THE SERVICE QUALITY DIMENSION AND LEVEL OF SATISFACTION AMONG PATIENTS ATTENDING 1 MALAYSIA CLINIC IN KOTA BHARU, KELANTAN.

By

DR. AHMAD BADRURIDZWANULLAH BIN ZUN

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Contents

CHAPTER 1

INTRODUCTION

1.1   Malaysia Clinic

In Malaysia, 60% of public primary care services comprise of Public Health Clinic, Maternal and Child Health Clinic and Rural Health Clinic are located at rural area (Family Health Development Division, 2016). This is because, previously population in Malaysia were concentrated in rural area. However, for past 10 years, urbanization occurred drastically in Malaysia which leads to migration of people from rural area to the urban area. This subsequently can lead to health inequity caused by maldistribution of health service. Urbanization caused reshaping population health problems, particularly among the urban poor, towards non-communicable diseases, accidental and violent injuries, and deaths and impact from ecological disaster (Campbell and Campbell, 2007).

In order to overcome this issue, 1 Malaysia Clinic was first introduced on 23 October 2009 during National Budget 2010 presentation by Prime Minister Dato' Sri Mohd Najib Tun Abd Razak adaptation from 1 Malaysia Concept "People First, Performance Now". The objective of 1 Malaysia Clinic is to facilitate and extend the access of healthcare services to all nations especially among low income population in urban area.

In order to increase access to people, 1 Malaysia Clinic are located at concentrated dense urban population such as at flat area and housing area and usually use rental shop house. Besides that, operational time for 1 Malaysia Clinic is beyond normal office hour which is from 10 am until 10 pm. Because of that, in 2015, cumulative patient attendance to 1 Malaysia Clinics in whole Malaysia was 6,092,332 people. 1 Malaysia Clinic is categorized into 2 types: a) with Medical Doctor account for 20.35% (68/334) and b) without Medical

Doctor. By having Medical Doctor in 1 Malaysia Clinic, the service also is growing by providing Non Communicable Disease services and Maternal and Child Health services.

The existence of 1 Malaysia Clinic gives a positive impact on healthcare system in Malaysia. First, by having 1 Malaysia Clinic, the access to healthcare services among urban population was increase hence reducing burden for current Primary Health Clinic in urban area. Besides that, 1 Malaysia Clinic is a cost saving initiative in term of cost to build and operational cost compare to Health Clinic. According to (*Inovation Report on 72 Malaysia Clinics*, 2011), the cost to establish 1 Malaysia Clinic is RM 50k with operational cost is RM 250k compared to build one Health Clinic which cost RM 25 million with operational cost is RM 3 million per year. In this report also states that, about 83.3%   patient satisfied with waiting time and location of the clinic while 58.6% already received services between 2 to 10 times.

However, there are some issues regarding 1 Malaysia Clinic. The issue highlighted was most of this clinic are run by Medical Assistant which is violate Medical Act 1971(Act 50) eventhough Medical Assistant Act (Registration) 1977 allow Medical Assistant to give services and simple treatment under Medical Officer supervision. This becomes an issue when only 20.35% of 1 Malaysia Clinic have Medical Officer run the clinic, in which can supervise the Medical Assistant and this is follow Medical Assistant Act (Registration) 1977. However, most of 1 Malaysia Clinic did not have gazetted Medical Officer for the clinic and this cause an issue where Medical Assistant is not supervise and this violate both Medical Act 1971(Act 50) and Medical Assistant Act (Registration) 1977.

Second issue is the limited services provide in 1 Malaysia Clinic which only cover for minor illness and simple procedure. This can leads to dissatisfaction on the service provided because the services no dot meet customer expectation. Public were staying away as they

would rather go to other health facility which have more services and the doctor who could prescribe a wider range of medication and can issue medical certificate (Hasan, 2015).

