ASSESSING PATIENTS' SATISFACTION BY MEASURING SERVICE QUALITY IN PUBLIC HOSPITAL IN MYANMAR

MON MYAT MIN

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....
Mr. Mon Myat Min
Candidate

....
Asst. Prof. Prattana Punnakitikashem,
Ph.D.
Advisor

....
Asst. Prof. Winai Wongsurawat,
Ph.D.
Chairperson

....
Asst. Prof. Duangporn Arbhasil,
Ph.D.
Dean
College of Management
Mahidol University

....
Asst. Prof. Pornkasem Kantamara
Ed.D.
Committee member

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MON MYAT MIN 6149240

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THEMATIC PAPER ADVISORY COMMITTEE: ASST. PROF. PRATTANA PUNNAKITIKASHEM, Ph.D., ASST. PROF. PORNKASEM KANTAMARA, Ed.D., ASST. PROF. WINAI WONGSURAWAT, Ph.D.

ABSRACT

The majority of people in Myanmar rely on public hospitals for their health. The ranking of the healthcare system in Myanmar is the lowest among the world according to WHO. Therefore, it is necessary to assess service quality and the patients' satisfaction. The objective of this study is to assess the service quality dimension by understanding the service quality gap between patients' expectation and perception from the patients' perspective. Moreover, it is also to understand which service quality dimension mostly depends on patients' satisfaction and to understand the relationship between each service quality dimension and patients' satisfaction.

In order to apply quantitative method, the data were collected with the structured questionnaires from the patients who were admitted in one of the public and teaching hospitals, Thingangyun Sanpya General Hospital which occupied 500 bed in Yangon, Myanmar. The modified survey was conducted to understand the respondents' opinion on five service quality dimensions which are tangibility, reliability, responsiveness, assurance and empathy consisting of total 32 items in demographic information, service quality dimensions and patients' satisfaction. The study was composed of 204 respondents.

The data are analyzed in SPSS by using paired-samples T test, correlation analysis, Multiple Linear Regression and Simple Linear Regression. The service quality gap between perception and expectation are all positive. It shows the patients are satisfied in all of five service quality dimensions. Moreover, all service quality dimensions are significant in patients' satisfaction. Among the dimensions, the assurance dimension is the most significant dimension. The findings clarified the importance dimension in patients' satisfaction. It would help to build a strong relationship between patients and the healthcare providers by providing the trust and confidence. Moreover, it would help the healthcare managers and policy makers to know the most important dimension in order to focus on improving the healthcare service quality.

KEY WORDS: Service Quality/ Patients' satisfaction/ Public Hospital/ Myanmar/ SERVQUAL method

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CHAPTER I
INTRODUCTION

1.1 Background

Globally, the service industry sector has rapidly been growing and the health services organizations are major factors responsible for that growth. But the healthcare industries may have difficulties with many challenges to be economically profitable and to be satisfied by patients (Win and Panza, 2010). Therefore, many research studies are conducted to measure the patient's expectations, perceptions and satisfaction of the service quality in the healthcare industry.

The majority of studies have suggested that there is significant between patient expectations and perceptions of service quality and it might be due to the different factors in the healthcare services delivery. (Strasser et al., 1995; Kandampully, 1997).

The service quality of healthcare can be categorized into two concepts: technical quality (clinical quality in healthcare) and functional quality (process quality). The former was based on how accurate the diagnosis and procedures are, and only healthcare professionals will understand. The functional quality is how the healthcare services are delivered to the patients. (Grönroos 1984). As the technical quality is difficult to be evaluated by the patients who lack knowledge for medical or clinical proficiency, assessment of functional quality by the patients became an efficient way to be carried out.

The expectations and the needs of the customers are the most important in the high-quality service delivery (Zeithaml VA, Berry LL, Parasuraman A, 1996). Their expectations appeared as a result of their perception on ideal standard in imagination or their experiences in taking the services before. (Kucukarslan SN, Nadkarni A, 2008). If the expectations are met with their actual perceived services, the patients become satisfied with

these services. Therefore, it is essential that the healthcare service providers have to know their expectations and satisfaction factors.

1.1.1 Current situation of healthcare industry in Myanmar

The development of the healthcare industry in Myanmar was deadly bad during 60 years of isolation and being shut out. According to World Health Organization (WHO) report in 2013, overall health system performance of Myanmar was ranked as the last among 190 countries. There are many inequities in the healthcare system in different perspectives such as in mortality rates, program coverage and infrastructure development across the country. (Nilar Tin, 2009)

In Myanmar, the majority of the people rely on public hospitals for their need of healthcare services. The public hospital is defined as a hospital which is owned by a government and receives government funding. In Myanmar, the majority of payment is Out of pocket and a part of co-payment by the government in public hospitals. (World Bank 2012)

Even though the government health expenditure grew from 0.2% of GDP in 2009 (one of the lowest in the world) to 1.17% in 2018, it still needs more budget to strengthen the healthcare system. (World Bank 2018) Currently, Myanmar has a lower number of doctors per capita compared to any other countries in ASEAN. Based on WHO report in 2015, there were 6.1 doctors in every 10,000 population which is considered to be much lower when compared to Vietnam (11.9), Thailand (13.8), Singapore (19.5), and Malaysia (12) (WHO world health statistics 2015). All healthcare staff (physicians, specialists, nurses, technicians, etc.) are overburdened as well because the healthcare system is running below optimal coverage ratios of healthcare workers and it negatively affected the healthcare service delivery (Myanmar Health and Development Consortium 2018).

There are only 4 of 2,000 bedded general hospitals and 50 specialists and teaching hospitals which range from 100 bedded to 1,200 bedded, 55 hospitals of district

hospitals (200–500 beds) (Health in Myanmar, 2014). According to Private Health Statistics, there were 193 private hospitals across the country (Department of Medical Services, 2015).

Public health facilities in Myanmar, 2014

Facility	Number
Curative and rehabilitative services	1,056
General hospitals (up to 2,000 beds)	4
Specialist/teaching hospitals (100–1,200 beds)	50
Regional/state/district hospitals (200–500 beds)	55
Township hospitals (25–100 beds)	330
Station hospital (16–25 beds)	617
Preventive and public health services	2,199
Primary and secondary health centers	87
Maternal and child health centers	348
Rural health centers	1,684
School health teams	80
Traditional medicine	259
Traditional medicine hospitals	16
Traditional medicine clinics	243

Data from Health in Myanmar 2014[13]

Figure 1.1 public health facilities in Myanmar (2014)

Yangon region, the biggest commercial city in Myanmar, where most of the hospitals are concentrated, has 119 hospitals in total. Among them, 72 hospitals are from the public sector while 45 are private hospitals (Health System Review 2014 Report from Ministry of Health, Myanmar)

Public hospitals account for approximately 86% of total hospitals, but their healthcare service quality is considered to be lower than regional quality standards. The private hospitals contribute 14% of total hospitals and are responsible for 7% of total hospital beds in Myanmar. (Central Statistical Organization, Ministry of Health (MOH) 2015)

Figure 1.2 hospital beds in Myanmar (2015)

1.1.2 Increase the demand for quality services

The major hospitals in the big cities such as Yangon and Mandalay already have a big market share from middle and high-end customers. The more the customer class grows, the more sophisticated healthcare services they demand. According to high demand, both the public and private hospitals run with their full capacity. Because the number of patients exceeds the healthcare resources, and the limited number of healthcare professionals, the level of healthcare service provided is below international standards. (Healthcare guide Myanmar 2019 by European Chamber of Commerce in Myanmar)

One evidence that Myanmar people are looking for more high-end healthcare service is the increasing number of outbound medical tourists. According to Solidiance Interviews and Analysis, the number of patients going abroad for medical treatment in 2008 is 75,000 and that of 2015 is 120,072. The average annual growth rate of outbound medical tourists is about 6.9%. (Solidiance Interviews and Analysis). Therefore, assessing patients' expectations and perception would be necessary for policy makers and government officials to reform and rebuild the operating system and service quality in public hospitals.

1.2 Problem Statement

Due to the lack of research papers and studies about patients' satisfaction study by measuring expectations and perceptions in public hospitals along with the increased demand for healthcare facilities in Myanmar, this will help the government officials and policy makers to manage the service qualities of public hospitals efficiently.

As the healthcare providers, they need to discover ways and means to understand consumer behavior and characteristics in order to provide best services to meet and exceed customer expectations and could improve patients' satisfaction.

1.3 Research Questions

1. What are the differences between patients' expectations and perception about the service quality in public hospitals in Myanmar?
2. What are the factors that patients' satisfaction depends mostly on?
3. What is the relationship between the service quality dimension and patient satisfaction in the public hospitals in Myanmar?

1.4 Research Objectives

The study aims to assess the patients' satisfaction by measuring the service quality gap from the difference of patients' expectations and perceptions so that the policy makers and government officials will know the real situation and reform the healthcare service industry.

This may help the stakeholders who are directly involved in conducting services such as medical doctors, nurses, and other healthcare professions to understand the quality of services from patients' perspective.

The objective of this study is also to understand the relationship between service quality and patients' satisfaction so that the stakeholders would know which sectors are needed to improve to get the patients' satisfaction regarding the healthcare services of public hospitals.

1.5 Scope of Study

This study is conducted by quantitative method by focusing on the patients who have been admitted in one of the public hospitals in Yangon, Myanmar. To evaluate the expectation and perceptions of patients, they will be conducted by giving SERVQUAL Questionnaires which was firstly introduced by Parasuraman. (Parasuraman et al, 1988). It was widely used in different contexts and regarded as one of the best methods.

