Analysis Of Telemedicine-Based Services Implementation During Pandemic: A Single Center Study

Said Munazar Rahmat[1], Ermi Girsang[2], Maya Sari Mutia[3*], Ali Napiah Nasution[4]

[1,2,3,4] Master of Public Health Study Program, Faculty of Medicine University Prima Indonesia Medan, North Sumatera, Indonesia
*Corresponding Author:
Email: mayasarimutia@unprimdn.ac.id

Abstract.
Covid-19 is an infectious disease that will become a global pandemic in 2020. To reduce the transmission rate, WHO has issued various recommendations for the community, such as the use of masks, regular hand washing, coughing and sneezing etiquette, keeping a distance between people, avoiding crowded places, and others. The existence of public restrictions creates new problems for patients because of difficulties in seeking treatment. Telemedicine is a form of telehealth, which is a health service that is carried out remotely. This technology makes it easier for patients to interact with doctors without having to meet face to face. The purpose of this study was to determine the level of satisfaction of users of telemedicine services at RSIA Stella Maris Medan. The type of research used is non-experimental quantitative with a quantitative analytical study design. The population and samples used were 186 users of telemedicine services at RSIA Stella Maris. The results showed that users considered the features of the availability of options to be able to choose the treating doctor, the confidentiality of medical records, the stability of the internet network, the friendly and ready to help the attitude of the nurses, and the long waiting time for the drug delivery process as the most important features of each service dimension. To improve the quality of RSIA Stella Maris telemedicine services, many features are a priority to be improved, as well as features are maintained.

Keywords: *Use of Services, Telemedicine, Pandemic Period.*

I. INTRODUCTION

In suppressing the transmission rate of COVID-19, WHO issued various recommendations for the community such as the use of masks, washing hands regularly, coughing and sneezing etiquette, avoiding touching the eyes, nose and mouth, maintaining distance between people, staying at home and avoiding crowded places, and others. (WHO, 2020a). In practice, public restrictions become a new problem caused by patients having difficulty in seeking treatment. In addition, patients also experience restrictions in being able to consult doctors at the hospital. One of the solutions provided is telemedicine to deal with this problem.Telemedicine, which is a form of telehealth, is a health service that is carried out remotely (Darkins & Cary, 2000). WHO has approved the use of telecommunications in health services (PAHO, 2016). With the digital evolution as it is today, the use of information and communication technology can be applied to improve the quality of telemedicine. Information and communication technology modalities such as more stable and faster transmission speeds, easier data reception processes, larger storage media, as well as data, voice, image and video retrieval capabilities, are opportunities for telemedicine to continue to grow (Bashshur, 2009).

Moreover, in the era of the COVID-19 pandemic, telemedicine services are highly expected to be an alternative form of therapeutic transactions between doctors and patients.Measurement of service user satisfaction is something that must be done by a hospital to find out the level of importance expected by patients as service users. This survey is also useful for knowing the patient's assessment of the performance of the health services provided by the hospital. From this survey, the hospital can analyze aspects that need to be maintained and aspects that need to be improved from its services.Mother and Child Hospital Stella Maris Medan is one of the hospitals that provide telemedicine services. This service has been started in April 2020. In the period until now, the RSIA Stella Maris Medan telemedicine service has been used repeatedly. However, a user satisfaction survey has not been conducted on the telemedicine service.Based on the explanation above, the researcher is interested in conducting a study entitled "Analysis of the Use of

Telemedicine Services During a Pandemic at RSIA Stella Maris Medan" which aims to determine the level of satisfaction of users of telemedicine services at RSIA Stella Maris Medan.

II. LITERATURE REVIEW

Based on WHO daily report data, cases of COVID-19 infection continue to grow exponentially. The report shows that COVID-19 is a highly contagious disease. To decide on the transmission of the SARS COV-2 virus, comprehensive steps are needed by involving the role of the community. This new habit change includes health and alternative protocols and the implementation of daily life during the pandemic era. The recommended health protocols include the use of masks, correct coughing and sneezing etiquette, washing hands regularly with soap or cleaning hands with an alcohol-based hand sanitizer, and no less important is physical distancing in the form of efforts to keep your distance, stay away from crowds and limit mobilization. and interactions.

2.1. Telemedicine

The development of technology greatly facilitates humans in carrying out activities and fulfilling their needs. Medical problems in the form of access, quality equality, and cost-effectiveness are the basis for the development of these technologies in the health sector. The use of information and communication technology in the health sector is called telehealth.According to Yannis Veneris, telehealth is a provision of telematics services and various items needed to be able to provide remote medical services and help increase awareness and involvement of individuals and communities in the overall health environment aimed at improving health and fitness (Gott, 2016).

Telehealth includes administrative services, training and education of health workers with digital platforms, interactive two-way meetings between online and actual medical personnel from a distance, health research and promotive & preventive actions using information and communication media, as well as services in the form of consultations and health checks. The distance which we call telemedicine (Wiggin, 2014). One thing that distinguishes telemedicine from other telehealth is the party providing the service. Telemedicine is provided by doctors, while other telehealth services may be provided by general health professionals, including nurses, pharmacists, and others (PAHO, 2016).Telemedicine means distance medicine. This shows the application of information and communication technology to improve patient outcomes by increasing access to health services and information. WHO mentions four elements that are closely related to telemedicine, namely: aims to provide clinical support, is intended to connect users who are not in the same physical location, involves the use of various types of information and communication technology, and has a target to improve health standards (PAHO, 2016).

