THE PERCEIVED QUALITY OF HEALTHCARE SERVICE AND PATIENTS' SATISFACTION IN DISTRICT HOSPITALS, ULAANBAATAR CITY, MONGOLIA

By:

Chimed-Ochir Odgerel

2010.05.01

Thesis Presented to the Higher Degree Committee of

Ritsumeikan Asia Pacific University, in

Partial Fulfillment of the Requirements for the Degree of

Master of Public Health Management, International Cooperation Policy

ACKNOWLEDGEMENT

First and foremost, I would like to give my most gratitude to my supervisor, Professor Nader Ghotbi, MD, PhD, for his tremendous support and valuable guidance. I will always be sincerely grateful for all his kindness, understanding and great inspiration for my work and student life in Japan. I will remember all his valuable advice in my future career as I certainly value his professional skill in the research field.

I also would like to thank Professor Uchida Yasuo for his valuable opinions on my research and great encouragement.

My wholehearted gratitude goes to JICE (Japanese International Cooperation Center) because I would not have been here without JICE who selected me as one of fellowships and provided this opportunity to study in Japan. I would like to especially thank our JDS (Japanese Development Scholarship) coordinators for their great support and attentiveness to manage my life in Japan. I am very much indebted to them.

My honorable appreciation goes to Chimedsuren Ochir, Dean of School of Public Health, Health Sciences University of Mongolia, and for her valuable opinions on my research and all her kind support to conduct my research. She supported me to start my career in the research field.

Last but not least, for my friend Suvdmaa.Ts and my beloved brother Chinzorig.Ch, thank you very much for help in data collection.

Odgerel Chimed-Ochir

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ADB- Asian Development Bank

ANOVA- Analysis of Variance

FGP- Family Group Practice

GDP- Gross Domestic Product

HSDP- Health Sector Development Project

JDS- Japanese Development Scholarship

JICE- Japanese International Cooperation Center

KMO- Kaiser-Meyer-Olkin

MoH- Ministry of Health

SD- Standard Deviation

SERVQUAL- Service Quality

UB- Ulaanbaatar

USA- United States of America

ABSTRACT

The perceived quality is defined as “a gap between patient’s expectation and perception of service along the quality dimensions” (Parasuraman et al., 1985). The patients’ perceptions seem to be largely ignored by healthcare providers in Mongolia. Thefore, this study is a patient-centered one and focuses on examining service quality indicated by differences of patients’ expectations and perceptions in the district hospitals of Ulaanbaatar city, Mongolia. It also examines the link between patients’ perception and their overall satisfaction with healthcare services. A hundred and fifty seven (157) patients were interviewed using a SERVQUAL (Service quality) questionnaire proposed by Parasuraman (1985; 1991). According to the factor analysis, all questions were loaded into seven dimensions including tangible, reliability, responsiveness, communication, empathy, accountability and assurance.

The perceived service quality was measured by the following equation:

$$Q = Px - Ex$$

Where: Q – is Perceived quality of service; and Px and Ex – are ratings corresponding to perceptions and expectations of “x” statement. The ordinal regression model was used to examine significant elements influencing patients’ overall satisfaction.

The analysis shows that expectations of the patients are higher than their perceptions and it suggests that there is a room for quality improvement initiatives in all seven dimensions. The largest quality gaps are in the empathy dimension including elements on nursing care, and respect shown by doctors and nurses

towards patients. The neat appearance of doctors and staff presents a less problematic element of the service quality in district hospitals.

Generally, patients have high expectations on all dimensions of quality of healthcare services. Among the seven quality dimensions, assurance factor including the competency of the doctors and nurses' skill shows the highest expectation and perception.

Patients' evaluations also suggest that they are disappointed regarding the quality of healthcare services in relation to care provided by nurses and respect shown by doctors and nurses. These elements are also included in the empathy dimension. The patients have low perceptions on comfortableness of patients' rooms and availability of modern equipment in district hospitals.

Patients who had been admitted in hospital for the first time were less satisfied with services while those who had been admitted more than 12 times were more satisfied. Any other background factors of patients were not found to be significantly related to their satisfaction. The overall satisfaction of the patients was significantly associated with six explanatory variables regarding perception of patients: comfortableness of patients' room ($p=0.007$), explanation of procedure done by nurses ($p=0.003$), helpfulness of nurses ($p<0.001$), respectfulness of nurses ($p=0.008$), nurses' care ($p=0.004$), and attentiveness of doctors to listen to patients ($p=0.016$).