1.6 Limitations of Study

This study does not cover all of the public hospitals in Myanmar. The results may vary according to each hospital due to different offered services. The respondents are selected randomly with a total of 100 numbers. Their expectations and perceptions may not cover all populations.

1.7 Expected Benefits

This study may help the policy makers and healthcare service providers by knowing patients' expectations and their perceptions so that they could manage and operate the healthcare business to meet the needs of consumers (patients).

This research is expected to be one of the supportive studies to be helpful for upgrading the healthcare system in relation with service quality of public hospitals.

The study can help to increase the service quality of public hospitals, then lead to get the benefits for the public as they are the main consumers.

1.8 Definitions

1.8.1 Healthcare Service Quality

According to Schusteret al.(1998), p. 518, service quality in healthcare defined as "providing patients with appropriate services in a technically competent manner, with good communication, shared decision making and cultural sensitivity".

It was defined as "the application of medical science and technology in a manner that maximizes its benefit to health without correspondingly increasing the risk" (Donabedian, 1980)

1.8.2 Patients' satisfaction

One study explained that satisfaction as "the state of pleasure or contentment with an action, event or service and it is determined considerably by the expectations of customers and their experiences." (Sixam et al.,1998). Patients' satisfaction can also be defined as "the degree of congruence between the expected quality of nursing care and the actual received care" (Grujic et al. 1989; Scarding 1994)

CHAPTER II
LITERATURE REVIEW

2.1 Background

In Myanmar, the Ministry of Health is responsible for comprehensive health care that provides four healthcare functions which are promotion, preventive, curative and rehabilitative services to improve the public health status. (www.moh.gov.mm) The major curative healthcare service delivery point is from public hospitals. In most public hospitals, some basic medications and some laboratory tests are provided free of charge for the poor as well as emergency patients subsequently late 2014. (Solidiance, Health in Myanmar). In the healthcare financing system, out-of-pocket payment is about 74% of total healthcare costs. (Myanmar MOHS National Health Accounts 2014/15, World Development Indicators)

Although the research relating the factors influencing customer satisfaction towards health care service quality is demanding, very few researches can be available regarding customer satisfaction at the public hospitals in Myanmar due to sensitivity towards exploring/disclosing about the government health care structures/services. The people are securing the approval for customer satisfaction at the public hospitals is totally not practical. (Aung Myo M, 2014).

One study conducted in Myanmar suggested that the patients who previously admitted to public hospitals were more likely to perceive positively upon the service quality especially the staff's willingness to solve their health problem, the competency of healthcare professionals, individualized attention of the healthcare providers, professionalism and showed increased level of satisfaction with the perceived healthcare services more than others. (Kyi, A. A., & Aye, K. K, 2015)

2.2 Patients' satisfaction

Kotler (2003) suggested that satisfaction is feelings of happiness which came from comparing a product's outcome to his/her expectations. If the expectation on the performance is more than perceived performance, it is assumed that customers become dissatisfied. Vice Versa, when the perceived performance exceeds expectation, customers become happy and satisfied.

In a previous cross sectional survey conducted in Jordan to investigate patients' satisfaction on nursing care, the findings revealed the three statements that gender affects the nursing care satisfaction in which women's were more satisfied than the men, patients with lower education level were more satisfied than the patients with higher education level and the nursing care satisfaction level differs upon each hospital ward such as patients admitted in medical or gynecological wards were higher levels of satisfaction than patients from surgical wards. (Alasad and Ahmad, 2003)

Some studies reported that many factors influenced patients' satisfaction (Peprah, 2014). the behavior and service minded of nurses, the willingness to deliver prompt service; quick response when asking for help; good communication and giving clear information to patients; the presence of modernized equipment; the hospital's 24-hour emergency service; doctors' attitude and professionalism, attractiveness and cleanliness of hospital.

Prabhakar (2014) examined the service quality by using SERVQUAL gap mode in the chosen hospitals in a province of India. The findings were that the respondents' demographic variables and socioeconomic status largely affected patients' satisfaction.

In the research conducted by Wongrukmit, P., and Thawesaengskulthai, N. (2014), they analyzed by using SERVQUAL model and Kano model to understand the difference perspective of perceived service quality among different nationalities which were Japan, Myanmar, Arabic States and Thailand. Their findings suggested that each nationality perceived the level of quality differently.

The facts that his service quality influences on customer's satisfaction and both have a significant positive relationship were proved in many previous studies (Hsiu-Yuan Hu et al, 2011; Kuo et al. 2009). Moreover, patients' perception of service quality is also key driver to receive patients' satisfaction (Lee et al. 2000; Murray and Howat, 2002).

2.2.1 Patients satisfaction in Myanmar healthcare industry

One study which was conducted in the OPD clinic of one private hospital, Pinlon Hospital Yangon, Myanmar to understand the relationship of the patients' satisfaction and healthcare services. The findings from 320 respondents showed that 79.7% of the patients at OPD were 'highly satisfied' on the services they received. About 70% of the patients answered that they 'Strongly agree' and 'agree' on the fact (the location of the hospital is easily accessible). About 54.7% disagree or are not sure about the statement "getting an appointment for consultation".

Moreover, 67.2% of the patients were highly satisfied with Tangible factors (facilities and structure), 52.0% of the patients highly perceived the service quality of doctors and medical staff. The household income, the number of visits to the hospital, accessibility was significantly related with the patients' satisfaction (Win, A. H., & Panza, A, 2010)

Another descriptive study which was conducted in 2017, made the surveys on 156 patients who were admitted to the medical wards of Yangon General Hospital (Biggest and teaching public hospitals in Myanmar) by using modified questionnaires adopted from the SERVQUAL model. The findings suggested that the service quality gaps difference between patients' expectations and perceptions from five Dimensions of the model were positive and it revealed that the patients from Yangon General Hospital were satisfied with the healthcare service quality. But it suggested that empathy, assurances and responsiveness dimensions were needed to improve. (Mon, S. L. 2017)

2.3 Service quality

Service quality is the important topic among the researchers in the world. According to previous research, cost is one of the significant factors for service quality (Crosby, 1979) and also customer satisfaction is the significant factor (Bolton and Drew 1991). According to Berry et al. (1988), it can be described as "conformance to customer specifications''. The providing services which meet or exceed the customers' needs will lead to customers' satisfaction. (Evans and Lindsay, 1999). Today, quality is defined by customers' demand & customer's perceptions and expectations are considered as the most fundamental determinant factors of quality. (Abedi G, Ebadattalab I, Rostami F 2012)

2.3.1 Expectations

It was a prediction by consumers which was likely to happen during any potential purchasing or taking services. It was also defined as consumer-defined probabilities of the occurrence of positive and negative events if the consumers engage in the same behavior. (Oliver, 1981 p.33).

2.4 Conceptualization of Healthcare Service Quality

As mentioned in Chapter 1, the technical part of healthcare service quality cannot be assessed accurately by the public, functional quality became major determinants for assessing healthcare quality. (Donabedian,1980, 1982). For example, it was stated that the patients are unable to judge the doctors' diagnostic ability and surgeons' skills. (Bakar et al., 2008). They have just the ability to measure functional quality such as neat and physical clearance of equipment and staffs' personal hygiene. (Bakar et al., 2008).

Traditionally, as the former research regarding healthcare service quality has been assessed from the healthcare providers' perspectives, not from the patients' view, the reliability and significance of quality assessment became reduced. (Narang, 2010)

The consumers never use the term Quality as researchers and marketers do. (Holbrook and Corfman, 1985). Babakus and Mangold (1992) explained that consumers' expectations cannot be considered as the factors influencing the relationship between service quality and other key measures.

There are many tools to measure patients' perceptions and expectations, but those tools may be different from each other based on the content and measurement. (Uzun, 2001) However, the exploratory research was carried out in 1985 to identify the service quality by knowing the difference between customers' expectation and perception of service quality after they have actually received it. As a result, there were four gaps which could make the customers' dissatisfaction as a result of marketer's misunderstanding and one gap resulting from customers' space. That research proposed the SERVQUAL model to evaluate the service quality of businesses, which was originally developed by Parasuraman et al. (Parasuraman, A., Zeithaml, V. A., & Berry, L. L., 1985)

2.5 A Conceptual model of service quality in Healthcare

The consumers' perception on service quality are influenced by a series of four unique gaps. The gaps originate from the service providers' side and that impacts service delivery. These gaps are presented below:

(i) The gap between expected service by the patients and service providers' perceptions of patient's expectations. It means the healthcare managers did not know exactly what the customers wanted and expected.

(ii) The gap between service providers' perceptions on patient expectations and service quality specifications. The healthcare manager, sometimes, is not able to provide proper service quality standards, even though they understand what the patients' want.

(iii) The gap between the defining service quality and actual service delivery. It points out the service performance gap

(iv) The gap between delivery of the service and external communication. i.e. the promised services that were advertised to provide.

(v) The gaps between patients' expectations and perceptions.

The gap appeared from the misperception by the patients. (Parasuraman, A, 1985). The management would like to reduce the first four gaps because the latter was the result of the first four gaps. SERVQUAL was developed as a numerical definition of fifth gap.