1.2   Patient Satisfaction

Nowadays patient become central focus of healthcare delivery and it is very crucial in handling them because people more educated and critical about service quality than in the past. Studies of patient satisfaction in healthcare were originated in USA in the 1950s and throughout 1960s such studies done in UK. According to (Batchelor *et al.*, 1994) there is no agreed definition of concept of patient satisfaction because its multi-dimensional nature of satisfaction. According to Centre for the Study of Social Policy, satisfaction is a personal assessment of a costumer which is affected by both expectation and experience of customer (Chakraborty and Majumdar, 2011). Moreover (Kotler 2003) view patient satisfaction is feeling pleasure or displeasure regarding service offered by healthcare by comparing with their expectation. So that satisfaction will achieve when patients' perception of the quality service they received has been positive and meet their expectation. (Yunus *et al.*, 2013)

Rapidly rising standard of living and advancement in medical services lead to demand in quality of healthcare (Sharifa Ezat *et al.*, 2010). Patient satisfaction is a prime importance to quantify the competency of any healthcare. Patient satisfaction and healthcare quality are two important health outcome and quality measure (Chakraborty and Majumdar, 2011). Study on patient satisfaction should be done regularly to study about effectiveness of service provided because customer's need and want is always change based on environment. Patient's view become an important tool in process of monitoring and evaluating healthcare services which later an improvement can be carry out to give better quality of healthcare services.

Patient satisfaction may influence by past experience in use of health service, life style, individual value and level of knowledge (Batchelor *et al.*, 1994). Average lengthy waiting time, employee attitude and work process, heavy work load adequate facilities are issues highlighted in public healthcare services (Pillay et al 2011). Low patient satisfaction result in poor compliance which cause waste of resources and suboptimal clinical outcome In Malaysia, customer dissatisfaction still becomes an issue of healthcare service. There are still a lot of complaints from people regarding their dissatisfaction toward healthcare service mainly toward government health clinic.

1.3   Application of SERVQUAL Model

SERVQUAL is stand for Service Quality. This concept was developed by (Parasuraman *et al.*, 1988). This concept was originally developed to be used in the marketing sector. It is to measure service gaps based on the difference between expectation and perception of the customer based on five dimensions. SERVQUAL concept have ability to identify influence of various dimension towards customer overall satisfaction (Parasuraman *et al.*, 1994). Service Quality becomes a key determinant of customer satisfaction (Krishnamurthy *et al.*, 2010). The role of services quality is widely recognized as being the important determinant and success of an organization in competitive world.

In SERVQUAL concept, the five dimensions which are reliability, responsiveness, assurance, empathy and tangible will be identify based on customers' expectation and perception (Parasuraman *et al.*, 1988). Reliability means the ability to perform the promised services dependently and accurately. Responsiveness means willingness to help customer and provide prompt service. For assurance, it means knowledge and courtesy of employee and their ability to inspire trust and confident. While empathy means that caring and attention

given to customer and tangible is means a physical facilities, equipment and appearance of healthcare personnel.

According to (Mongkolrat and Pongpanich, 2009) there several benefit from SERVQUAL concept which are first, it is have ability to elicit customer view regarding service encounter. Secondly, SERVQUAL can identify specific area which is excellent and weak. Thirdly, it can give some idea which area needs to prioritize from weak services and can give input to management to overcome the weaknesses.

1.4   Demography of Kelantan

In state of Kelantan, Kota Bharu district is a capital city for Kelantan. Kota Bharu district have 15 sub districts under it named Kota Bharu, Kota, Panji, Kemumin, Lundang, Badang, Sering, Pendek, Limbat, Banggu, Salor, Beta, Kadok, Peringat and Ketereh. Population in Kota Bharu in 2015 was 564 400 peoples which is account for 33% from Kelantan total population. The distribution of peoples according to ethnicity was Malays 532 900 (94.4%), Bumiputera 2800 (0.5%), Chinese 24500 (4.34%), Indian 1900 (0.33%) and others is 2300 (0.4%). For the distribution according to gender, Kota Bharu District have almost equal number of male and female which is account 280 500 are male and 283 900 are female. Kota Bharu District has nine (9) 1 Malaysia Clinics until 31 December 2015. Most of these clinics are located only at six (6) sub district which are located near to the city area.

1.5   Rationale of Study

In Malaysia, customer dissatisfaction becomes issue of healthcare service throughout country. Eventhough numerous study done to assess level of patient satisfaction in government healthcare services, there are still almost every day issue regarding patient

complaint or dissatisfaction arise in the newspaper or now in the social media like a facebook.

1 Malaysia Clinic is the latest initiative by MOH to serve people in primary care setting which was introduce in January 2010. There might be some area that need for improvement which can be identify from this study by using SERVQUAL as an instrument which has five dimensions. So that, our healthcare system can improve and do the correction in any dimension which are weak. An organization also can put some allocation in giving better service quality to the customer.