In the discussion on the findings of the study, it is suggested that the level of doctors' competence and nurses' skill should not be neglected by hospital managers solely relying on the patients' high perception because patients'

judgment might not be objective due to their lack of knowledge on medical issues and unfamiliarity with medical service. However, healthcare providers need to pay attention to more patient-centered empathetic service. The regular feedback from patients can be integrated in the healthcare delivery system and the quality of healthcare service can be effectively monitored through patients' voice to bring improvements in behaviors of the doctor and nurses.

The current findings provide a guideline for the healthcare provider in the allocation of efforts to maximize patient satisfaction and to improve the perceived quality of healthcare services.

CHAPTER ONE

INTRODUCTION TO THE STUDY

Keeping pace with current technological advances, people today are choosing a new approach to healthcare services; they are well informed and eager to take responsibility for their own health. Therefore, the consumers of healthcare services have exceptionally higher expectations and demand a high level of accuracy, reliability, responsiveness and empathy. In short, they demand overall better healthcare services than in the past. They are also becoming more critical of the quality of healthcare service they are provided with (Lim & Nelson, 2000). Due to this new paradigm in healthcare services, hospital administrators need to take into consideration patients' expectations and perceptions, and must address the issue of improving the perceived quality of healthcare services they provide. In general, providing good quality healthcare is an ethical obligation of all healthcare providers (Zineldin, 2006) and receiving good quality care is a right of all patients (Pickering, 1991).

Until 1990 Mongolia was under a central planned economy and healthcare expenditure was fully financed by the government. In the central budget dependent health system, the technical aspects of quality such as appropriateness of diagnoses and treatments was the priority issue of quality of healthcare service. In other words, the quality of healthcare services was solely defined by provider based approach. However, upon the reform of the health system in late 1990s, the concept of patient oriented services was incorporated. In spite of this change, the quality assurance system still focuses its attention on the technical aspects of care

rather than aspects of interpersonal quality such as communication with patients, willingness to help patients, timeliness and accuracy of services. For instance, a government agency, State Professional Inspection Agency, is in a charge of the monitoring and implementation of regulations and standards related to health system and is responsible for ensuring whether or not the health facilities and staff follow the standards (Bolormaa et al., 2007). The Agency audits hospitals every six months and is entitled to give penalties, even to revoke a license, if there is evidence that medical personnel at a hospital do not follow standards; however, no incentives are given to good interpersonal care provided by healthcare providers. Thus the medical staffs are more cautious about not making technical mistakes in their duties instead of being cautious about improving their interpersonal relationship with patients.

According to the report of the Ministry of Health of Mongolia (MoH) (2006), "Traditional patient complaint modes, such as phone calls and letters, still predominate in the health sector". Although these arrangements tend to be considered effective, in fact, patients' perceptions were ignored by health administrators as well as health providers and the quality of day-to-day care remains very low; bureaucracy of medical staff, poor communication and other aspects of interpersonal care are widely criticized (Bolormaa et al., 2007). In late 1990s, patient satisfaction was considered as a major criterion of the quality, although, the findings have not been reflected in improving the quality of healthcare service. Moreover, neither clear guidelines nor sector-wide approaches for this issue have been developed. Misunderstanding of patients' needs leads to

the underutilization of existing facilities and hinders the overall development of the health system. Therefore, it is important to consider the patients' opinion to assess the quality of healthcare services.

The district hospitals which are the target hospitals of my study provide healthcare services to the whole population of Ulaanbaatar city, the capital city of Mongolia; however, district hospitals can't play a gate keeping role in inpatients service. Thus, it results in an overload of the next higher level hospitals.

In 2008, 81.7% of health expenditure was spent for inpatient service. Even though the rate of bypassing district hospitals is high, the average occupancy rate in district hospital is still very high. It might show that many unnecessary cases which can be treated at home are admitted in district hospitals in order to fully occupy the beds. If we can pay more attention towards the quality of healthcare services provided in district hospital, the bypassing rate might be decreased and following that, the number of unnecessary cases admitted in district hospital also can be decreased. Consequently, the health expenditure on inpatient services can be reduced and overall, the hospital system can be managed effectively.