2.6 SERVQUAL: A Tool for Measuring Service Quality

In order to meet the patients' needs and expectations, the measurement of both expectations and perceptions are necessary to evaluate. (Parasuraman et al., 1985, 1988). The main concept of service quality is to achieve customers' satisfaction by reducing the gap of dissatisfaction in the dimension of (SERVQUAL) model. (Parasuraman, 1985; Buttle, 1996). Parasuraman, et al (1988) describes that he researched in services business such as banking, appliance repair or maintenance etc. to measure the superiority of the service quality by using SERVQUAL method. Originally, there were ten dimensions of service quality which later, were combined into five dimensions which contained twenty-two pairs of statements.

The aim is to evaluate the gap between the perception and expectation of consumers in each dimension. Those are Tangibility, reliability, responsiveness, assurance and empathy (Parasuraman A., Berry L, 1988).

(1) Tangibility – physical appearance, equipment, facilities, and the presence of personnel;

(2) Reliability – how the services are performed responsibly and accurately as promised;

(3) Responsiveness – the staff's willingness to serve the customers with a prompt service;

(4) Assurance – the level of the knowledge, skills and courtesy of providers when delivering the services and their ability to build trustworthiness and instill confidence to customers;

(5) Empathy – deeply understanding of individual's feelings and caring with attention (Arasli and Salih, 2008)
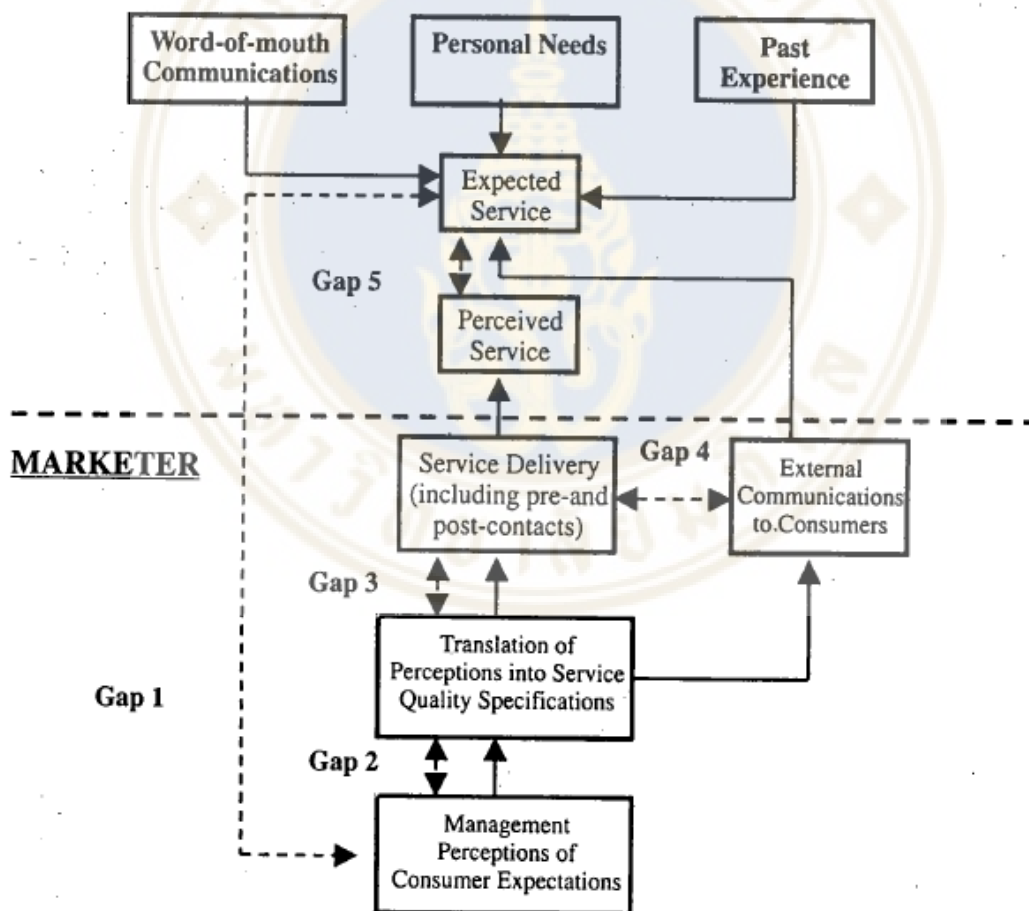
Figure 2.1 Conceptual Model of Service Quality, Parasuraman et.al. (1985)

2.7 SERVQUAL instrument in healthcare settings

There was a lot of research by using the SERVQUAL method used in the hospital context and proved that it was a high reliability and validity instrument (Babakus and Mangold, 1992). It is not only useful to measure the gap between patients' expectations and the actual received services but also helpful to know the areas that needed to be improved. By analyzing the service quality in each dimension, the hospital management team will have an idea to allocate the financial resources to meet the patients' needs more accurately. (Lim PC, Tang NKH, 2000).

One study did research about the ability of SERVQUAL application to healthcare service with well-structured questionnaires and equations. It proved that the SERVQUAL is very useful in measuring the quality of healthcare services. From each element of dimensions, the researcher can identify which services were needed to improve. Therefore, service quality and patients' satisfaction are highly related to improve the organizational performance (Isik et.al, 2011)

There was a lot of research to test the validity and reliability of SERVQUAL instruments. Scardina (1994) and Arikan (1999) proved that it was an excellent tool in terms of validity and reliability to measure the service quality and patients' satisfaction in healthcare.

The advantages of SERVQUAL were outlined by Buttle (1994).

(i) Standard method to access the different dimensions of service quality;

(ii) It has certain level of validity for different service situations;

(iii) High reliability;

(iv) The surveys are customer friendly and easy to fill out;

(v) Standard analysis procedure to interpret the results.

2.7.1 Research Hypotheses

Hypothesis H1: Hypothesis H1: The service quality and patients' satisfaction in a public hospital in Myanmar have a significant relationship between each other.

2.7.2 Tangibility

Tangibility means that the physical atmosphere at which service providers offered and the way of delivering healthcare services that can be physically sensible. (Lee et al., 2000).

In research conducted by Raposo, M. L et al (2009), the facilities quality is the most important positive effect on patients' satisfaction.

Hypothesis H1a: The Tangibility and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.

2.7.3 Reliability

Reliability is the skill and proficient manners of healthcare providers to offer the service that are promised accurately (Baltussen, Haddad & Sauerborn, 2002). A previous study of patients' perception about service quality involved in this criteria. (Choi et al, 2005).

Hypothesis H1b: The Reliability and Patients' satisfaction in a public hospital in Myanmar have a significant relationship between each other.

2.7.4 Responsiveness

The responsiveness concept based on the personal relationship of the patients and the healthcare provider (Scotti, Harmon & Behson, 2007).

Hypothesis H1c: The Responsiveness and Patients' satisfaction in a public hospital in Myanmar have a significant relationship between each other.

2.7.5 Assurance

The Assurance dimension refers to the patients' perception of confidence in healthcare providers' knowledge and courtesy related to the dealing with the patients and ability to build trust. (Parasuraman et al., 1988).

Hypothesis H1d: The Assurance and Patients' satisfaction in a public hospital in Myanmar have a significant relationship between each other.

2.7.6 Empathy

Empathy can be defined as the "art of nursing" (Carter, 2007). In one study conducted in ten private hospitals in Bangladesh, Empathy dimension is neutral, and has no impact on patients' satisfaction. (Rahman, M. R., & Kutubi, S. S., 2013)

Hypothesis H1e: The Empathy and Patients' satisfaction in a public hospital in Myanmar have a significant relationship between each other.

2.7.7 Previous Studies

Kitapci et al. (2014) conducted a survey in Turkey by using the framework of SERVQUAL variables and collected the 369 patients in one of the largest universities hospital. The researcher found that only two dimensions, empathy and assurance, have a positive relationship to customer's satisfaction.

It was contrary to the research findings on quality service dimensions conducted by Hsiu-Yuan Hu et al. (2011). It has shown that none of the service quality dimensions have a relationship with customer's satisfaction in Taiwan's healthcare industry context.

One research conducted in India hospital context showed that only reliability and responsiveness have a significant relationship with patients' satisfaction but the other three (Empathy, tangibility and assurance) do not influence the satisfaction (Meesala, A., & Paul, J., 2018).

Essiam, J. O. (2013) conducted the survey in Ghana healthcare context and revealed that except reliability dimension, there were positive significant relationships between patients' satisfaction and the other four dimensions in SERVQUAL which are Tangibility, Responsiveness, Assurance and Empathy.