2.1.1. Telemedicine Law and Ethics

The development of telemedicine has not always been smooth. Apart from the obstacles to facilities and infrastructure, legal and ethical issues are also in the spotlight. Not a few refused because they still have doubts about the potential for legal and ethical problems (Stanberry, 2001). One of the problems that arise is the issue of privacy. There is some personal information obtained accidentally from a telemedicine practice, especially if it is done while the patient is at home. The problem is growing when telemedicine uses digital media. The process of entering and storing digital data and information is easier than the process of deleting it. This has the potential to cause problems in protecting patient privacy and personal data (Akalu, 2006).

2.1.2. Barriers to Telemedicine Implementation

The main obstacle to implementation is technology issues. To support the smooth process of telemedicine, it is necessary to have the availability of infrastructure and experts in the field of information and communication. The unequal distribution of infrastructure and experts means that the area reached by telemedicine services is not large enough. This is due to the application used and designed specifically for the area it is sometimes difficult to make connections between connections.The human factor is also an obstacle to this implementation. Humans are sometimes reluctant to get out of their comfort zone. Not

infrequently patients or medical practitioners refuse to do telemedicine because they feel more comfortable with face-to-face services as is usually done. The ability to master technology is also a special problem.

2.2. Health Service Quality

The quality of service can be assessed from various aspects, namely aspects of context, aspects of service user perceptions and aspects of user needs and desires. Judging from the context aspect, the quality of service is assessed from the characteristics and attributes of the service product. From the aspect of perception, quality is judged from the subjective point of view of the user, which can change based on his experience, the reputation of the service provider, even advertisements, and so on. Aspects of needs and desires show that quality is also assessed according to user expectations (Bustami, 2011).

However, even though quality must meet the wishes of users, the quality of health services must still meet the limits so that the target for improving the health status of individuals and communities is guaranteed. The Ministry of Health of the Republic of Indonesia also defines the quality of health services as performance that shows the level of perfection of health services, not only that which provides satisfaction to patients and their families by the satisfaction of the average population but also by the standards and professional code of ethics that have been set (Muninjaya, 2015).

2.2.1. Dimensions of ServQual Quality

Parasuraman, Zithaml, and Berry are well-known figures with the quality dimensions of the quality of service they have compiled. They revealed that in ensuring the quality of service, ten main dimensions must be considered, namely reliability, (technical competence, courtesy, security, credibility, tangible, communication, access to service, understanding of the customer, and responsiveness). Furthermore, Parasuraman simplifies the ten dimensions by combining several dimensions into one. Dimensions of competence, courtesy, security, and credibility as dimensions of assurance, as well as dimensions of communication, access, and ability to understand customers as dimensions of empathy. This simplification leaves five aspects of quality components, namely: reliability, assurance, tangibles, empathy, and responsiveness. These five dimensions are known as Service Quality (ServQual) (Muninjaya, 2015).

2.2.2. Customer Satisfaction

Customer satisfaction is closely related to quality improvement in the interest of retaining customers. Phillip Kotler defines satisfaction as the level of state that a person feels that comes from the process of comparing the appearance or outcome of the products he feels with the expectations he has (Wijono, 2000). In hospitals, patient satisfaction as service users is assessed by comparing their satisfaction when using the service with their expectations of the service. Patients as service users will provide an assessment of the service and will act on that basis (Savage & Williams, 2014).

2.2.3. Importance-Performance Analysis

The importance-performance analysis is one of the techniques used to analyze the level of customer satisfaction with the quality of service. In addition, importance-performance analysis can also be used to analyze which dimensions need to be improved and maintained. Although originally developed for marketing purposes, this technique is also used in various fields, including in healthcare (Abalo et al, 2007; Server, 2015).

III. METHODS

This research is non-experimental quantitative research with a quantitative analytical study design. Service user data and satisfaction levels were obtained using a questionnaire instrument that had been tested for validity and reliability. This research was conducted at RSIA Stella Maris in August 2021. The target population and sample are all users of the RSIA Stella Maris telemedicine service where until the end of July 2021, this service has been used 260 times by 186 users.In this study, service user satisfaction is the dependent variable. User expectations of the five dimensions of service quality (reliability, assurance, tangibles, empathy, and responsiveness) are independent variables. Meanwhile, the user's gender, age, and education level are confounding variables.In this study, the instrument used to measure the independent and

dependent variables was a questionnaire. The questionnaire used is a digital questionnaire from the Google Form platform. The satisfaction survey contains questions regarding the assessment of the expected importance of service users and an assessment of satisfaction with performance and perceived performance by them. Measurement of satisfaction was carried out using a Likert scale.Data analysis was carried out in an appropriate way, namely univariate analysis to see the profiles of Stella Maris telemedicine service users, bivariate analysis using Pearson's test to assess the relationship between service user expectations and satisfaction, multivariate analysis using linear regression test to assess the relationship between gender, age and the level of education of service users on the satisfaction of telemedicine services, and Importance-performance analysis (IPA) to see which aspects of the service need to be maintained and aspects that need to be improved.

IV. ANALYZE AND RESULT

Stella Maris telemedicine service is an online health consultation service provided by RSIA Stella Maris Medan. This telemedicine service is fairly new. As of November 30, 2021, this service has been used by 243 users 344 times. In this study, all service users were contacted via social media messages and telephone to fill out a service survey questionnaire that had been prepared. A total of 130 people (53.5%) users are willing to fill out the research questionnaire.