Taking into account of situations which have been previously mentioned, an examination of the quality of healthcare services provided in district hospitals could be a good start for an effective management of the admission system and patient oriented service. Therefore, my study focused in examining the perceived quality of healthcare services provided in the district hospitals of UB city, Mongolia,

The goal of the study

The main goal of this research is to study the perceived quality of healthcare services and the relationship between the perception and satisfaction of patients with healthcare services provided at the district hospitals of Ulaanbaatar city, Mongolia

The objective of the study

In order to achieve the goal of the study the following objectives were developed:

1. To assess the patients' perceptions and expectations on the quality of healthcare services provided by the district hospitals of UB city, Mongolia
2. To examine how closely patients' perceptions and expectations match (quality gap) in each quality dimensions; and to study if there are any factors influencing patients' perceptions and expectations.
3. To examine the significant elements of patients' perceptions influencing the patients' overall satisfaction with healthcare services provided at district hospitals
4. To assure about the relationship between the patients' satisfaction and their intention on recommendation of the hospital to others

Within the goal of the study, three main hypotheses can be proposed as follows:

1. In general, patients have high expectations and lower perceptions regarding healthcare services, however, large variation can be found in terms of quality dimensions.
2. The quality gaps exist in all quality dimensions in district hospitals; however, size of gaps can differ.
3. Generally, patients are satisfied with inpatient care provided in district hospitals; however, a certain number of elements can significantly influence their overall satisfaction.

The research questions of the study

In order to achieve the research objectives and check proposed hypotheses the following research questions were raised:

1. Which elements of quality of healthcare services are highly/lowly expected by patients who were admitted in district hospitals?
2. Which elements of quality of healthcare services are highly/lowly perceived by patients admitted in district hospitals?
3. Is there any difference between patients' expectations and perceptions on all dimensions (tangibility, reliability, responsiveness, communication, empathy, accountability and assurance) of quality of healthcare service offered by district hospitals?

4. Which elements and dimensions of quality of healthcare services showed the largest/smallest gap between the patients' perceptions and expectations?
5. How far do patients' expectations and perceptions depend on their background factors including age, gender, occupation and other factors such as the number of admissions, length of stay and self reported health status?
6. Which elements of patients' perceptions significantly influence the patients' overall satisfaction?
7. How far does patients' satisfaction depend on their background factors including age, gender, occupation and other factors such as the number of admissions, length of stay and self reported health status?
8. Is there any relationship between patients' overall satisfaction and their intention on recommendation of hospital to others?

The significance of the study

The current research may help healthcare providers to understand customer's preferences by measuring the service quality through its dimensions. The hospitals could use this instrument to collect data about their patients' perceptions in order to make strategic decisions.

This research also will share the gathered information with healthcare providers and stakeholders in health sector as an input for the improvement of perceived quality of healthcare services offered in the district hospitals of Ulaanbaatar city, Mongolia.

The limitations of the study

-Given the time constraint, the study covered only 3 district hospitals out of 9; however, they might be good representatives of district hospitals in Ulaanbaatar city in terms of the socio-economic status of the population in catchment areas.

-The study is mainly based on a quantitative analysis of the results. A qualitative study such as focus group discussion and individual interview was not conducted due to the time limitation.

The general structure of the thesis

The thesis consists of seven chapters and the first part of this study, chapter 1, Introduction of the study, provides a rationale for the study. It also includes the goal and objectives of the study as well as the research questions. Furthermore, this chapter explains the limitations and the significance of the research.

Chapter 2, the health system of Mongolia, briefly introduces the current health system of Mongolia and financing of health system. This information helps with a better understanding of the context of the study and its purpose.

Chapter 3, Literature review, provides the theories and concepts used by the researcher as references, tools or models to explain the main issues regarding the quality of healthcare services. It also provides the conceptual framework of the study.

Chapter 4, Methodology of the study, explains and describes the methodology including selection of the study area, sampling, data collection and structure of the questionnaire.

Chapter 5, Results of the study, introduces the results of data analysis.

Chapter 6, Discussion of findings, discusses the findings of the study based on results of data analysis.