2.8 The Conceptual framework of study
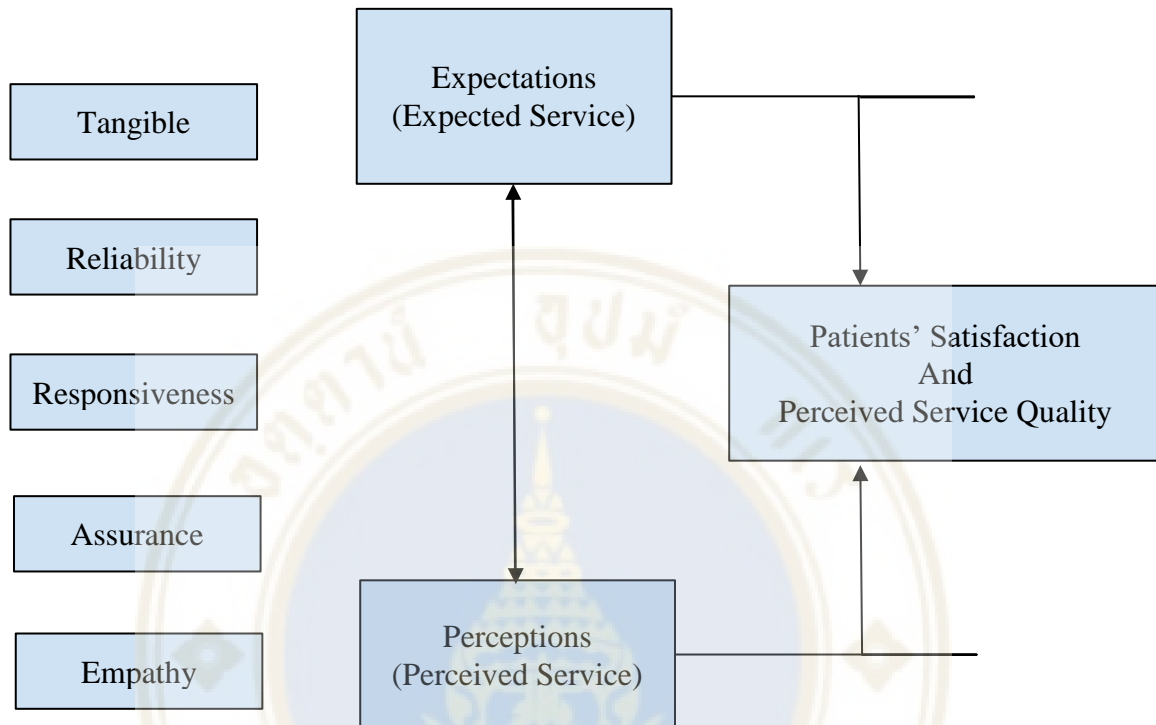
Figure 3.1 Measuring Service Quality by SERVQUAL (Kumar et al., 2010)

The literature made an assumption that service quality is the difference between overall expectations (E) and perception of the service quality (P), (Curry and Sinclair, 2002; Zeithaml et al., 1993). The researchers pointed out that it should be measured by subtracting expectation scores from perception scores (Q=P-E). If the result is positive, the customers are satisfied and identify the service quality high and vice-versa (Parasuraman et al., 1985). SERVQUAL helps the providers to diagnose where the weakness and strength is. The researcher has used the perceived service quality and patients' satisfaction as the dependent variable and the five dimensions of service quality - tangibles, reliability, responsiveness, assurance and empathy are the independent variables.

CHAPTER III

METHODOLOGY

This chapter is about the research methodology and included how data will be collected, how the questionnaires are developed and analyzed. It consists of five parts, research design, and sample selection, procedures of the study, instrument, data collection and data analysis.

3.1 Research Design

This study will use the SERVQUAL model to measure the service quality of public hospitals in Myanmar. This study also aims to measure patients' satisfaction of service quality by knowing patients' expectations before taking the medical services and perception after the services. The descriptive qualitative method will be used to collect data and the structured questionnaires will be delivered to the Inpatients department in one of the public and teaching hospitals, Thingangyun Sanpya General Hospital which occupied 500 beds in Yangon, Myanmar.

The SERVQUAL scale is primarily developed to measure service quality's functional dimensions. Although the scale is a generic scale, it needs to be modified to find out research objectives. By comparing with past research studies, the researcher prepared an initial questionnaire. The modified survey was conducted to understand the respondents' opinion on five service quality dimensions: reliability, responsiveness; assurance empathy; and tangibility.

After collecting the data, SPSS software will be used to analyze and find the results according to research objectives.

3.2 Study population and sample

The main objective of this research is to assess patients' satisfaction by measuring the service quality gap score between expectations and perceptions with the application of SERVQUAL instruments. This study target for the patients who are admitted to the hospital at that time.

Myanmar has a population of 54 million and Yangon has 5.3 million as of 2019 (Department of population, Myanmar). Thingangyun Sanpya hospital is responsible for 1.3 million people residing in six townships in Yangon region. (wikipedia)

The sample of this research is calculated by using Taro Yamane (Yamane, 1973) formula with 95% confidence interval (Israel 1992). Therefore, the sample size will be as follows:

$$n = \frac{N}{1 + N\,(e)^2}$$

Where, n = sample size required

N = total number of population

e = level of precision

- Population size, N, is 1,300,000.
- Level of precision, e, is 0.05 where confidence level is 95%.

(Sarmah, 2012)

$$n = \frac{1,300,000}{1 + 1,300,000\,(0.05)^2} = 399$$

n=399

Therefore, the sample required for this study is 399 participants.

3.3 Study instruments

As mentioned before, the researcher will use SERVQUAL model to measure service quality gap and evaluate patients' satisfaction factors in each dimension. It was a pre-tested and standardized, reliable instrument that identifies five different dimensions of service quality (Rohini and Mahadevappa, 2006).

From the thorough reviews from previous studies, literature and expert consultation, a well-structured questionnaire was developed. This questionnaire consists of three parts -

1. Demographic variables that are patients' general characteristics (age, sex, education, household income, no: of hospital visits in one year, Hospital wards)

2. Independent variables that include a 22-item scale each for expectations and perceptions. The questionnaires are well structured and include a five point likert scale. Five SERVQUAL model dimensions were initially developed by (Parasuraman A, 1991).

The set of modified SERVQUAL questionnaires have been used in hospital context by many researches all around the world. (Babakus and Mangold, 1992; Prabhakar (2014), Peprah, A. A., & Atarah, B. A. (2014), Meesala, A., & Paul, J. (2018), Sohail, M. S. (2003), Zarei, A., Arab, M., Froushani, A. R., Rashidian, A., & Tabatabaei, S. M. G. (2012)

3. Five point likert scale to ask about Patients' Satisfaction.
   Total 33 questions will be conducted.

3.4 Data Collection

Firstly, research has to send the official permission letter to the head administration of Thingangyun Sanpya Hospital to conduct the questionnaires and research with brief description of research objective and research process with sample questions.

After getting the permission, well-structured questionnaires with paper document forms will be conducted in four main wards which are medical ward, general surgical ward, Gynecology ward and pediatric ward of the hospital. The respondents will be selected by using simple random techniques from each ward. The researcher will deliver the questionnaires through personal contact. Informed written consent will be attached with questionnaires.

The answered documents will be transformed and saved in an electronic file as an excel file and put in SPSS software.

3.5 Data calculation method

3.5.1 Satisfaction by gap model

The difference between perceptions (P) and expectations (E) (P − E = SQ) represents service quality. When SQ is negative, it can be concluded as patients' dissatisfaction. Vice Versa, when SQ is positive, patients' perceived service quality are greater than their expectations and leads to patients' satisfaction. Paired sample t-test will be used to calculate mean score of each expectation and perception, and to detect which dimensions have the greatest gap.

3.5.2 Correlation analysis

It will be applied to detect the relationship of the variables to each other. In correlation analysis, correlation coefficient (r) explains the level of correlation between the variables and to detect a significant relationship between each dimension and satisfaction.

3.5.3 Multiple linear regression analysis

It will be used to examine how multiple independent variables (demographic factors and five service dimensions) are related to one dependent variable (patients' satisfaction) and to predict the outcome of independent variables. P value < 0.05 will be considered as statistically significant.
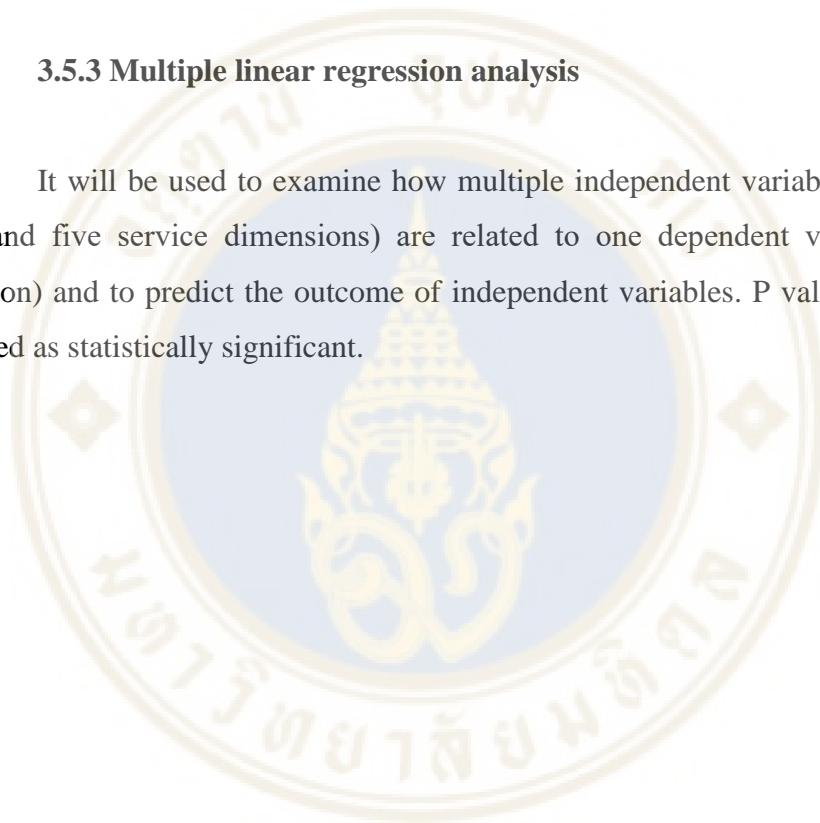
CHAPTER IV
DATA ANALYSIS AND RESULTS

This chapter is to analyze the data collected in Thingangyun Sanpya public hospital, Yangon, Myanmar. The researcher conducted the survey and there were 30 examples of respondents to test the reliability and 204 respondents for data analysis.