Other than that, patient satisfaction can affect patient compliance and loyalty to the health services. Low patient satisfaction can result in poor compliance which later can lead to waste of resources and suboptimal outcome (Hazilah Abd Manaf *et al.*, 2012). So it is important for healthcare provider to ensure that patient is satisfied with the services. Besides that, patient nowadays becomes more educated and critical about quality service they going to receive. This will leads to higher expectation from the patient toward healthcare service. If healthcare service not doing anything to improve the quality of the system, this will cause expectation of the patient did not met and leads to dissatisfaction.

Because 1 Malaysia Clinic still new, there is limited study on patient satisfaction in 1 Malaysia Clinic setting. So, hope by this study, it can become as a baseline in patient satisfaction study for 1 Malaysia Clinic in the future.

1.6   Research question, research hypothesis and research objective

1.6.1 Research Question

1) What is the level of patient satisfaction among patient attended 1 Malaysia Clinic in Kota Bharu, Kelantan ?

2) Is there a significant difference between expectation and perception score of SERVQUAL dimension among patient attended 1 Malaysia Clinic in Kota Bharu, Kelantan ?

3) What are the associated factor influence level of patient satisfaction among patient attended 1 Malaysia Clinic in Kota Bharu, Kelantan ?

1.6.2 Research hypothesis

1) There is a significant difference between expectation and perception mean score of items in SERVQUAL dimension among patient attended 1 Malaysia Clinic in Kota Bharu, Kelantan.

2) There is an association between sociodemographic factor such as age, gender, level of education, income and frequency of visit with the level of patient satisfaction for 1 Malaysia Clinic in Kota Bharu, Kelantan.

1.6.3 General objective

- To study the level of patient satisfaction on service quality dimension and its associated factor among patient attended 1 Malaysia Clinic in Kota Bharu, Kelantan.

1.6.4 Specific objective

1) To determine level of patient satisfaction among patient attended 1 Malaysia Clinic in Kota Bharu, Kelantan.

2) To compare the difference of mean score between expectation and perception of the items in SERVQUAL dimension among patient attended 1 Malaysia Clinic in Kota Bharu, Kelantan.

3) To determine associated factor that influence level of patient satisfaction among patient attended 1 Malaysia Clinic in Kota Bharu, Kelantan.

CHAPTER 2

LITERATURE REVIEW

2.1   SERVQUAL concept and patient satisfaction

For the SERVQUAL concept, it is widely use in patient satisfaction study but need some modification to suit the environment (Chakraborty and Majumdar, 2011). Numerous study shown that SERVQUAL instrument are significant, reliable and suitable to analyze difference between patient preference and actual experience in healthcare setting (Ladhari, 2009; Pakdil and Harwood, 2005). According to (Chakraborty and Majumdar, 2011), using a SERVQUAL instrument to assess level of patient satisfaction will give close approximation to the true value of a patient's degree of satisfaction and this method is more valid and reliable compare to assessment based on single question on overall satisfaction.

SERVQUAL will be assess by measure the expectation of the customer and the same statement used to measure the perceived level of service offer by provider (Shahin and Samea, 2010). So that SERVQUAL help to value how well the organization meets the need and expectation of the customer by addressing the service gaps compare to assessment based on perception only which did not give true picture of the services provide (Mongkolrat and Pongpanich, 2009). Positive service gap for each dimension means customer is satisfy in

which their expectation are met or fulfill on that dimension while negative service gap indicating dissatisfaction where the service have not been completely fulfill (Parasuraman *et al.*, 1988).

In Malaysia, Ministry of Health (MOH) use SERVQUAL concept in the questionnaire as a tool for quality assurance in assessing level of patient satisfaction started in 1999 where its SERVQUAL Questionnaire have 6 dimensions (tangible, reliable, responsiveness, empathy, assurance and outcome) with 15 questions. Then in 2004, three additional dimensions were added which is MOH Corporate Culture core value (teamwork, caring and professionalism) making it 9 dimensions with 20 questions (Roslan Johari Mohd Ghazali, 2011). SERVQUAL is a robust instrument for assessing healthcare services in Malaysia (Muhammad Butt and Cyril de Run, 2010)

Study done by (Saifulsyahira *et al.*, 2015) at outpatient services in Military Hospital in Malaysia showed 54.9% patient satisfied with the services. According to (Aizuddin *et al.*, 2012) percentage of patient satisfied with the Public health Clinic in Hulu Langat District, Selangor was 27.5% based on SERVQUAL instrument. According to study done in Hospital in Selangor showed that 34.7% patient satisfied with the service based on overall SERVQUAL dimension (Hayati *et al.*, 2010). Study done by (John *et al.*, 2011) in Public Dental Health in Kelantan using showed that 37% patient satisfied with the service based on the difference between their perception and expectation.