4.2. Analysis

4.2.1. Test The Validity and Reliability of The Questionnaire

Validity and reliability tests were carried out on each of the 42 questions on the questionnaire to be used. In this study, the validity and reliability tests were tested on 20 respondents. The validity test was carried out by comparing the value of rcount with the rtable of each assessment item on the questionnaire. The value of rcount is calculated using SPSS. The rtable value for 20 respondents with a 95% significance is 0.3783.The reliability test is aimed at the assessment items that have been declared valid in the validity test. This test is used as a consistency test using Cronbach's Alpha coefficient. The assessment item will be declared to have acceptable reliability if it has an alpha coefficient of > 0.7. Based on the results of the calculation of the validity of the assessment items on the questionnaire used, the following results were obtained:

Table 1. Validity and Reliability Test Results Reliability Dimension

Question number on the questionnaire	rcount Value	Sig. & rtable	Validity	*Alpha* Coef.	Reliability
5 (User expectations)	0,806		Valid	0,970	Reliable
5 (Performance appraisal)	0,523		Valid	0,971	Reliable
9 (User expectations)	0,606		Valid	0,970	Reliable
9 (Performance appraisal)	0,778	Sig 95%	Valid	0,970	Reliable
11 (User expectations)	0,766		Valid	0,970	Reliable
11 (Performance appraisal)	0,805	rtable Value	Valid	0,970	Reliable
18 (User expectations)	0,665	0,3783	Valid	0,970	Reliable
18 (Performance appraisal)	0,570		Valid	0,971	Reliable
20 (User expectations)	0,606		Valid	0,970	Reliable
20 (Performance appraisal)	0,417		Valid	0,971	Reliable

The results of the validity and reliability tests on all items of the reliability dimension assessment (table 1), have a rcount value greater than rtable and have an alpha coefficient of 0.97. This shows that all the items of the reliability dimension assessment are valid and reliable.

Table 2. Test Results Validity and Reliability Dimension Assurance

Question number on the questionnaire	Rcount Value	Sig. & rtable	Validity	*Alpha* Coef.	Reliability
6 (User expectations)	0,540		Valid	0,971	Reliable
6 (Performance appraisal)	0,849		Valid	0,969	Reliable
13 (User expectations)	0,676	Sig 95%	Valid	0,970	Reliable

13 (Performance appraisal)	0,625		Valid	0,970	Reliable
14 (User expectations)	0,806	rtable	Valid	0,970	Reliable
14 (Performance appraisal)	0,614	0,3783	Valid	0,970	Reliable
15 (User expectations)	0,806		Valid	0,970	Reliable
15 (Performance appraisal)	0,813		Valid	0,970	Reliable

The results of the validity and reliability tests on all items of the assurance dimension assessment (table 2), have a rcount value greater than rtable and have an alpha coefficient of 0.97. This shows that all items of the assurance dimension assessment are valid and reliable.

Tables 3. Tangible Dimension Validity and Reliability Test Results

Question number on the questionnaire	Rcount Value	Sig. & rtable	Validity	*Alpha* Coef.	Reliability
1 (User expectations)	0,769		Valid	0,970	Reliable
1 (Performance appraisal)	0,698		Valid	0,970	Reliable
3 (User expectations)	0,696	Sig 95%	Valid	0,970	Reliable
3 (Performance appraisal)	0,808		Valid	0,970	Reliable
4 (User expectations)	0,480	rtable	Valid	0,971	Reliable
4 (Performance appraisal)	0,684	0,3783	Valid	0,970	Reliable
16 (User expectations)	0,806		Valid	0,970	Reliable
16 (Performance appraisal)	0,321		Invalid	-	

The results of the validity and reliability tests on the tangible dimension assessment items (table 3) have varied values. The result of rcount on the 16th assessment item on the performance assessment in item 16 shows a result that is smaller than the rtable. This indicates that the question is invalid. Therefore, the 16th assessment item on performance expectations, which is an invalid pair of questions, is also omitted. Another tangible dimension assessment item has a rcount that is greater than rtable and has an alpha coefficient of 0.97, so it is declared valid and reliable.

Tables 4. Empathy Dimension Validity and Reliability Test Results

Question number on the questionnaire	Rcount Value	Sig. & rtable	Validity	*Alpha* Coef.	Reliability
2 (User expectations)	0,537		Valid	0,971	Reliable
2 (Performance appraisal)	0,553		Valid	0,971	Reliable
7 (User expectations)	0,540		Valid	0,971	Reliable
7 (Performance appraisal)	0,646		Valid	0,970	Reliable
8 (User expectations)	0,806	Sig 95%	Valid	0,970	Reliable
8 (Performance appraisal)	0,683		Valid	0,970	Reliable
10 (User expectations)	0,806	rtable	Valid	0,970	Reliable
10 (Performance appraisal)	0,772	0,3783	Valid	0,970	Reliable
12 (User expectations)	0,606		Valid	0,970	Reliable
12 (Performance appraisal)	0,847		Valid	0,970	Reliable
21 (User expectations)	0,610		Valid	0,970	Reliable
21 (Performance appraisal)	0,708		Valid	0,970	Reliable

The results of the validity and reliability tests on all items of the empathy dimension assessment (table 4) have a rcount value that is greater than rtable and has an alpha coefficient of 0.97. This shows that all the points of the empathy dimension assessment are valid and reliable.

Tables 5. Validity and Reliability Test Results Responsiveness Dimension

Question number on the questionnaire	Rcount Value	Sig. & rtable	Validity	*Alpha* Coef.	Reliability
17 (User expectations)	0,806	Sig 95%	Valid	0,970	Reliable
17 (Performance	0,540		Valid	0,971	Reliable
19 (User expectations)	0,665	rtable	Valid	0,970	Reliable
19 (Performance	0,571	0,3783	Valid	0,971	Reliable

The results of the validity and reliability tests on all items of the responsiveness dimension assessment (table 5), have a rcount value greater than rtable and have an alpha coefficient of 0.97. This shows that all the items of the responsiveness dimension assessment are valid and reliable.