4.1 Reliability Test

Reliability can be defined as the ability of the instrument to provide consistent results when used many times. To test the reliability of the data, the researcher conducted 30 examples of respondents. To check the results empirically, appropriate reliability tests were undertaken. The researcher will use Cronbach's alpha, which is used to measure the internal reliability coefficient. All questionnaires (total 49) in this study showed the value exceeded a threshold of 0.70, which is a good reliability score.

Table 4.1 Reliability Status

Cronbach's Alpha	N of items
0.959	49

4.2 Demographic profiles

Demographic factors such as the age, gender, and educational level of the participants are important in order to detect the relationship with these factors and patients' satisfaction.

Table 4.2 Statistics

		Gender	Age Interval	Education Status	Average household income per month for	No. of hospital in one year
N	Valid	204	204	204	204	204
	Missing	0	0	0	0	0

Table 4.3 Gender

	Frequency	Percent
Male	96	47.1
Female	108	52.9
Total	204	100.0

47.1%of respondents are male and 52.9% of respondents are female, so both genders responded in quite similar numbers

Table 4.4 Age Interval

	Frequency	Percent
Below 20	13	6.4
21 to 29	87	42.6
30 to 39	67	32.8
40 to 49	18	8.8
50 to 59	10	4.9
60 and above	9	4.4
Total	204	100.0

42.6% of respondents are from the age interval between 21 to 29 years, and it is the most responsive age interval. Age interval 30 to 39 is the second responsive group of this survey.

Table 4.5 Education Status

	Frequency	Percent
Primary School	12	5.9
Middle school	49	24.0
High School	82	40.2
Bachelor Degree	52	25.5
Master Degree	9	4.4
Total	204	100.0

The majority of the respondents are high school education level and it is about 40.2%. Only 25.5% is bachelor degree and 4.4% is Master Degree, the rest 70.1% are under high school level. It could be said that most of the respondents have quite poor education levels.

Table 4.6 Average household income per month

	Frequency	Percent
Below 300,000 MMK (below $200)	115	56.4
300,001 to 500,000 MMK ($201 to $333)	39	19.1
500,001 to 700,00 MMK ($334 to $466)	22	10.8
700,001 to 900,000 MMK ($467 to $600)	11	5.4
Above 900,001 MMK (above $601)	17	8.3
Total	204	100.0

The majority of the respondents are 56.4% whose household income per month is below 200$. The second most responsive group is 19.1% whose household income per month is between 201$ to 333$.

Table 4.7 No. of hospital visits in one year

	Frequency	Percent
1 Time	134	65.7
2 Times	45	22.1
3 Times	10	4.9
4 Times and above	15	7.4
Total	204	100.0

It shows that 65.7% of respondents are a major responsive group who have come to the hospital 1 time in a year.

Table 4.8 Disease Category (Hospital Ward)

	Frequency	Percent
Medical Ward	59	28.9
General Surgical Ward	61	29.9
Obstetrics and Gynecology Ward	46	22.5
Pediatric Ward	24	11.8
Others	14	6.9
Total	204	100.0

The majority of respondents are 29.9% and those are admitted at General Surgical Ward, and 2nd most responsive groups are patients from the Medical ward (28.9%).

4.3 The gap-model analysis of expectation and perception

The following table provides the mean scores of each questionnaire and mean gap score difference between the expectations and perceptions. Pair samples t-test for each dimension was used to check the significant differences.

Table 4.9 Attribute with mean score of perception, expectation and the gap

Dimension and items	Mean Perception Score	Mean Expectation Score	Mean Gap Score
Tangible	**3.83**	**3.61**	**+0.22**
The Hospital has modern-looking equipment	3.76	3.51	+0.25
The Hospital has visually appealing facilities	3.76	3.55	+0.21
Doctors and other employees have a professional appearance	4.15	3.92	+0.23
The Hospital has appealing environment and materials associated with the service	3.65	3.47	+0.18
Reliability	**4.07**	**3.93**	**+0.14**
The Hospital provides the services as promised	4.02	3.89	+0.13
It maintains error free records	4.01	3.89	+0.12

Table 4.9 Attribute with mean score of perception, expectation and the gap (Cont.)

It performs the service right the first time	4.07	3.94	+0.13
The doctor gives enough time to consult and examine the patients	4.19	4.02	+0.17
Responsiveness	**4.01**	**3.86**	**+0.15**
Doctors and other employees offer prompt services to patients	3.91	3.75	+0.16
Doctors and other employees are willing to help patients	3.96	3.88	+0.08
Hospital employees always inform the patients exactly when services will be performed	4.15	3.99	+0.16
The doctors and nurses explain well about the nature of diseases and possible treatment options	4.03	3.88	+0.15
Assurance	**4.01**	**3.88**	**+0.13**
The hospitals are promptly able to handle patients problems	3.96	3.86	+0.1
Doctors and other employees are able to instill confidence in patients	4.13	3.97	+0.16
I feel safe in interactions with hospitals healthcare employees	4.04	3.91	+0.13
Doctors and other employees are courteous at all times	3.98	3.83	+0.15
Doctors and other employees have knowledge to answer questions from patients.	3.95	3.81	+0.14
Empathy	**4.14**	**3.93**	**+0.21**

Table 4.9 Attribute with mean score of perception, expectation and the gap (Cont.)

Doctors and other employees are polite and friendly dealing with patients	4.16	3.93	+0.23
Doctors and other employees have individualized attention to patients	4	3.74	+0.26
Doctors and other employees are able to understand specific needs of patients	4.07	3.88	+0.19
The Hospital provides convenient consultation hours	4.26	4.09	+0.17
Doctors are dealing with patients with their ultimate care	4.22	4.01	+0.21

The gap score is used to show the difference between the patients' expectation and perception about the service quality dimensions and reveals all dimensions used in the study are positive. The mean scores of perceptions of the dimensions are higher than that of expectations. This shows that the perception of patients on service quality has exceeded the initial expectation. The positive gap score can be concluded that the patients are satisfied in every dimension employed in this research.

4.4 Findings

The findings showed that Tangibility dimension is the highest mean gap score which is +0.22. The physical appearance factor such as (The Hospital has modern-looking equipment, The Hospital has visually appealing facilities, the appearance of the doctors and other employees are professional) are the highest score. When compared with other dimensions, those gap scores are generally higher and suggest that patients in Myanmar are satisfied with the physical appearance of the medical facilities (Tangibility dimension of service quality).

The 2nd highest gap is Empathy (gap mean score = +0.21) and it is not a considerable difference between Tangibility and Empathy dimensions. One of the empathy dimensions (Doctors and other employees have individualized attention to patients) is the highest gap score (+0.26) among other dimensions.

Another three dimensions, Responsiveness, Reliability and Assurance also showed that their gap scores are +0.15, +0.14 and +0.13 orderly. Since all gap scores of five dimensions are positive, it implies that the respondents have a relatively low expectation on the service quality of the public hospitals in Myanmar, and they are generally satisfied with the perceived service quality of the hospital.

4.5 Linear Regression Analysis

The regression will be applied to measure a strength of relationship between the independent variables and a dependent variable. Therefore, the data from perception sides will be applied to make linear regression analysis. The following table is to show descriptive statistics of perceived quality describing mean and standard deviation.

Table 4.10 Descriptive Statistics of perceived service quality

	Mean	Std. Deviation	N
Satisfaction	4.0216	.93214	204
Tangible	3.8309	1.03460	204
Reliability	4.0711	.87478	204
Responsive	4.0098	.96708	204
Assurance	4.0127	.93978	204
Empathy	4.1412	.83358	204

Before using the linear regression method, a correlation analysis was conducted to check the associations among the independent variables, and the associations between the independent variables and the dependent variable. In correlation analysis, the values of multiple correlation coefficients (R) must be ranged between -1 and +1. The value of +1 can be reflected as a perfect positive association and -1 can be reflected as a perfect negative association. The value zero represents that there is no association.

According to Table (4.11), Pearson correlation value for all five dimensions showed that there is a strong positive relationship between patients' Satisfaction and each dimension, Tangible, Reliability, Responsive, Assurance and Empathy dimension as r values of all dimensions are above 0.7 except reliability dimension (0.686) which is also close to 0.7. Moreover, all independent variables are also highly correlated with each other.

According to correlation analysis, it supported the research Hypotheses;

H1a: The Tangibility and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.

H1b: The Reliability and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.

H1c: The Responsiveness and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.

H1d: The Assurance and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.

H1e: The Empathy and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.

Table 4.11 Correlations between each variable

		Satisfaction	Tangible	Reliability	Responsive	Assurance	Empathy
Pearson Correlation	Satisfaction	1.000					
	Tangible	.712	1.000				
	Reliability	.686	.834	1.000			
	Responsive	.734	.825	.861	1.000		
	Assurance	.807	.826	.845	.900	1.000	
	Empathy	.724	.780	.818	.808	.870	1.000
Sig. (1-tailed)	Satisfaction	.	.000	.000	.000	.000	.000
	Tangible	.000	.	.000	.000	.000	.000
	Reliability	.000	.000	.	.000	.000	.000
	Responsive	.000	.000	.000	.	.000	.000
	Assurance	.000	.000	.000	.000	.	.000
	Empathy	.000	.000	.000	.000	.000	.
N	Satisfaction	204	204	204	204	204	204
	Tangible	204	204	204	204	204	204
	Reliability	204	204	204	204	204	204
	Responsive	204	204	204	204	204	204

Table 4.11 Correlations between each variable (Cont.)