Chapter 7, the last chapter, provides a conclusion to this study and offers recommendations to help solve the problems identified in the study.

CHAPTER TWO

THE HEALTH SYSTEM IN MONGOLIA

This chapter briefly introduces the health system of Mongolia including the current structure and financing of health system.

Until 1990, Mongolia had a Semashko system[1] in which the health system was fully financed and delivered by the government. Most of the health facilities and services were maintained from the state budgets and supported by the Soviet Union. In the early 1990s, the Semashko system was becoming unsustainable because of the collapse of the Soviet Union and it was obvious that the government was not able to be fully responsible for the health expenditure by itself. During this process, the percentage of health expenditure for GDP dramatically decreased from 6.7% in 1990 to 4% in 1992. Moreover, health expenditure per capita decreased from 62.4$ in 1990 to 18.9 $ in 1992. During this period, international organizations and other donors assisted Mongolia to help compensate for the cease of financial and social support from the Soviet Union and to establish the current health system of Mongolia.

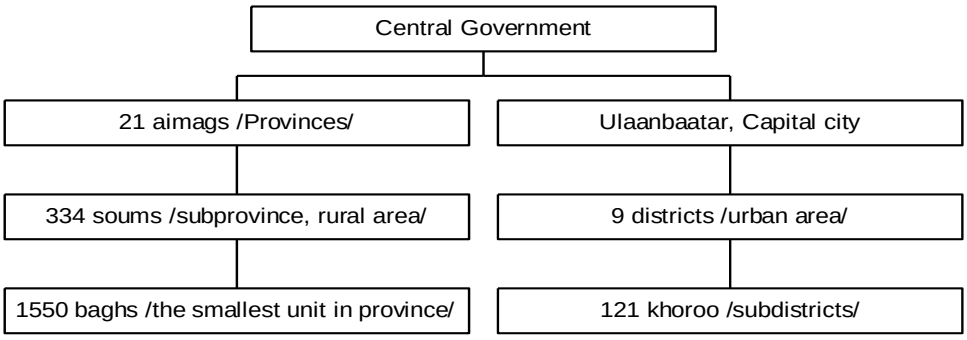
The structure of the current health system

Currently, the healthcare service system in Mongolia is characterized by three levels of healthcare services built on the principle of delivering equitable,

[1] A uniform model of organizing health services introduced in CEE/CIS countries after the Second World War, and abolished in the early 1990s. Financing of health services was entirely through the state budget, with publicly owned healthcare facilities and publicly provided services. Different levels of state administration—central, regional, and local—were responsible for planning, allocation of resources and managing capital expenditures.(Saltman et al., 1998)

accessible and quality healthcare services for every person. This health system is organized according to the administrative divisions as shown in the figure 2.1. The country has 21 provinces (aimag) and 334 sub provinces called a soum (Ministry of Health, 2008). Each soum is administratively divided into four to six bagh which is the smallest administrative unit in rural areas. Ulaanbaatar, the capital city of Mongolia, is divided into nine urban districts; each district is subdivided into varying numbers of urban subdistricts named as a khoroo depending on the population of each district.

Figure 2.1. Administrative levels of Mongolia



Primary health care is provided by family doctors in a family clinic which is officially named as a family group practice (FGP) in Mongolia. In addition to that, soum and inetrsoum hospitals provide primary health care at aimag level.

From the end of 1990s, MOH of Mongolia started implementing the Health Sector Development Project (HSDP) with the assistance of Asian Development Bank (ADB) and established FGPs in Ulaanbaatar city and in all aimags. Each khoroo has one or two FGPs depending on the size of population of khoroo. FGPs

usually consist of three to six family doctors and totally, as of 2008, there were 228 FGPs, 125 of them provided primary healthcare services to 1,034,700 residents in UB city and 103 served residents of 21 aimag centers. 2142 health professionals including 794 doctors and 748 nurses and other health workers were providing primary healthcare to residents in country (Ministry of Health & National Center for Health Development, 2008). On average, each FGP provides primary healthcare for 6375 residents and the number of residents per family doctor ranges from 1200-1500 (Ministry of Health & National Center for Health Development, 2006). The Ministry of Health set up a package of services called the essential package of service to be provided at FGPs in 2002 in accordance with Order N 306 of Minister of Health. The services provided by family physicians include outpatient exams, antenatal care, the prescription of essential drugs, counseling, home visits, palliative care and public health activities such as family planning and health education for population.