2.2   Critical dimension in SERVQUAL

Study done by (John *et al.*, 2011) in Public Dental Health in Kelantan using SERVQUAL KKM found out there was a significant difference between expectation and perception mean score of all item in SERVQUAL dimension. This study revealed that the

item have highest service gap were "receiving prompt service from staff", "cleanliness of the toilet" which means these two item were not meet customer expectation. For the item which have lowest service gap were "neatness of staff", "staff work with discipline".

Study done by (Al-Momani, 2016) in Saudi Arabia showed there is a significant difference between perception and expectation score with the large service gap score consider the most critical dimension. Study done to assess level of satisfaction in private hospital in Malaysia showed reliability and responsiveness were most critical dimension which need to look detail into it (Muhammad Butt and Cyril de Run, 2010). This finding also similar with the study one in Saudi Arabia where reliability and responsiveness are the most critical dimension in patient satisfaction (Al-Momani, 2016). Patient satisfaction study in South Africa identified Empathy have highest predicted power toward satisfaction (Mpinganjira, 2011)

2.3   Sociodemographic characteristics

According to (Myburgh *et al.*, 2005; Young *et al.*, 2000) patient satisfaction was influence by sociodemographic status of the patient. Factor such as age, gender, education level, ethnicity, income and marital status are the most significant factor influencing patient satisfaction (Naidu, 2009). Tucker 2002 suggested that understanding individual patient characteristic can affect patient's perception on satisfaction by influence evaluation process.

2.3.1   Age distribution

Study done by (Ganasegeran *et al.*, 2015), in Malaysia's Busiest outpatient Medical Department of Tengku Ampuan Rahimah Hospital, Klang, Malaysia showed that the most

participant (41.5%) were in less than 30 years old, 32.6% were in the 30 – 49 years age group and 25.9% were among more than 50 years old. In this study showed that patient more 50 years old is more satisfied compare to other group age.

In other study done in Public Health Clinic in Selangor in 2010, there were two categories of age showed that the highest response rate at 74.7% were the age of 33 years old and above and followed by respondent in young age group less than 32 years old and below at 25.3%.(Sharifa Ezat *et al.*, 2010). The older group of patient (33 years old and above) in this study found to be more satisfied compared to young age group.

A study done in Health Centre in Ankara and Konya, Turkey in 2001 by (BODUR *et al.*, 2002) successfully study 574 respondents comprise of 58.16% respondent age group between 18 – 39 years old, 30% from 40-59 years old and 11.84% from more than 60 years old. In this study also found that older group of patient (more than 60 years old) have higher satisfaction compare to younger age group. Other study on patient satisfaction among in patient in hospital setting also showed that the older age group more satisfied compared to young age group (Choi *et al.*, 2005)

2.3.2   Gender differences

A study on customer satisfaction among public health clinics in State of Selangor, Malaysia 2010 by (Sharifa Ezat *et al.*, 2010) have total 8700 respondents comprise of 3467 males (40.3%) and 5141 female (59.7%). In this study showed there were significant association between gender and level of patient satisfaction where male have better satisfaction compared to female.

Another study done by (Ganasegeran *et al.*, 2015) in Malaysia's Busiest outpatient Medical Department of Tengku Ampuan Rahimah Hospital, Klang, Malaysia showed out of

340 respondents, 211 (62.1%) were male and 129 (37.9%) were female patient. Male patient have significantly higher satisfaction level compared to female.

However, a few of studies also showed there was no significant difference in gender and level of patient satisfaction (Al-Momani, 2016; BODUR *et al.*, 2002; Choi *et al.*, 2005),

2.3.3 Different Ethnic distribution

Malaysia is a multiethnic country which comprise of Malay, Chinese, Indian and many other ethnic group live together. From Malaysian Statistic Department, Malay are the most dominant (50%) followed by Chinese and India. However, in Kelantan and specifically in Kota Bharu District, Malay is the most dominant ethnic comprised of 94.4%.