	Assurance	204	204	204	204	204	204
	Empathy	204	204	204	204	204	204

Based on the findings, each variable is highly correlated with each other and it leads to multicollinearity problems between each variable.

Table 4.12 Model Summary for multiple linear regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.812a	.660	.651	.55035	.660	76.871

According to the summary of linear regressions, R is the correlation between the predicted values and the observed values of patients' satisfaction. Since R has a value of 0.812 and positive, it showed that there is a positive linear relationship between patients' satisfaction constraints and patients' satisfaction. R squares indicated how much of the total variation in the dependent variable, patients' satisfaction, can be explained by the independent variables. On the other hand, the higher the R2, the more explanatory the linear model is, the better it fits the sample. In this study, the value of R Square (coefficient of determination) is equal to 0.66. Thus, approximately 66% of total variation in patients' satisfaction can be explained by five dimensions of service quality.

In an analysis of ANOVA as shown in the table (4.13), there was a significant linear relationship between the overall service quality dimensions and patients' satisfaction

as the p-value is 0.000, indicating that the factors overall significantly influenced patients' satisfaction. This can explain the research hypotheses H1.

Table 4.13 ANOVA[a] table for multiple linear regression

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	116.414	5	23.283	76.871	.000[b]
	Residual	59.971	198	.303		
	Total	176.385	203			

a. Dependent Variable: Satisfaction

b. Predictors: (Constant), Empathy, Tangible, Responsive, Reliability, Assurance

A coefficient table is another way of analysis to describe the relationship between five service quality dimensions and patients' satisfaction. Based on the significant (Sig.) column in the table below, only the p-value of Assurance dimension is less than 0.05 whereas the p-value for Tangible, Reliability, Responsiveness and Empathy are more than 0.05. This indicates that only the Assurance dimension has significant relationships with patients' satisfaction.

Table 4.14 The Coefficients[a] table for multiple linear regression

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.776	.204		3.804	.000
	Tangible	.146	.076	.162	1.930	.055
	Reliability	-.097	.101	-.091	-.958	.339
	Responsive	.011	.103	.011	.102	.919
	Assurance	.665	.116	.671	5.756	.000
	Empathy	.089	.100	.080	.898	.371

Table 4.15 The values of VIF for each variable in multiple linear regression

Model		Correlations			Collinearity Statistics	
		Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)					
	Tangible	.712	.136	.080	.243	4.110
	Reliability	.686	-.068	-.040	.190	5.257
	Responsive	.734	.007	.004	.150	6.650
	Assurance	.807	.379	.239	.126	7.907
	Empathy	.724	.064	.037	.217	4.611

a. Dependent Variable: Satisfaction

By using multiple linear regression analysis, according to the value of unstandardized coefficients (Beta), only the Assurance dimension showed the highest value (0.665) and positive sign among other dimensions. This indicates that the Assurance dimension has a statistically significant impact on patient's satisfaction and direction of relationship is positive. The rest of four dimensions showed no significant relationship to patients' satisfaction in this analysis.

However, when VIFs numbers were checked to identify which variables are affected by multicollinearity, it indicates that the analysis model has severe multicollinearity issue for some of the independent variables because VIFs of the three variables, Reliability, Responsiveness and Assurance, are greater than 5. The multicollinearity issues represent that the coefficients are poorly estimate and p-values are

questionable, but it does not influence the predictions, precision of the predictions, and the goodness-of-fit, therefore, each variable will be analyzed by using simple linear regression.

Table 4.16 Simple Linear Regression for Tangible Dimension (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.712[a]	.506	.504	.65661	.506	207.112

a. Predictors: (Constant), Tangible

Table 4.17 Simple Linear Regression for Tangible Dimension (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.295	1	89.295	207.112	.000[b]
	Residual	87.091	202	.431		
	Total	176.385	203			

a. Dependent Variable: Satisfaction

b. Predictors: (Constant), Tangible

Table 4.18 Simple Linear Regression for Tangible Dimension (Coefficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.566	.177		8.860	.000
	Tangible	.641	.045	.712	14.391	.000

a. Dependent Variable: Satisfaction

In this model, the value of R square is (.506) and it indicates 50.6% of the total variation in the dependent variable, patients' satisfaction, is fit for simple linear regression. In ANOVA table, the p-value (0.000) shows that the regression model statistically significantly and predicts the outcome variable that is patients' satisfaction. The p-value (0.000) in the coefficients table also shows that the tangible factor is statistically significant and has a beta B value of 0.641.

Table 4.19 Simple Linear Regression for Responsive Dimension (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.734[a]	.539	.537	.63442	.539	236.232

a. Predictors: (Constant), Responsive

Table 4.20 Simple Linear Regression for Responsive Dimension (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	95.082	1	95.082	236.232	.000[b]
	Residual	81.303	202	.402		
	Total	176.385	203			

a. Dependent Variable: Satisfaction

b. Predictors: (Constant), Responsive

Table 4.21 Simple Linear Regression for Responsive Dimension (Coefficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.184	.190		6.235	.000
	Responsive	.708	.046	.734	15.370	.000

a. Dependent Variable: Satisfaction

In this model, the value of R square is (.539) and it indicates 53.9% of the total variation in the dependent variable, patients' satisfaction, is fit for simple linear regression. In ANOVA table, the p-value (0.000) shows that the regression model statistically significantly and predicts the outcome variable that is patients' satisfaction. The p-value (0.000) in the coefficients table also shows that the responsiveness factor is statistically significant and has a beta B value of 0.708.

Table 4.22 Simple Linear Regression for Reliability Dimension (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.686[a]	.470	.467	.68026	.470	179.162

a. Predictors: (Constant), Reliability

Table 4.23 Simple Linear Regression for Reliability Dimension (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	82.908	1	82.908	179.162	.000[b]
	Residual	93.477	202	.463		
	Total	176.385	203			

a. Dependent Variable: Satisfaction

b. Predictors: (Constant), Reliability

Table 4.24 Simple Linear Regression for Reliability Dimension (Coefficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.047	.227		4.609	.000
	Reliability	.731	.055	.686	13.385	.000

a. Dependent Variable: Satisfaction

In this model, the value of R square is (.470) and it indicates 47% of the total variation in the dependent variable, patients' satisfaction, is fit for simple linear regression.

In ANOVA table, the p-value (0.000) shows that the regression model statistically significantly and predicts the outcome variable that is patients' satisfaction. The p-value (0.000) in the coefficients table also shows that the reliability factor is statistically significant and has a beta B value of 0.731.

Table 4.25 Simple Linear Regression for Assurance Dimension (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.807[a]	.651	.649	.55188	.651	377.135

a. Predictors: (Constant), Assurance

Table 4.26 Simple Linear Regression for Assurance Dimension (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	114.863	1	114.863	377.135	.000[b]
	Residual	61.522	202	.305		
	Total	176.385	203			

a. Dependent Variable: Satisfaction

b. Predictors: (Constant), Assurance

Table 4.27 Simple Linear Regression for Assurance Dimension (Coefficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	.810	.170		4.767	.000
	Assurance	.800	.041	.807	19.420	.000

a. Dependent Variable: Satisfaction

In this model, the value of R square is (.651) and it indicates 65.1% of the total variation in the dependent variable, patients' satisfaction, is fit for simple linear regression. In ANOVA table, the p-value (0.000) shows that the regression model statistically significantly and predicts the outcome variable that is patients' satisfaction. The p-value (0.000) in the coefficients table also shows that the assurance factor is statistically significant and has a beta B value of 0.800.

Table 4.28 Simple Linear Regression for Empathy Dimension (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.724[a]	.524	.522	.64446	.524	222.689

a. Predictors: (Constant), Empathy

Table 4.29 Simple Linear Regression for Empathy Dimension (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	92.489	1	92.489	222.689	.000[b]
	Residual	83.896	202	.415		
	Total	176.385	203			

a. Dependent Variable: Satisfaction

b. Predictors: (Constant), Empathy

Table 4.30 Simple Linear Regression for Empathy Dimension (Coefficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.668	.229		2.916	.004
	Empathy	.810	.054	.724	14.923	.000

a. Dependent Variable: Satisfaction

In this model, the value of R square is (.524) and it indicates 52.4% of the total variation in the dependent variable, patients' satisfaction, is fit for simple linear regression. In ANOVA table, the p-value (0.000) shows that the regression model is statistically significant and can predict the outcome variable that is patients' satisfaction. The p-value (0.000) in the coefficients table also shows that the empathy factor is statistically significant and has a beta B value of 0.810.

Table 4.31 Summarized table for simple linear regression model of each dimension

Dimension	Model Summary		Unstandardized Coefficients	
	R	R^2	B	Sig
Simple Linear Regression of Tangibility → Patients' Satisfaction	.712	.506	.641	0.000
Simple Linear Regression of Responsiveness → Patients' Satisfaction	.734	.539	.708	0.000
Simple Linear Regression of Reliability → Patients' Satisfaction	.686	.470	.731	0.000
Simple Linear Regression of Assurance → Patients' Satisfaction	.807	.651	.800	0.000
Simple Linear Regression of Empathy → Patients' Satisfaction	.724	.524	.810	0.000

According to Simple Linear Regression, the Assurance model yields the highest value of R^2 and nearly 65.1% of total variation of dependent variable can be explained. It is the most suitable model for analysis, and moreover it shows that it is the most significant impact on patients' satisfaction among all dimensions in multiple linear regression.

