and Tangibility. Furthermore, the result of the highest computed weight is similar to the research conducted by Tantarto et al. (2020) wherein assurance received the highest significance together with reliability.

Under empathy, it is more important for patients to feel the patience of the telemedicine personnel through accommodating, understanding, and attending to their needs (77.3%) than attentiveness to health concerns (22.7%). For responsiveness, the patients value their time even though the health consultations were conducted virtually, which is why on-time and hassle-free consultations are more important (73.7%) than the overall service availability (26.3%). Although as mentioned by the Centers for Disease Control and Prevention (2020) that SEA countries have issues when it comes to overall service availability, which includes connectivity, cellular reception, technological literacy, and lack of access to gadgets, the result shows that the respondents still prioritize how time efficient the telemedicine consultation is. Lastly, for assurance, the competency of telemedicine providers and personnel is more important for the patients (64.3%). This includes showing confidence in providing the needed service with minimal to no mistakes. While the cost, addressing post-treatment concerns, and successful consultation has 35.7%.

Table 5 shows the computed prioritization for alternatives with respect to each criterion where the different weights of criteria and sub-criteria were considered. It shows that for Tangibility and Empathy, the first alternative which is the adoption of User-Centered Design for the design and development of telemedicine systems with 4%, and implementation of communication skills training on physicians with 11.5% has the highest weight for that specific criteria. For Responsiveness and Reliability, the second alternative should be prioritized; these alternatives are the application of 5G technology in telemedicine and conducting training for physicians with 8.7% and 17.4% respectively. Lastly, the first alternative for Assurance has 26.9% which is the application of skills training for physicians who wish to engage in telemedicine.

5.4 Validation

Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett’s Test for all criteria are summarized in Table 6; wherein all criteria meet the recommended value of 0.6 for Kaiser-Meyer-Olkin measure of sampling adequacy, signifying that the sample size is sufficient for factor analysis. In addition, all the criteria’s Bartlett’s Test is significant with all p-value of less than 0.05, which indicates that there are enough correlations for factor analysis. Additional respondents to be observed are advised to ensure that the sample size is adequate and that there are enough correlations for factor analysis.

Table 6. KMO and Bartlett’s Test Results

KMO and Bartlett’s Test						
		Criteria				
		Tangibility	Empathy	Responsiveness	Reliability	Assurance
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.706	0.761	0.789	0.854	0.675
Bartlett’s Test of Sphericity	Approx. Chi Square	285.236	458.883	381.365	485.299	368.869
	df	3	10	15	6	10
	Sig	0.000	0.000	0.000	0.000	0.000

6. Conclusion

Based on the result of the study, it can be concluded that, among the five (5) SERVQUAL dimensions, assurance greatly affects patient satisfaction with the service quality of telemedicine with a weight of 37.2%. This is followed by reliability at 27.1%, empathy at 17.6%, responsiveness at 12.7%, and lastly, tangibility at 5.4%. It is also inferred that the competency of the telemedicine personnel greatly affects the service quality of the telemedicine consultation. This signifies that the confidence and level of ignorance of the telemedicine personnel affect the patient’s satisfaction with availing telemedicine service. Furthermore, based on the overall priority as seen in table 5, to address these factors, among the proposed alternatives, the researchers suggest conducting skills training to assure high-quality telemedicine service. Although skills training will incur additional costs for the telemedicine provider, patients, healthcare workers, and telemedicine services will substantially benefit from its implementation. In addition, if the telemedicine service in the Philippines is improved based on the outcome of this research, patients would rely more on telemedicine services due to increased customer satisfaction and improved service image. In return, their transportation costs will be reduced when they have consultations.

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