A study done by (Sharifa Ezat *et al.*, 2010) involved 70% Malay, 15.6% Indian 12.8% Chinese and 1.6% other races found that non Malay ethnic have higher satisfaction level compared to Malay. Other local studies also proved the similar finding where non Malay have higher satisfaction level compared to Malay (Johari and Tahirm, 2006; Saifulsyahira *et al.*, 2015; Sharifa Ezat *et al.*, 2008). The reason why Malay mostly dissatisfied could be because Malay people have high expectation about service quality of healthcare system and more demanding compare to other ethnic group.

2.3.4 Education Level

Education level play important factor in determine how an individual behave and practice as well as how people view and perceive about any issue. In Malaysia setting, education level mostly divided into 4 levels which are first no formal education, second is primary education level, third is secondary education level and fourth is tertiary education

level. Certain study divided education level into two categories which are low education level consist of no formal education, primary education level and secondary education level while tertiary education level consider high education level.

(Ganasegeran *et al.*, 2015) and (Sharifa Ezat *et al.*, 2010) showed that low level of education exhibit higher satisfaction than high education level. Other study done in Health Centre in Ankara and Konya, Turkey in 2001 by (BODUR *et al.*, 2002) also showed that illiterate more satisfied compare to educated subject.

However, study done in Medical-Surgical patient in Public Hospital in Saudi Arabia by (Al-Momani, 2016) showed high education level is more satisfied compared to low education level group.

2.3.5   Income and level of satisfaction

Monthly household income indicates the social position of a family. Most of lower and middle income group of people usually will go the government healthcare facility which is cheap and affordable. In contrast with high income group, they have a choice to choose either public health services or private health services. As for this study involve 1 Malaysia Clinic which mainly aim for low income population in urban area, it is important to measure they satisfaction in order to evaluate the service given by 1 Malaysia Clinic.

Study done by (Ganasegeran *et al.*, 2015) in Malaysia's Busiest outpatient Medical Department of Tengku Ampuan Rahimah Hospital, Klang, Malaysia found that patient with household income less than MYR 3000 have higher satisfaction level compared to higher income. There is similar finding where satisfaction level showed a downward trend with the increase in monthly income (Hayati *et al.*, 2010).

2.3.6 Occupational status and patient satisfaction

Various study showed that occupational status of individual have effect on determine level of satisfaction. Most of the studies showed that patient who did not working or unemployed are more satisfy with the services. Based on study done by (Hayati *et al.*, 2010) showed that not working group more satisfied with the service compare to patient who work in government, private or self employed. Another study done by (Nasaruddin Mahdzir *et al.*, 2013) also showed similar finding where unemployed respondent found to have higher satisfaction level compared to working respondent.

Study done by (Aizuddin *et al.*, 2012) found out that government servant show more dissatisfaction compared to other group of occupation. This is because government servant have higher expectation toward public health services. In this study, occupational status will be assess to determine whether there is association between occupational status and level of satisfaction especially for government servant whether they are satisfy or not with the 1 Malaysia Clinic services.

However, quite number of studies found out that there is no association between occupational status and level of satisfaction (John *et al.*, 2011; Sharifa Ezat *et al.*, 2010).

2.4 Frequency of visit and patient satisfaction.

Level of patient satisfaction also influence by frequency of visit to that particular clinic. This is become an important factor because expectation and perception of the patient toward the services depend on frequency of visit. Numerous studies showed that frequency of visit have influence toward level of satisfaction, however the result from these studies were