4.2.2. Characteristics of Telemedicine Service Users

This research was conducted on 110 users of Stella Maris telemedicine service who were willing to become respondents by filling out a questionnaire. The results of filling out the questionnaire are then carried out a descriptive analysis to explain the characteristics of service users by observing gender, age, education level, and frequency of use of these services. Based on gender, Stella Maris telemedicine service users are mostly female, namely, 85 people (77.3%), when compared to the male sex as many as 25 people (22.7%). In terms of age, telemedicine service users are the most respondents from the early adult group (61.8%) with the youngest age of 25 years. While at least the early elderly, with the oldest aged 50 years. The education level of users of Stella Maris telemedicine services is most often used by undergraduate users with an undergraduate education level of 66 people (60%). From the distribution, it can also be seen that Stella Maris telemedicine service is rarely used by users who have graduated from high school or the equivalent, which is 11 people (10%). And for the frequency of use, most of the respondents in this study came from users who were using Stella Maris telemedicine services for the first time, namely 61 people (55.4%). From the distribution results, it can also be observed that 27% of users (30 people) who were respondents in the study have used the service 3 or more times.

4.2.3. Service Users' Expectations of Stella Maris' Telemedicine Services

Measurement of the level of satisfaction was measured using a Likert scale. In this study, measurements were made on a scale of 1 to 4. Point 1 if the customer was dissatisfied, point 2 if quite satisfied, point 3 is satisfied, and point 4 if very satisfied.

Table 6. Respondents' Expectation Level of Reliability Dimension

Item reliability dimension reliability	Expectancy level				Average Likert
	Not important (%)	Quite important (%)	Important (%)	Very Important (%)	
Rating points 5: The duration of the consultation provided in the service process	0 (0%)	1 (0,9%)	38 (34,6%)	71 (64,5%)	3,64
Rating points 9: Service users can choose the doctor they want	0 (0%)	1 (0,9%)	22 (20%)	87 (79,1%)	3,78
Rating points 11: Timeliness of consultation with an agreed service schedule	0 (0%)	1 (0,9%)	28 (25,5%)	81 (73,6%)	3,73
Rating points 18: Number of types of lab tests provided to be carried out at	0 (0%)	6 (5,5%)	22 (20%)	82 (74,5%)	3,69
Rating points 20: Rates are determined according to the service received	0 (0%)	2 (1,8%)	25 (22,7%)	83 (75,5%)	3,74

Based on table 6, it can be observed that among the assessments of the level of expectation of the reliability dimension, the availability of options for service users to be able to choose a doctor who treats them (assessment item 9) is considered so important, with an average rating of 3.78. Meanwhile, the duration of service consultation (assessment item 5) is considered not too important, with an average rating of 3.64. The overall average rating of the level of expectation on the reliability dimension is 3.72.

Table 7. Respondents' Level Of Expectation on the Assurance Dimension

Item reliability dimension *assurance*	Expectancy level				Average Likert
	Not important (%)	Quite important (%)	Important (%)	Very Important (%)	

Rating points 6: Nurses' understanding of their duties in the virtual consultation process	0 (0%)	1 (0,9%)	38 (34,6%)	71 (64,5%)	3,64
Rating points 13: The physical examination carried out during virtual consultation	2 (1,8%)	8 (7,3%)	21 (19,1%)	79 (71,8%)	3,61
Rating points 14: Diagnosis confirmed in the virtual consultation process	1 (0,9%)	2 (1,8%)	20 (18,2)	87 (79,1%)	3,75
Rating points 15: Confidentiality of service users' medical records is maintained	1 (0,9%)	1 (0,9%)	16 (14,6%)	92 (83,6%)	3,81

Based on table 7, it can be observed that among the assessments of the level of expectation of the assurance dimension, the confidentiality of medical records (assessment item 15) is considered very important, with an average rating of 3.81. Meanwhile, the physical examination carried out during the consultation (assessment item 13) is considered not very important, with an average rating of 3.61. The overall average rating of the level of expectation on the assurance dimension is 3.72.

Table 8. Respondents' Expectation Level on Tangible Dimensions

Item reliability dimension *tangible*	**Expectancy level**				**Average Likert**
	Not important (%)	**Quite important (%)**	**Important (%)**	**Very Important (%)**	
Rating points 1: The registration application is easy for service users to understand	0 (0%)	(1,8%)	34 (30,9%)	74 (67,3%)	3,65
Rating points 3: The virtual consulting application used is easy for users to understand	0 (0%)	6 (5,5%)	24 (21,8%)	80 (72,7%)	3,67
Rating points 4: The internet network used by service users is stable	(0%)	1 (0,9%)	18 (6,4%)	91 (82,7%)	3,82

Based on table 8, it can be observed that among the assessments of the level of expectation of the tangible dimension, the stability of the internet network (assessment item 4) is considered very important, with an average rating of 3.82. Meanwhile, the ease of understanding the registration application (assessment item 1) is considered not too important, with an average rating of 3.65. The overall average rating of the level of expectation on the tangible dimension is 3.71

Table 9. Respondents' Expectation Level of Empathy Dimension

Item reliability dimension *empathy*	**Expectancy level**				**Average Likert**
	Not important (%)	**Quite important (%)**	**Important (%)**	**Very Important (%)**	
Rating points 2: Registration can be accessed at any time	0 (0%)	5 (4,5%)	28 (25,5%)	77 (70%)	3,65
Rating points 7: The attitude of the nurse is friendly and ready to help	0 (0%)	1 (0,9%)	18 (16,4%)	91 (82,7%)	3,82
Rating points 8: Nurse's ability to communicate virtually	0 (0%)	1 (0,9%)	31 (28,2%)	78 (70,9%)	3,70

Rating points 10: Consultation schedule offered according to user needs	0 (0%)	3 (2,7%)	25 (22,7%)	82 (74,6%)	3,72
Rating points 12: Doctor's ability to communicate virtually	0 (0%)	1 (0,9%)	21 (19,1%)	88 (80 %)	3,79
Rating points 21: Ease of payment processing	0 (0%)	2 (1,8%)	25 (22,7%)	83 (75,5%)	3,74

Based on table 9, it can be observed that among the assessment of the level of expectation of the empathy dimension, the friendly and ready to help the attitude of the nurse (assessment point 7) is considered so important, namely the average rating. 3.82 Meanwhile, registration that can be accessed at any time (assessment item 2) is considered not too important, with an average rating of 3.65. The overall average rating of the level of expectation on the empathy dimension is 3.74.