Based on the findings, since p values of all dimensions are <0.05 and coefficients Beta values are positive and considerably high in value, all five dimensions of service quality are significant in explaining patients' satisfaction.

Table4.32 Hypotheses Results

Name	Hypothesis	Significance P<0.05	Direction of relationship	Result
H1a	The Tangibility and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.	Yes	Positive	Supported
H1b	The Responsiveness and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.	Yes	Positive	Supported
H1c	The Reliability and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.	Yes	Positive	Supported
H1d	The Assurance and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.	Yes	Positive	Supported
H1e	The Empathy and Patients' Satisfaction in a public hospital in Myanmar have a significant relationship between each other.	Yes	Positive	Supported

CHAPTER V
CONCLUSION AND RECOMMENDATION

This research was developed by using five core dimensions of service quality (SERVQUAL) which consists of Tangibility, Reliability, Responsiveness, Assurance and Empathy. The objective of this study is to find the service gap between the expectation and perceptions of the service quality in the context of a public hospital in Myanmar, named Thingangyun Sanpya General Hospital, located in Yangon city. Besides, this research also aims to find the dimensions of service quality which impacts the patients' satisfaction mostly and relationship between those dimensions and patients' satisfaction. During one month of delivering the questionnaires, a total of 204 participants responded. In terms of research result evaluation, analysis by using the Gap model between expectation and perception of the service quality, Correlation Analysis and Linear Regression Analysis were used for data analysis.

5.1 Conclusion and Discussion

From 204 respondents, 96 are male and 108 are female. The majority of the respondents' age is 21 to 39 years old, which accounted for 75.4% of respondents. The rest are below 20 years old and age over or equal 40 years old. The majority of the respondents' education level is below or equal to the high school level which accounted for 70.1% and the rest are Bachelor and Master degree 29.9%. It is important to note that people with relatively low education levels mainly rely on the public hospitals in Myanmar. For the household income level of the respondents, the majority are below 500,000 MMK (333US $) per month accounted for 75.5%.

According to Demographic data, the majority of respondents are people who are reliable upon the government hospitals where the medical expenses such as doctors' fees, specialist fees, operating charges, some lab tests and imaging services are free of charge and some medications are co-payment systems. Therefore, the majority of respondents seem to be general workers who have low income and below high school level education status.

5.1.1 Assessing the difference between Expectation and Perception

Among the five service quality dimensions, the mean score for patients' perception on Empathy is the highest which is 4.14. It could explain that the behavior and communication of healthcare providers with the patients are polite and friendly. They do care with their ultimate respect and consider for the patients' convenience. Moreover, the fact "the hospital can provide convenient consultation hours for the patient" is supported as the mean score is the highest among others.

According to the findings, as shown in the following table 5.1, all the gaps between the perception and expectation on service quality dimensions showed positive scores in all dimensions. The mean perception score exceeds the mean expectation score and it can explain that the patients are satisfied with perceived service quality.

As the tangibility dimension is the highest positive gap score (+0.22) and the respondents have lowest mean expectation score (3.61) among other dimensions, especially on the physical features of healthcare facilities, such as the buildings, the equipment and physical appearance of the healthcare staffs because they believed that most of the public hospitals are too old and poor maintenance. The second highest positive gap score is the Empathy dimension and it also showed that the respondents are low expectation especially in the caring style and individualized attention of the healthcare providers and the perceived service quality exceeds the expectation. Therefore, they are satisfied in this dimension as well. The third, fourth, fifth positive gap scores are responsiveness, reliability and the assurance dimension respectively. It suggested that people did not have high expectations

on public hospitals in Myanmar and give a positive gap score when receiving the actual service.

Increasing the number of outbound medical tourists within the last decade showed that people in Myanmar have low confidence in Myanmar healthcare sector and that's why they have low expectation on public hospitals. But after they received the medical services, they perceived the service quality of the public hospitals better than expected.

It could be another reason that Myanmar patients perceive the quality of service positively regardless of the actual service received.

Table 5.1 Gap score of each service quality dimension (Perception - Expectation)

Dimension	Gap Score
Tangibility	+0.22
Reliability	+0.14
Responsiveness	+0.15
Assurance	+0.13
Empathy	+0.21

This finding is contrary to the previous research conducted at Out-Patient Department clinic in Yangon General Hospitals (Ni, E. N., 2016). It described that there were statistically significant negative service gaps in four dimensions tangibility, responsiveness, reliability and empathy and revealed that the service quality at OPD clinics was low in the healthcare delivery process. The Responsiveness shows the largest service gap with mean score difference of (- 2.375).

The gap scores results are contrary to the previous research which were conducted in India by Hariharan *et al.* (2004). He conducted the research in both public and private hospitals by using SERVQUAL measure and suggesting that healthcare is a relatively more complex industry and it is different from other industries in terms of its unique characteristics. Besides, there are too many dimensions which can be used to measure and impossible to be fitted into a single unit. Therefore, for the patients, it is difficult to evaluate the healthcare service quality accurately.

The current findings agree with the previous research in the context of Malaysia private hospitals conducted by Sohail, M. S. (2003), in which the mean scores of perception have exceeded the expectations for all dimensions examined and indicates the positive gap score. Therefore, the respondents have a comparatively low expectation in healthcare services even in private hospitals.

When compared to the previous research conducted in Hong Kong healthcare context (Lam, 1997), there are many differences. It showed that the gap scores of reliability, responsiveness, assurance, and empathy are all negative and can be concluded that the patients in Hong Kong had expected the service quality to be good. Those findings are contrary to the current finding.

Moreover, when compared with previous study in the context of public hospitals in Turkey conducted by Taner, T., & Antony, J. (2006), the gap scores of all dimensions are negative and suggest that people in Turkey are high expectation in service quality even in public hospitals.

5.1.2 Service Quality Dimensions

According to correlation analysis, the dimensions are positively correlated with each other. It can be concluded that the effect of one dimension also depends on another. Since there is multicollinearity issue between each independent variable, simple linear regression was used to analyze.

The findings explain the research objective which patients' satisfaction depends mainly on the Assurance dimension as it is the most significant dimension for patients' satisfaction. It indicates that patients trust the healthcare providers at the government hospitals in terms of proficiency and skillfulness. They also believe that the healthcare providers can handle the patients' problems and feel confident in taking medical services from the healthcare providers. They would like to believe that their healthcare providers look knowledgeable and trustworthy. The fact such as the manners and behaviors of the doctors and other employees, the interactions with the patients also seem to be important in patients' satisfaction.

It also implied that the human elements such as interpersonal relationships have higher importance than non-human elements such as physical appearance of the hospitals, modernized looking equipment etc. It agrees with the previous study conducted in Malaysia (Suki et al., 2009).

The findings can explain the other research objectives which is that all dimensions, Tangibility, Reliability, Responsiveness, Assurance, Empathy, have a significant impact on patients' satisfaction. Healthcare is a complex industry and not a single dimension can measure the service quality. Therefore, all dimensions are important for patients' satisfaction. Not only intangible factors such as human interaction, attitudes, skill and knowledge of the healthcare providers but also physical factors such as physical appearance of the facilities and healthcare personal make the patients feel satisfied.

The responsiveness of the healthcare providers can be determined by the actual patients' experience during receiving the healthcare services, which confirms or disconfirms their initial expectations. The finding also suggested that Responsiveness factors such as prompt service, helpfulness, good explanation of the diseases and clear information of the treatment plan by healthcare providers are important factors in determining the service quality of the hospitals. Although the strength of importance is comparatively lower than the assurance dimension, it does not imply that it should be ignored in hospitals' quest to improve the service quality. Moreover, the findings also

reflect that patients would like to have the positive interrelationship with the healthcare providers

Another factor, empathy dimension, is also important in determining the patients' satisfaction. The healthcare providers' communication style, behaviors, individualized attention to the patients, and providing patients' centered care are important key factors to be satisfied.

People determined that the Tangibility dimension such as aesthetics of medical facilities, clean and good environment can increase their experience and it also helps to evaluate the quality of the other dimensions in a way that they are first visually attractive factors before interaction with the healthcare providers when receiving medical services. But the tangibles factors are less important determinants than the assurance, the responsiveness and the empathy dimension. They are not so important in the healthcare delivery process but are related more to service performance.

The Reliability factor is also significant for patients' satisfaction, but least important than other dimensions. In this factor, the respondents refer to their concern about providing error free records, giving the medical services as promised, the timing and reliability of the healthcare providers are the main facts to be satisfied. In other words, it reflects the positive interrelationship between healthcare providers and the patients.

5.2 Managerial Implications

The healthcare industry in Myanmar is growing from time to time. The growth of the public sectors becomes fast and the policy makers should know the current status of public hospitals especially the service quality. The findings include demographic data, behavior and opinions and satisfaction on service quality which help them to identify the dimensions that should be improved in order to provide the healthcare services and it will reflect patients' perspective of existing service quality. Understanding the patients'

perception of the service quality can benefit the hospital managers and policy makers in making the decision of the healthcare delivery system.

From the demographic findings, the majority of the patients in public hospitals are the relatively lower socioeconomic people and they rely mainly on the government hospitals where the costs of treatments are relatively low and most of the expenses are from the government subsidies. The cost of medical care should be as low as possible so that low income families can access the healthcare service equally throughout the nation.