mix when first visit showed more satisfied and frequency of visit more than 3 times have better satisfaction level.
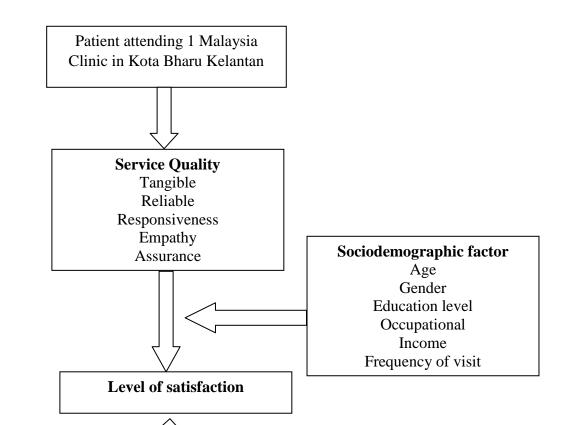
(Sharifa Ezat *et al.*, 2010) Hadi and roslan, norai showed that at first time visit have better satisfaction level. However study done by (Nasaruddin Mahdzir *et al.*, 2013) showed patient who visit more than three times have better satisfaction level. In this study the argument was if patient visit to similar clinic few time, they expectation is low because they already use and familiar with the services and staff.

Summary of sociodemographic factors associated with patient satisfaction from literature review

No	Factor	Finding	Author
1	Age	**Older age** were more satisfied compared to young client	(Ganasegeran *et al.*, 2015) (Sharifa Ezat *et al.*, 2010) (BODUR *et al.*, 2002) (Al-Momani, 2016)
2	Gender	**Male gender** has better satisfaction compared to women	(Ganasegeran *et al.*, 2015) (Sharifa Ezat *et al.*, 2010)
3	Ethnic	**Non malay** more satisfied compare to malay medical ward	(Sharifa Ezat *et al.*, 2010) (Johari and Tahirm, 2006; Sharifa Ezat *et al.*, 2008)
4	Education Level	**Low education level** associated with higher satisfaction	(Ganasegeran *et al.*, 2015) (Sharifa Ezat *et al.*, 2010) (BODUR *et al.*, 2002)
5	Income level	**Low income** have higher satisfaction than higher income	(Ganasegeran *et al.*, 2015) (Hayati *et al.*, 2010)
6	Occupation status	Patient who **not working** or **unemployment** were more satisfied with the working group patient	(Nasaruddin Mahdzir *et al.*, 2013) (Hayati *et al.*, 2010)
6	Frequency of visit	Patient attended **more than 3 times** are more satisfied	(Nasaruddin Mahdzir *et al.*, 2013)

3.0 CONCEPTUAL FRAMEWORK

The conceptual framework explained that all patient registered at the registration counter which fullfil the study criteria will randomly selected to be involved to this study. The selected patient will be asked to answered questionnaire that assess the service quality dimension which are tangible, reliable, responsiveness, empathy and assurance in order to get their level of satisfaction which categories into satisfied and not satisfied. This assessment of service quality will be influence by sociodemographic factor such as age, gender, education level, occupational status, income and frequency of visit.

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┌─────────────────────────────┐
│  Patient attending 1 Malaysia│
│  Clinic in Kota Bharu Kelantan│
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────┐
│     Service Quality     │
│        Tangible         │
│        Reliable         │          ┌──────────────────────────┐
│     Responsiveness      │◄─────────│  Sociodemographic factor │
│        Empathy          │          │           Age            │
│        Assurance        │          │          Gender          │
└─────────────────────────┘          │     Education level      │
              │                      │       Occupational       │
              ▼                      │          Income          │
┌─────────────────────────┐          │     Frequency of visit   │
│  Level of satisfaction  │          └──────────────────────────┘
└─────────────────────────┘
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Satisfied		Not Satisfied

CHAPTER 3

METHODOLOGY

3.1 Study design

The design of this study was a cross-sectional study by using primary data where survey was done in all nine (9) 1 Malaysia Clinic in Kota Bharu, Kelantan.

3.2 Study Duration

This study was conducted within four weeks in January 2017 where all nine (9) 1 Malaysia Clinic was visited

3.3 Study Location

This study was carried out in all nine (9) 1 Malaysia Clinic in Kota Bharu District, Kelantan. which are K1M Sri Cemerlang, K1M Panji, K1M Pasir Tumbuh, K1M Pengkalan Chepa, K1M RTC, Tunjung, K1M Lembah Sireh, K1M Langgar, K1M UTC and K1M Lubok Pukol. located only at six (7) sub district out of fifteen (15) sub district which are located near to the

city area. The six (7) sub district involve were Kota Bharu, Kota, Panji, Pengkalan Chepa, Kubang Kerian, Limbat, Banggu.

3.4 Reference population

All patients attended to 1 Malaysia Clinic in Kota Bharu, Kelantan.