Table 10. Respondents' Expectation Level on Responsiveness Dimension

Item reliability dimension *responsiveness*	**Expectancy level**				**Average Likert**
	Not important (%)	**Quite important (%)**	**Important (%)**	**Very Important (%)**	
Rating points 17: Long wait for the drug delivery process	0 (1,8%)	3 (2,7%)	22 (20%)	85 (77,3%)	3,75
Rating points 19: Long wait for the arrival of the lab staff	0 (0%)	3 (2,7%)	30 (27,3%)	77 (70%)	3,67

Based on table 10, it can be observed that among the assessments of the level of expectation of the responsiveness dimension, the waiting time for the drug delivery process (assessment item 17) is considered more important, with an average rating of 3.75, when compared to the waiting time for laboratory staff (assessment item 19), with an average rating of 3.67. The overall average rating of the level of expectation on the responsiveness dimension is 3.71.

4.2.4. Service user satisfaction level with Stella Maris telemedicine service

Table 11. Respondent Satisfaction Level on Reliability Dimension

Item reliability dimension *reliability*	**Satisfaction level**				**Average Likert**
	Not important (%)	**Quite important (%)**	**Important (%)**	**Very Important (%)**	
Rating points 5: The duration of the consultation provided in the service process	1 (0,9%)	14 (12,7%)	54 (49,1%)	41 (37,3%)	3,23
Rating points 9: Service users can choose the doctor they want	1 (0,9%)	4 (3,6%)	43 (39,1%)	62 (56,4%)	3,51
Rating points 11: Timeliness of consultation with an agreed service schedule	1 (0,9%)	14 (12,7%)	52 (47,3%)	43 (39,1%)	3,25
Rating points 18: Number of types of lab tests provided to be carried out at home	0 (0%)	15 (13,6%)	53 (48,2%)	42 (38,2%)	3,25
Rating points 20: Rates are determined according to the service received	1 (0,9%)	25 (22,7%)	47 (42,8%)	37 (33,6%)	3,09

Based on table 11, it can be observed that among the assessments of the level of satisfaction of the reliability dimension, the availability of options for service users to be able to choose a doctor who treats them (assessment item 9) is considered to be very satisfactory, which is equal to an average rating of 3.51.

Meanwhile, the suitability of the determined tariff (assessment item 20) is considered unsatisfactory, with an average rating of 3.09. The overall average rating of satisfaction level on the reliability dimension is 3.27.

Table 12. Respondent Satisfaction Level of Assurance Dimension

Item reliability dimension *assurance*	Satisfaction level				Average Likert
	Not important (%)	Quite important (%)	Important (%)	Very Important (%)	
Rating points 6: Nurses' understanding of their duties in the virtual consultation process	0 (0%)	16 (14,5%)	44 (40%)	50 (45,5%)	3,31
Rating points 13: The physical examination carried out during virtual consultation	1 (0,9%)	22 (20%)	43 (39,1%)	42 (38,2%)	3,13
Rating points 14: Diagnosis confirmed in the virtual consultation process	1 (0,9%)	1 (10%)	47 (42,7%)	51 (46,4%)	3,35
Rating points 15: Confidentiality of service users' medical records is maintained	0 (0%)	8 (7,2%)	39 (35,5%)	63 (57,3%)	3,50

Based on table 12, it can be observed that among the assessments of the satisfaction level of the assurance dimension, the confidentiality of medical records (assessment item 15) is considered to be very satisfactory, with an average rating of 3.50. Meanwhile, the physical examination carried out during the consultation (assessment point 13) was deemed not very satisfactory, with an average rating of 3.13. The overall average rating of satisfaction level on the assurance dimension is 3.32.

Table 13. Respondents' Satisfaction Level with Tangible Dimensions

Item reliability dimension *tangible*	Satisfaction level				Average Likert
	Not important (%)	Quite important (%)	Important (%)	Very Important (%)	
Rating points 1: The registration application is easy for service users to understand	1 (0%)	13 (11,8%)	45 (40,9%)	51 (46,4%)	3,33
Rating points 3: The virtual consulting application used is easy for users to understand	0 (0%)	12 (10,9%)	48 (43,6%)	50 (45,5%)	3,35
Rating points 4: The internet network used by service users is stable	3 (2,7%)	15 (13,6%)	50 (45,5%)	42 (38,2%)	3,19

Based on table 13, it can be observed that among the assessments of the tangible dimension of satisfaction, the ease of understanding the virtual consulting application used (assessment item 3) is considered to be very satisfactory, with an average rating of 3.35. Meanwhile, the stability of the internet network (assessment item 4) is considered not very satisfactory, with an average rating of 3.19. The overall average level of satisfaction with the tangible dimension is 3.29.