They should serve a critical gate-keeping role. As a part of the gate-keeping function, FGPs is the first contact with health service and they refer patients to the next higher-level facilities (district hospital) for specialised care. However, there is a problem of bypassing the FGPs and patients are going to a higher level of healthcare facilities by themselves.

According to the study of Orgil.B (2003) (as cited in Bolormaa, 2007), the primary health care utilization by the registered population reached 71-82 percent in the urban area; however, the effectiveness of primary healthcare is still problematic.

There are some differences between the provision of primary care services in urban and rural areas in terms of funding, functions and types of provider. Soum and inetrsoum hospitals are responsible for the provision of primary healthcare in soum level while in bagh level, services are provided by physician assistants called feldsher. In rural areas, the population is sparsely distributed over a large area and therefore, in order to improve access to healthcare services the primary healthcare facilities (soum and intersoum hospitals) also provide some inpatient service apart from outpatient service. Soum and intersoum hospitals have an average of 15-30 beds. The antenatal and postnatal care, normal deliveries, minor surgeries, and immunization activities are included in services provided by primary healthcare facilities in rural area.

In aimag level, the FGPs provide primary healthcare.

Generally, the establishment of FGP was the foundation of the development of sustainable primary healthcare in Mongolia; however, there are still issues including improvement of the quality of services and reducing the high level of self referrals to the next higher level of healthcare facilities.

At the secondary level, healthcare is provided by district hospitals in UB city. There are 9 district hospitals in UB city and the average number of beds in district hospitals is 225. The district hospitals provide all specialized care through the outpatient services. They also provide inpatient services for some specialties including internal medicine, pediatrics, neurology and emergency care. Moreover, maternity services are delivered by three Maternity hospitals in UB city and are

included in the secondary level of health facilities (Ulaanbaatar Health Department, 2005).

The aimag hospital is the central health facility that provides the aimag population with secondary healthcare. Aimag general hospitals provide a bigger variety of services than district hospitals because patients from rural areas are not often able to commute to the tertiary level health care facilities in UB city.

The structure of the aimag hospital may vary depending on the grading of the hospital, its staffing and service mix in accordance with the Standards Document (Bolormaa et al., 2007). Generally, an aimag hospital can have from 105-405 beds and the average bed occupancy rate is 70.94%. The total number of beds at the aimag level is 3670 (Ministry of Health & National Center for Health Development, 2008).

At the tertiary level of healthcare, the group of facilities and institutions provide tertiary level inpatient and outpatient services, which is advanced specialized professional care. They are the highest level of referral within the country. A tertiary level health facility is defined as follows:

> ***"A legal institution to provide country wide tertiary level specialized care, conduct medical research and training and professional advice to referring health and related institutions"*** **(Health Care Standards on Tertiary Level Hospitals MNS 2002 as cited in Bolormaa, 2007).**

Generally, a tertiary level health facility can have from 90-662 beds. The bed occupancy rate in 2008 was 95.63% for tertiary health facilities in UB city. In

aimag level, there are three regional diagnostic and treatment centers which are considered as a tertiary level health facility and provide certain specialized and professional care.

There is a referral system which was established to link these primary, secondary and tertiary level facilities. The lower level facility acts as a gatekeeper for a higher level. In UB city, according to the referral system, the family doctor should refer patients to district hospitals and from district hospitals the patients should be referred to the next higher level hospital which is the tertiary level hospital. According to law, patients have no right to choose district hospitals and they should be referred to a certain district hospital in accordance with their residential status. Patients also should be referred to tertiary level hospitals by doctors working in district hospitals. It means that patients officially have a limited choice for health institution and service providers; however, it is permitted by law to make self referral to tertiary level hospital through paying a penalty fee. In addition, the district hospitals and other three tertiary level hospitals in UB city provide same inpatient services in internal medicine. Therefore, the anomaly of law on referral system and the structure of current health system cause a bypassing of the district hospitals and results in an overload of the tertiary level healthcare hospitals.

Table 2.1 shows the relationship of the type of healthcare with type of facilities and referral levels.