3.5 Source population

All patients attended to 1 Malaysia Clinic in Kota Bharu, Kelantan within study period.

3.6 Study Criteria

Inclusion criteria:

i) Malaysian Citizen

ii) Patient who is 18 years old and above

Exclusion criteria

i) Relative of the patient

ii) Patient in emergency condition

iii) Patient with history of psychiatric problem

3.7 Study Sample

Patient attended to 1 Malaysia Clinic in Kota Bharu Kelantan who fulfill the study criteria and consented to the study.

3.8 Sample size calculation

The sample size were calculated based on the study objective as follow:

3.8.1 Objective 1

The sample size was calculated using single proportion formula based on the study done by (John *et al.*, 2011)

$$n = (z/\Delta)^2 \times (p(1-p))$$

$$= (1.96/\ 0.05)^2 \times [\ 0.37\ (1-0.37)\ ]$$

$$= 1536.64 \times 0.2331$$

$$= 358$$

p =0.37 was based on proportion of patient satisfaction based on overall SERVQUAL reported by (John *et al.*, 2011).

Add on 20% for drop rate make it estimated sample size was 430

3.8.2 Objective 2

The sample size was determine and calculated using using PS Software to compare two mean formula. Table 3.1 shows the summary of the calculation.

SERVQUAL dimension	α	power	SD*	δ	m	n	2 n + 20%	*Literature review
Tangible	0.05	0.8	0.80	0.3	1	113	248	(Muhammad Butt and Cyril de Run, 2010)
Reliability	0.05	0.8	0.80	0.3	1	113	248	(Muhammad Butt and Cyril de Run, 2010)
Responsiveness	0.05	0.8	0.88	0.3	1	136	299	(Muhammad Butt and Cyril de Run, 2010)
Assurance	0.05	0.8	0.92	0.3	1	149	327	(Muhammad Butt and Cyril de Run, 2010)
Empathy	0.05	0.8	1.00	0.3	1	175	402	(Muhammad Butt and Cyril de Run, 2010)

δ = detectable difference

σ = standard deviation of variable (from literature review)

3.8.3 Objective 3

The sample size was calculated using two proportion formula as below and Table 3.2 shows the summary of the calculation.

$$n = \frac{P1(1 - P1) + P2(1 - P2)}{(P2 - P1)^2} \cdot (Z\alpha+Z\beta)^2$$

Associated factor	α	power	P$_0$*	P$_1$	m	n	2 n + 20%	*Literature review
Older age	0.05	0.8	0.18	0.40	1	63	151	(Sharifa Ezat *et al.*, 2010)
Male	0.05	0.8	0.38	0.60	1	77	185	(Ganasegeran *et al.*, 2015)
Low education	0.05	0.8	0.36	0.50	1	66	158	(Sharifa Ezat *et al.*, 2010)
Not working	0.05	0.8	0.01 3	0.98	1			
Low Income	0.05	0.8	0.18	0.50	1	30	72	(Ganasegeran *et al.*, 2015)
Frequency of visit	0.05	0.8	0.67	0.32	1	28	67	(Sharifa Ezat *et al.*, 2010)

Po = proportion associated factor who do not satisfy obtained from literature review

P1 = estimated proportion of associated factor with satisfaction

As a conclusion, based on above calculation the largest sample size which is 358 based onn objective 1 was used. This number has been increase to 430 for each group to allow for predictive 20% drop out rate. A sample size of **430** patients will be optimum to be able to answers research question.

3.9 Sampling Method

As all nine (9) 1 Malaysia Clinics in Kota Bharu District Kelantan were involved in this study, number of sample for each clinic is determined proportionately based on clinic daily patient attendance in order to reduce selection bias by having equal contribution from all the clinics. Data from Kelantan State Health Department regarding number of patient attended 1 Malaysia Clinic in Kota Bharu for 2016 was used to get the daily average patient attendance to each 1 Malaysia Clinic. In this study:

- Total average number of patient attended the clinics per day= 750

- Total number of sample required = 430

- The proportion = (430/750) x 100= 57 %

- Thus, contribution as much as 57 % from each clinic will be determined based on their daily attendances.