Table 14. Respondents' Satisfaction Level with Empathy Dimension

Item reliability dimension *empathy*	Satisfaction level				Average Likert
	Not important (%)	Quite important (%)	Important (%)	Very Important (%)	
Rating points 2: Registration can be accessed at any time	1 (0,9%)	20 (18,2%)	44 (40%)	45 (40,9%)	3,21
Rating points 7:					

The attitude of the nurse is friendly and ready to help	1 (0,9%)	13 (11,8%)	31 (28,2%)	65 (59,1%)	3,45
Rating points 8: Nurse's ability to communicate virtually	0 (0%)	15 (13,6%)	39 (35,5%)	56 (50,9%)	3,37
Rating points 10: Consultation schedule offered according to user needs	1 (0,9%)	16 (14,5%)	49 (44,5%)	44 (40%)	3,24
Rating points 12: Doctor's ability to communicate virtually	1 (0,9%)	3 (2,7%)	42 (38,2%)	64 (58,2 %)	3,54
Rating points 21: Ease of payment processing	0 (0%)	10 (9,1%)	50 (45,5%)	50 (45,5%)	3,36

Based on table 14, it can be observed that among the assessments of the level of satisfaction in the empathy dimension, the doctor's ability to communicate visually (point 12) is considered to be very satisfying, with an average rating of 3.54. Meanwhile, access to registration (assessment item 2) is considered unsatisfactory, with an average rating of 3.21. The overall average level of satisfaction with the empathy dimension is 3.36.

Table 15. Respondent Satisfaction Level Against Responsiveness Dimension

Item reliability dimension *responsiveness*	**Satisfaction level**				**Average Likert**
	Not important (%)	**Quite important (%)**	**Important (%)**	**Very Important (%)**	
Rating points 17: Long wait for the drug delivery process	2 (1,8%)	31 (28,2%)	41 (37,3%)	36 (32,7%)	3,01
Rating points 19: Long wait for the arrival of the lab staff	0 (0%)	21 (19,1%)	52 (47,3%)	37 (33,6%)	3,15

Based on table 15, it can be observed that among the assessments of the level of satisfaction with the responsiveness dimension, the waiting time for laboratory staff (assessment item 19) is considered more satisfactory, with an average rating of 3.15, when compared to the waiting time for the drug delivery process (assessment item 17), namely with an average rating of 3.01. The overall average rating of the level of satisfaction on the responsiveness dimension is 3.08.

4.2.5. Bivariate analysis of service users' expectations of service satisfaction with telemedicine services Stella Maris

Questionnaire questions regarding the dimensions of reliability amounted to 5 items of assessment for each level of expectation and level of satisfaction. A total of 550 assessments of the reliability dimension from 110 respondents will be presented in the form of a cross-tabulation table.

Table 16. Cross Tabulation of Expectancy Level and Satisfaction Level of Reliability Dimension

Reliability dimension level of expectation	**Reliability dimension satisfaction level**				**Total**	***p-value***
	Not satisfied	**Quite satisfied**	**Satisfied**	**Very satisfied**		
Not important	0	0	0	0	0	
Quite important	0	9	0	2	11	
Important	0	17	103	15	135	
Very important	4	46	146	208	404	*p*= 0,000
Total	4	72	249	225	550	

The results of Fisher's test table 16, obtained a p-value of 0.000 <0.05. These results indicate that there are significant results between the level of expectation and the level of satisfaction on the reliability dimension.Questionnaire questions regarding the assurance dimension consist of 4 assessment items for each level of expectation and level of satisfaction. A total of 440 assurance dimension assessments from 110 respondents will be presented in the form of a cross-tabulation table. The results of the cross-tabulation

between the level of expectation and the level of satisfaction of the assurance dimension can be observed in table 17.

Table 17. Cross Tabulation of Expectancy Level and Satisfaction Level of Assurance Dimension

Assurance dimension level of expectation	Assurance dimension satisfaction level				Total	*p-value*
	Not satisfied	Quite satisfied	Satisfied	Very satisfied		
Not important	2	1	1	0	4	
Quite important	0	9	3	2	14	
Important	0	13	58	14	85	*p*= 0,000
Very important	2	34	111	190	337	
Total	4	57	173	206	440	

The results of Fisher's test table 17, obtained a p-value of 0.000 <0.05. These results indicate that there are significant results between the level of expectation and the level of satisfaction on the assurance dimension. Questionnaire questions regarding the tangible dimension amounted to 3 items of assessment for each level of expectation and level of satisfaction. A total of 330 assessments of tangible dimensions from 110 respondents will be presented in the form of a cross-tabulation table. The results of the cross-tabulation between the level of expectation and the level of satisfaction of the tangible dimension can be observed in table 18.

Tables 18. Cross Tabulation of Expectancy Level and Satisfaction Level Tangible Dimension

Tangible dimension level of expectation	Tangible dimension satisfaction level				Total	*p-value*
	Not satisfied	Quite satisfied	Satisfied	Very satisfied		
Not important	0	0	0	0	0	
Quite important	0	6	3	0	9	
Important	0	5	51	20	76	*p*= 0,000
Very important	4	29	89	123	245	
Total	4	40	143	143	330	

The results of Fisher's test table 18, obtained a p-value of 0.000 <0.05. These results indicate that there are significant results between the level of expectation and the level of satisfaction on the tangible dimension.Questionnaire questions regarding empathy amounted to 6 items of assessment for each level of expectation and level of satisfaction. A total of 660 assessments of the empathy dimension from 110 respondents will be presented in the form of a cross-tabulation table. The results of the cross-tabulation between the level of expectation and the level of satisfaction of the empathy dimension can be observed in table 19.