From the gap score model, the perception of all the attributed dimensions have exceeded expectations, implying that patients are satisfied with the existing service quality in public hospitals. But however, the findings must be treated with cautions because people's expectations of healthcare services are likely to change with time.

Surprisingly, patients have highest expectation mean score on the fact "The hospital provides convenient consultation hours" which is 4.09 and the second highest expectation mean score on the fact "The doctor gives enough time to consult and examine the patients". Therefore, they are concerned a lot in the consultation time with the service providers. The healthcare managers should emphasize on this matter by planning the convenience OPD day for general workers and make a standard and enough consultation time for each particular case in order to build good interactions and relationships between the providers and the patients.

The fact "The Hospital has an appealing environment and materials associated with the service" is the lowest perception mean score among all the statements. They perceived that the physical appearance of the hospitals and facilities are not quite modernized and physically not good looking. Most of the public hospitals were built a long time ago and need continuous maintenance and repair along with the highest utilization. Therefore, the healthcare managers should emphasize not only on the applicability and capability but also on the physical appearance of the healthcare organization including building, infrastructure, medical equipment and device etc. to be good looking and visually attractive.

Moreover, the assurance dimension is the most important dimension for satisfaction. The policy makers and healthcare managers should implement the quality assurance evaluation program for every healthcare provider to check whether they are qualified or not, before they are assigned to work at the public hospitals. The program evaluates the candidates and will allow them to work for the one who passes the quality assurance assessment test. Moreover, the government policy makers should evaluate the healthcare providers continuously and provide the continuous training on the knowledge and skills for those who need it so that they will become competent and professional. By doing so, the patients feel confident in their providers who are trustworthy and reliable.

In the Assurance dimension, the confidence in healthcare providers is one of the attributions and is very important for patient's satisfaction since it can improve their experiences with healthcare providers. Therefore, in order to instill the confidence in the doctors, the soft skills such as communication with the patients, social interaction, personality and attitudes are required to implement in the medical university curriculum as one course along with the technical or clinical skill and knowledge.

All dimensions are positively correlated with each other and all have a significant impact on patients' satisfaction. Therefore, the healthcare managers and doctors should systematically make assessments and try to improve all dimensions of the service quality equally in the healthcare delivery process, and in turn improve the patients' satisfaction. From this research finding, healthcare managers should make a plan to manage perceptions throughout the entire duration of a patient journey to instill trust, respect, and confidence.

5.3 Research Limitations

This study was conducted in only one public hospital in Myanmar. It does not represent all public hospitals in Myanmar. Moreover, the study was conducted in a certain period of time and received only 204 respondents. The bigger sample and sufficient time

are recommended for future research. Additionally, this research was conducted by using only quantitative methods.

Moreover, the majority of the respondents (80%) are young patients who are below 39 years of age and hence, this study findings were based on the perspectives of young patients. Therefore, for the future research, it is better to collect data from random samples to generalize the results of the survey to the population as a whole.

5.4 Recommendation for Future Research

In order to get a complete and accurate vision of healthcare service quality in public hospitals in Myanmar, the sample size should be larger enough to avoid multicollinearity issues and also to give out the most accurate analysis. Therefore, the researcher would like to recommend future research which should be conducted in other public hospitals in Myanmar.

While providers' attitudes and opinions were not undertaken, qualitative methods should be used to address the research objective and to understand the insight based on the personal perspective of different stakeholders involved in the healthcare delivery process in the public hospital.

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APPENDICIES

Appendix A: Certificates of Authenticity (COA)

Institutional Review Board, Institute for Population and Social Research, Mahidol University (IPSR-IRB)

Established 1985

COA. No. 2020/03-116

Certificate of Ethical Approval

This is to certify that the Institutional Review Board, Institute for Population and Social Research, Mahidol University, has granted an Ethical Approval to the research project entitled *"Assessing Patients' Satisfaction by Measuring Service Quality in Public Hospital in Myanmar"* submitted by Mr. Mon Myat Min from the College of Management. The duration of this project is from April to June 2020.

By this approval, the Principal Investigator of this project is obliged to:

1) Provide progress report to IPSR-IRB every twelve months from the start of the project;
2) Report to IPSR-IRB any changes in the project plan, especially those changes that may put research participants at risks;
3) Promptly notify IPSR-IRB any adverse events that occur during the project execution; and
4) Provide research completion report at the end of the project.

This COA is given on 25 June 2020 and valid through 24 June 2021.

Signature

(Professor Emeritus Pramote Prasartkul)
Chairman, IPSR-IRB

IORG Number: IORG0002101; FWA Number: FWA00002882; IRB Number: IRB0001007

Office of the Institutional Review Board, Institute for Population and Social Research, Mahidol University (IPSR-IRB),
Phuttamonthon 4 Rd., Salaya, Phuttamonthon district, Nakhon Pathom 73170. Tel (662) 441-0201-4 ext. 223

Appendix B: Questionnaire for the Study on Assessing Patients' Satisfaction by Measuring Service Quality in Public Hospital in Myanmar.

Date_____/_____/_____

My name is _____ aged _____years old, now living at the address no _____ Street _____ Sub-district _____ District _____ Province _____ Postal Code _____ Tel. No ____

I have read the statements in the information sheet for research participants. (Or, it was read to me by the research assistant who comes to meet me). I understand the research project's rationale and objectives, its procedural details, its expected benefits and potential risks/harms that may occur to the participants, including methods to prevent and handle harmful consequences. I have been given satisfactory explanations to my questions about this research.

I am aware of my right as a participant to decline answering any questions or to withdraw from participation at any time, if I want to, without any undesirable consequences on the welfare and services that I and my family may need.

I hereby express my consent to participate as a participant in the research project entitled **"Assessing Patients' Satisfaction by Measuring Service Quality in Public Hospital in Myanmar."**

I consent to the researchers' use of information obtained from me in this interview, but do not consent to disclosure of my name or identity that can be used to identify me as individual.

I thoroughly understand the statements in the participant information sheet and in this consent form. I hereby give my signature.

Signature _____

(Participant/ Proxy)_____

Date ____ / _____ /_____

APPENDIX

Part 1

Social demographic

Please check (Â) in the box according to your answer.

1.   Gender   ❑Male   ❑Female

2.   Age Interval

     ❑Below 20   ❑ 21-29   ❑ 30-39   ❑ 40-49   ❑ 50-59

     ❑ 60 and above

3.   Education status

     ❑ Primary school   ❑ Middle school   ❑ High school

     ❑ Bachelor degree

     ❑ Master Degree   ❑ PhD Degree

4.   Average household Income per month for

     ❑Below 300,000 MMK   ❑ 300,001-500,000 MMK

     ❑ 500,001-700,000 MMK   ❑ 700,001-900,000 MMK

     ❑ above 900,001 MMK

5.   No of hospital visits in one year

❏1 time   ❏2 times   ❏ 3 times

❏ 4 times and above

6.   Disease Category (Hospital Ward)

❏ Medical Ward   ❏ General Surgical Ward   ❏ Obstetrics and
Gynecology Ward

❏ Pediatric Ward ❏ Others _____

Part 2

Service Quality Dimensions

To what extent do you agree with each statement?

Please check (Â) in the box according to your degree of agreement on each statement for both situations, Expectation Part (before taking the services) and also check (Â) in Perception Part (after taking the services) by using the following scale 5 = strongly agree, 4 = agree, 3 = Moderate, 2 = Disagree, 1 = Strongly Disagree

There are no right or wrong answers—all we need to know is a number that truly reflects your feelings regarding the service quality of public hospitals in Myanmar.

Note: The headings (Tangible, reliability, etc.), shown here are to indicate which statements are under each dimension, and they were not included in the actual questionnaire.

No	Service Quality Dimensions	Expectation (Before taking services)					Perception (After taking services)				
		Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree
	Tangibles										
1	The Hospital has modern-looking equipment										
2	The Hospital has visually appealing										
3	Doctors and other employees have a professional										
4	The Hospital has appealing environment and materials associated with the service										
	Reliability										
5	The Hospital provides the services as promised										
6	It maintains error free										
7	It performs the service right the first time										
8	The doctor gives enough time to consult and examine the										
	Responsiveness										
9	Doctors and other employees offer prompt services to										
10	Doctors and other employees are willing to help patients										
11	Hospital employees always inform the patients										

12	The doctors and nurses explain well about the nature of diseases and possible treatment									
	Assurance									
13	The hospital is promptly able to handle patients' problems									
14	Doctors and other employees are able to instill confidence in									
15	I feel safe in interactions with hospitals healthcare employees									
16	Doctors and other employees are courteous at all times									
17	Doctors and other employees have knowledge to answer questions from patients.									
	Empathy									
18	Doctors and other employees are polite and friendly dealing									
19	Doctors and other employees have individualized									
20	Doctors and other employees are able to understand									
21	The Hospital provides convenient consultation									
22	Doctors are dealing with patients in a caring fashion									

Part 3 Satisfactions

Please check (Â) according to your satisfaction level for each statement by using the following scale

5 = very satisfied, 4 = satisfied, 3 = Neutral, 2 = Dissatisfied, 1 = very dissatisfied

Statements	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
I am satisfied with the overall experiences in the hospital.					
I am satisfied with the medical treatments which are successful.					
I am satisfied as the medical services have fulfilled my requirements					
I am satisfied with the overall performance of service provided by doctors, nurses and other employees.					
I will recommend the hospital to other people.					

Thank you for taking your valuable time to complete this survey