Table 2.1: Relationship of the Type of Care with Type of Facilities and Referral Level

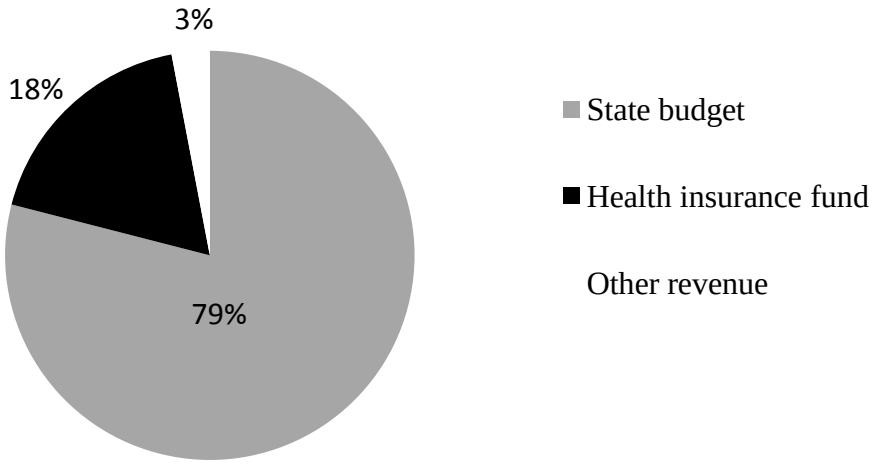
Level of health care	Type of health care	Type of health organization		Referral level
		UB City	Province and sub province	
Primary	General care	FGP	Bagh feldsher post, FGP, Soum / Inter-soum hospital	-
Secondary	Specialized professional care	Ambulatory and branches, District Hospitals	Inter-soum hospitals, Aimag ambulatory Aimag hospital,	Referred by family physician
Tertiary	Advanced specialized professional care	Specialized hospitals and other health organizations	Regional Diagnostic and Treatment Center	Referred from secondary level health organization

Source: Minister's order #A/361, 2000 as cited in Bolormaa, 2007.

The financing of health sector in Mongolia

There are four sources of revenue for the health sector: state budget, health insurance fund, out-of-pocket payments and international aid and loan. As of 2008, 79% of total health expenditure was financed from state budget, 18% from health insurance fund, 3% from other revenues such as out of pocket expenses and international loans (See figure 2.2) (Ministry of Health & National Center for Health Development, 2008).

Figure 2.2 Sources of health expenditure



- ***The state budget***

The state budget covers the fixed costs of health facilities, some recurrent costs of health facilities based on historical allocations and clinical capacities of all hospitals in Mongolia. The state budget also pays the health insurance for low-income and vulnerable people[2]. The package of essential services provided in FGPs is also paid by the state budget. The government budget is set by line items and paid prospectively in accordance with an agreed schedule (Bolormaa et al., 2007).

The primary healthcare is totally funded from the state budget. Upon establishment of FGPs the capitation payment method was introduced in FGPs. Family physicians were considered as private providers. They received funding

[2] According to the Law of Social Security (2003) (as cited in Gerelmaa, 2009) vulnerable population includes: elderly and disabled individuals who are unable to safeguard their needs and cannot be supported by their relatives; children; impoverished elderly, disabled individuals and single parents with many children and other impoverished individuals

from the state budget for salaries and operating costs which make up 40 % of their budget; and health insurance fund on a per capita basis for the number of insured people in their target area. 60% of their budget comes from the health insurance fund based on capitation rates.

With the cessation of the support from the ADB soft loan, almost all of the FGPs are on a deficit due to irregular and untimely funding from the health insurance fund. Moreover, the health insurance coverage had fallen from 95.3% in 1998 to 77.6% in 2005 and the number of internal migrants who are not officially registered had increased (State Social Insurance General Office, 2006). Those unregistered and uninsured people couldn't receive health services and many FGPs faced a financial deficit because of the low rate of health insurance coverage. Therefore since 2006, according to the amendment to the Health Law, the primary care services are fully financed from the state budget on the basis of the listed population in a target area not depending on whether the target population are insured or not. Unspent funds are transferred back to the state treasury at the end of the fiscal year.