Tables 19. Cross Tabulation of Expectation Level and Satisfaction Level of Empathy Dimension

Empathy dimension level of expectation	Empathy dimension satisfaction level				Total	*p-value*
	Not satisfied	Quite satisfied	Satisfied	Very satisfied		
Not important	0	0	0	0	0	
Quite important	0	9	4	0	1	*p*= 0,000
Important	0	2	99	28	148	
Very important	4	47	15	296	499	
Total	4	77	255	324	660	

The results of Fisher's test table 19, obtained a p-value of 0.000 <0.05. These results indicate that there are significant results between the level of expectation and the level of satisfaction on the empathy dimension.Questionnaire questions regarding responsiveness amounted to 2 assessment items for each level of expectation and level of satisfaction. A total of 220 assessments of the responsiveness dimension from 110 respondents will be presented in the form of a cross-tabulation table. The results of the cross-tabulation between the level of expectation and the level of satisfaction of the responsiveness dimension can be observed in table 20.

Table 20. Cross Tabulation of Expectancy Level and Satisfaction Level of Responsiveness Dimension

Responsiveness dimension level of expectation	Responsiveness dimension satisfaction				Total	*p-value*
	Not satisfied	Quite satisfied	Satisfied	Very satisfied		
Not important	0	0	0	0	0	
Quite important	0	5	0	1	6	
Important	0	1	38	2	52	*p*= 0,001
Very important	2	35	55	70	162	
Total	2	52	93	73	220	

The results of Fisher's test table 4.24, obtained a p-value of 0.001 <0.05. These results indicate that there are significant results between the level of expectation and the level of satisfaction on the dimension of responsiveness.

4.2.6. The Service Dimensions That Most Influence The Satisfaction of Stella Maris Telemedicine Service Users

Questionnaires that have been distributed to respondents have a different number of assessment items between service dimensions. To measure the closeness of the relationship between each service dimension, the contingency coefficient C test (Cramer's coefficient) was used. This test is a statistical test used to analyze the relationship or nonparametric correlation between two data variables on a nominal scale.By using the data from the cross-tabulation between the level of expectation and the level of satisfaction of each service dimension, a contingency coefficient test was conducted. The results of the contingency coefficient test for each service dimension can be observed in table 21.

Table 21. Test the Contingency Coefficient of Each Service Dimension

Service dimensions	Contingency coefficient	*Sig*
Reliability	0,430	0,000
Assurance	0,549	0,000
Tangible	0,363	0,000
Empathy	0,399	0,000
Responsiveness	0,415	0,001

From table 21 it can be seen that the largest contingency coefficient comes from the assurance dimension. From these results, it can be concluded that the level of expectation on the assurance dimension is the level of expectation that has the most dominant relationship to the level of satisfaction of service users.Multivariate analysis using multiple linear regression was used to determine the effect of each assessment item on the satisfaction of the assurance dimension. The results of the multiple linear regression test of the level of expectation of each item of the dimensional assessment of the level of satisfaction can be observed in table 22.

Tables 22. Multivariate Analysis with Multiple Linear Regression Method

Variables	B (Regression coefficient)	Beta Coefficient	*Sig*
Constant	0,600		0,233
Rating points 6	0,010	0,233	0,938
Rating points 13	0,208	0,240	0,029
Rating points 14	0,263	0,227	0,073
Rating points 15	0,248	0,195	0,035

Based on the results of the multivariate analysis in the table above, it can be concluded that assessment item 6 does not significantly affect the satisfaction of the assurance dimension with a sig value of 0.938 > 0.05. Assessment item 13 has a significant effect on the satisfaction of the assurance dimension with a sig value of 0.029 <0.05. Assessment item 14 does not significantly affect the satisfaction of the assurance dimension with a sig value of 0.073 <0.05. While assessment item 15 has a significant effect on the satisfaction of the assurance dimension with a sig value of 0.035 <0.05.

From table 22 it is also observed that the highest beta coefficient value is found in assessment item 13. These results indicate that assessment item 13, namely a virtual physical examination, has the greatest influence on assurance dimension satisfaction. On the other hand, the lowest beta coefficient value is found in assessment item 6. From these results, it can be concluded that assessment item 6, namely nurses' understanding of their duties has the least effect on the satisfaction of the assurance dimension when compared to the other 3 assessment items of assurance dimensions.

From the results presented in table 4.25, it can also be drawn a multiple linear equation:

$$Y = 0,6 + 0,01\ X1 + 0,\ 208\ X2 + 263\ X3 + 0,248\ X4$$

Where Y is the level of satisfaction of the assurance dimension. X1 is the level of expectation of assessment item 6, X2 is the level of expectation of assessment item 13, X3 is the level of expectation of assessment item 14, and X4 is the level of expectation of assessment item 15. From the formula, it can be concluded that the four assessment items have a positive influence on assurance dimension satisfaction.

4.2.7. Importance-Performance Analysis (IPA) of Stella Maris Telemedicine Service

From the results of the questionnaires that have been distributed to respondents, we can observe differences in the expectations and satisfaction of service users. The results of observations of the difference in the average level of expectation and the level of satisfaction of users of Stella Maris telemedicine services can be seen in table 23.

Table 23. Differences in the level of expectation and level of satisfaction of service users

Dimension	Rating points	Expectancy level	Satisfaction level	Gap
Reliability	5	3,64	3,23	-0,41
	9	3,78	3,51	-0,27
	11	3,73	3,25	-0,48
	18	3,69	3,25	-0,45
	20	3,74	3,09	-0,65
Assurance	6	3,69	3,31	-0,38
	13	3,61	3,13	-0,48
	14	3,75	3,35	-0,41
	15	3,81	3,50	-0,31
Tangible	1	3,65	3,33	-0,33
	3	3,67	3,35	-0,33
	4	3,82	3,19	-0,63
Empathy	2	3,65	3,21	-0,45
	7	3,82	3,45	-0,36
	8	3,70	3,37	-0,33
	10	3,72	3,24	-0,48
	12	3,79	3,54	-0,25
	21	3,74	3,36	-0,37
Responsiveness	17	3,75	3,01	-0,74
	19	3,67	3,15	-0,53