No	1 Malaysia Clinic	Average daily patient attendance	Sampling fraction	No of sample needed
1	K1M Sri Cemerlang	140	57 %	81
2	K1M Panji	140	57 %	81
3	K1M Padang Tembak	100	57 %	58
4	K1M Pasir Tumboh	80	57 %	46
5	K1M Lembah Sireh	60	57 %	34
6	K1M Langgar	60	57 %	34
7	K1M UTC	60	57 %	34
8	K1M Langgar	60	57 %	34

9	K1M RTC	50	57 %	28
	TOTAL	750	57 %	430

A simple random sampling method was applied to select the respondents. The sampling interval was decided based on the estimated number of patient attended the clinic in the artificial patient list, every third patient registered was invited to be involved in the study.

3.10 Research tools

This study involves use of primary data using Malay validated SERVQUAL questionnaire by Ministry of Health, Malaysia called SERVQUAL KKM. validated by (John *et al.*, 2011). This questionnaire is developed based on SERVQUAL concept by (Parasuraman *et al.*, 1994) and widely used in quality assurance activity to assess patient satisfaction level in Public Hospital and Public Health Clinic by Ministry of Health, Malaysia. This questionnaire is divided into three parts:

    i.   Socio-demographic factors

    ii.   Expectation Aspect consist of 20 questions

    iii.   Perception Aspect consists of 20 questions

This questionnaire is using five point Likert scale to measure patient opinion. The score ranges are from 1 -Strongly Disagree, 2-Disagree, 3-uncertain, 4- agree, 5 -Strongly agree. This questionnaire will assess patients' agreement on five service quality dimension from their expectation and perception based on match questions. To get score for the entire five dimensions, mean service gap score for all questions under each dimension will be calculate. For tangible dimension, mean difference between perception and expectation for question number Q1, Q2, Q3 and Q17 will be calculate. For reliable dimension, mean difference

between perception and expectation for question number Q4, Q5 and Q6 will be calculate. For responsiveness dimension, mean difference between perception and expectation for question number Q7, Q8 and Q9 will be calculate. For assurance dimension, mean difference between perception and expectation for question number Q10, Q11 and Q12 will be calculate and lastly for empathy dimension, mean difference between perception and expectation for question number Q13, Q14 and Q15 will be calculate.

To assess level of patient satisfaction, overall SERVQUAL service gap score will be used and its value will be calculated from mean difference between perception and expectation for all twenty questions. For purpose of analysis, the service gap score are dichotomized as "satisfied" and "not satisfied based on the score value, if the value is equal or more than zero (0) indicating "satisfied" where their expectation are met or fulfil. Meanwhile, if value is less than zero (0) means negative service gap indicating "not satisfied" where the expectation is not completely fullfil.

3.11 Data collection

This study involves use of primary data. Permission for this study was received from Kelantan State Health Department after being approved by ethical clearance from National Malaysia Research Registry and Jawatankuasa Etika Penyelidikan Manusia USM. Primary data collection was done by self administered questionnaire.

Data collection was carried out for 18 days started from third week of January 2017 until second week of February 2017. The study was done from the clinic start operation until 7.00 pm in the afternoon in order to have almost equivalent situation and condition of the clinic. This because during operation time from 8.00 pm till 10.00 pm, 1 Malaysia Clinic received many patient and this will interfere in the level of satisfaction if the time of survey is

not equal for each clinic. However, the exception for Klinik 1 Malaysia RTC where its operation from 8.30 am until1.00 pm only.

The respondents were selected at medical registration counter according to date of birth of patient aged 18 years and above. The respondent was explained regarding the rationale of the study, its objectives, methods and procedures thoroughly. A written consent was taken and confidentiality of the responses will be assured. Questionnaire was given to patient after registration to assess their expectation by answering the questionnaire part 1 and part II and after consultation to assess their perception by answering part III in the questionnaire. The questionnaire return back from respondent was checked to make sure it is completely filled.

3.12 Definition of Operational Terms

Customer expectation:

Customer wishes or expect from services before they receive the service from healthcare worker

Customer perception:

What customer perceive after receiving service from healthcare worker

Service Quality:

Is the difference or gap between customer perception and customer expectation for each dimension in SERVQUAL concept.

Patient Satisfaction

A fulfillment of patient expectation based on overall experience after received services (Choi *et al.*, 2005). In this study, assessment of overall satisfaction is based on SERVQUAL dimension when means service gap for all question will be compute. If the value is equal or