The results from table 23 were tested for the difference between the average level of expectation and the level of satisfaction using the T-test. From the test results, the results of the T count were greater than the T table, namely the t value of 49.04 with a p-value <0.05. This shows that there is a difference between the average level of expectation and the average level of satisfaction of telemedicine service users.From this data, a more in-depth analysis was carried out to determine the priority scale in improving service quality using importance-performance analysis (IPA). By using the data in table 23, the distribution is obtained as follows:

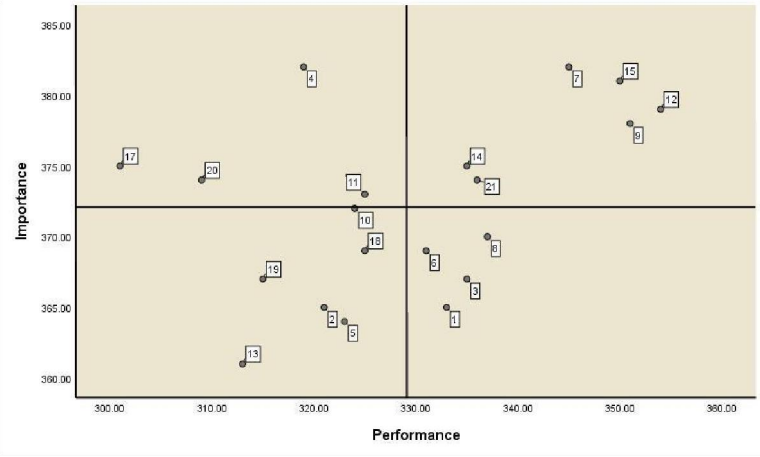

Fig 1. Telemedicine Service Importance-Performance Matrix

In picture 1, it can be seen that quadrant A which is located at the top left is referred to as concentrate here. This quadrant is a top priority to be followed up to improve service quality. These include the stability of the internet network, the accuracy of the consultation schedule, the long waiting time for drug delivery, and the suitability of tariffs.

Quadrant B located at the top right is referred to as keep up the good work. This quadrant is the part that must be maintained by the service provider. These include nurse friendliness, ability to choose a doctor, doctor's ability to communicate virtually, the accuracy of diagnosis, the confidentiality of medical records, and ease of payment processing.

Quadrant C which is at the bottom left is referred to as low priority. This quadrant is a part that is not a top priority for improvement. This includes access to registration, duration of consultation, schedule of consultations offered, physical examinations performed, number of laboratory examination options, and length of waiting for laboratory staff.

Quadrant D which is at the bottom right is referred to as possible overkill. This quadrant is not a priority to be improved. This includes the ease of registration applications and consultation applications, and the understanding and ability of nurses to communicate.

V. CONCLUSION

Based on the results of the research that has been done, it can be concluded as follows:

1. The level of expectation of service users of all service dimensions simultaneously affects the level of satisfaction of users of RSIA Stella Maris telemedicine services.
2. The level of expectation of service users on the assurance dimension is the service dimension that most dominantly affects the satisfaction level of users of RSIA Stella Maris telemedicine services.
3. The physical examination carried out in the RSIA Stella Maris telemedicine service has the greatest influence on the satisfaction of the assurance dimension.
4. To improve the quality of RSIA Stella Maris telemedicine services, many features are prioritized to be improved, as well as features are maintained. Some are non-priority features, and some are potentially redundant if developed.

REFERENCES

[1] Abalo, J., Varela, J., Manzano, V. (2007). Importance values for Importance– Performance Analysis: A formula for spreading out values derived from preference rankings. ***Journal of Business Research***, 60(2), 115-121

[2] Akalu, R., Rossos, P. G., Chan, C. T., (2006). 'The role of law and policy in tele- monitoring'. ***Journal of Telemedicine and Telecare,*** 12(7), pp.325-327.

[3] Bashshur, R. & Shannon, G. (2009). History Of Telemedicine: Evolution, Context, and Transformation. New Rochelle, New York: Mary Ann Liebert.

[4] Bustami, M.S. (2011). Penjaminan Mutu Pelayanan Kesehatan & Akseptabilitasnya. Jakarta: Penerbit Erlangga.

[5] Darkins, A.W & Cary, M.A. (2000). Telemedicine and Telehealth: Principles, Policies, Performance, and

Pitfalls. New York: Springer Publishing Company, Inc.
[6] Gott, M. (2018). Telematics for Health: The role of telehealth and telemedicine in homes and communities. Boca Raton, FL: CRC Press.
[7] Muninjaya, A.A.G (2015). Manajemen Mutu Pelayanan Kesehatan Ed. 2. Jakarta: EGC.
[8] Pan American Health Organization [PAHO]. (2016). Framework for the Implementation of a Telemedicine Service. Washington D.C.: PAHO.
[9] Sever, I. (2015). Importance-Performance Analysis: A Valid Management Tool? Tourism Management, 48, 43-53.
[10] Stanberry, B, (2001). 'Legal ethical and risk issues in telemedicine'. Computer Methods and Programs in Biomedicine, 64(3), pp. 225-233.
[11] Wiggins C. (2014). Teknologi Informasi. Dalam Manajemen Pelayanan Kesehatan. Buchbinder S.B., Shanks N.H; alih bahasa Widyastuti P, Tiar E; editor edisi bahasa Indonesia Riskiyah S.Y., Tampubolon A.O. Jakarta: EGC.
[12] Wijono J. (2000). Manajemen Mutu Pelayanan Kesehatan: Teori, Strategi dan Aplikasi vol.1. Surabaya: Airlangga University Press.