- ***Social health insurance***

After the collapse of the Soviet Union, the financial shortage in the health sector led to an informal user fee and patients were asked to pay for some medical goods which should otherwise be free. Such kind of informal payment was a burden for most people as not all people were able to afford this payment. Thus, there was a need to find an appropriate way to finance the health system without creating an

excessive financial burden on individual households. In this situation, the social health insurance based on the concept of social solidarity through risk sharing and fund pooling principles was considered as the solution to this problem (Bayarsaikhan & Kwon, 2005). As a consequence, health insurance was introduced as an alternative to the state budget for financing health services in 1994 in order to ensure the sustainable funding for the health sector after cessation of financial support from the Soviet Union. While the state budget pays a package of essential services, package of complementary services is funded by the health insurance fund. The package of complementary services includes all kinds of inpatient and outpatient services except for some chronic illnesses and infectious diseases.

Revenue collection for the health insurance fund is based on a certain amount of contribution from income earning groups. Employees and employers together should pay a contribution of 6% of the payroll (3% each). The self employed including herders, students and unemployed are responsible for their own health insurance and are obliged to pay a monthly flat rate of 50cents. The government is responsible for the payment of the health insurance of certain groups of people such as children under 16, pensioners, registered disabled, as well as prisoners and military personnel. The flat rate for those groups is 0.4 $ per month (Bayarsaikhan & Kwon, 2005).

The State Social Insurance General Office sets the prospective budget for each hospital in accordance with calculations which assume that beds set by Ministry of Health are used at full capacity. In other words, the State Social Insurance

General Office calculates a maximum number of inpatient treatments and multiplies it by a single fixed rate. The single fixed rate varies by health facilities depending on the level of care. Unspent funds are transferred to the State Social Insurance General Office at the end of the fiscal year. Therefore, it leads to some negative results such as an interest in increasing approved beds and unnecessary admissions.

Outpatient services at hospitals are funded in accordance with the number of patients rather than the number of visits. It is assumed that each patient visits four times on average and the total number of visits is divided by four and is multiplied by outpatient fee per insured person in order to set the budget for outpatient services (Bolormaa et al., 2007).

As of 2008, the revenue of health insurance fund was 62.6 billion tugrug[3]. The expenditure was 53.2 billion tugrug, and surplus was about 15%. (Ministry of Health & National Center for Health Development, 2008)

- ***Out of pocket expenses***

User fees and co-payments used in public health facilities have been officially permitted since the early 1990s (Bolormaa et al., 2007). All co-payments and user fees are supposed to be revenue for the health facilities and are considered as government revenue. Therefore, in the case of co-payments, all reported revenue is deducted from the health insurance fund. The revenue collected from user fees,

[3] Tugrug- official currency of Mongolia. 1US$ = 1372 MNT (Bank of Mongolia, April 2010)

other auxiliary activities and secondary income generating activities are deducted from the state budget (Ministry of Health, 2005).

According to the Health law, 10% of the secondary care level hospital insurance fee and 15% of tertiary care level hospital insurance fee are charged to patients as a co-payment.

However, certain groups such as children under 16, high school students under 18, pensioners, mothers looking after children under the age of two and military personnel are exempt from co-payments.

CHAPTER THREE

LITERATURE REVIEW

This chapter provides the theories and concepts extracted from the literature and used by the researcher as references to explain the main issues regarding the quality of healthcare services. It also provides tools or models to assess the quality of healthcare services.

The service quality

There is no single universal definition for the service quality in the literature (Zineldin, 2006); however, many researchers have defined the service quality in their own point of view. Several definitions on service quality are shown in table 3.1.

According to their definitions, the service quality seems to be a disconfirmation paradigm. The outcome of this process might be: negative disconfirmation (expectations are higher than perceptions), positive disconfirmation (perceptions are higher than expectations) or confirmation (perceptions are equal to expectations level) (Sasser at al., 1978; Gummesson & Gronroos, 1988; Brown et al., 1989; Grönroos, 1990; Parasuraman et al.,1994).

"Expectations" are the wants of consumers and their feeling regarding what a service provider should offer. "Perceptions" refer to the consumers' evaluation of the service and service provider (Parasuraman et al., 1985).

Table 3.1 Definitions on the service quality

N	Author	Year	Definition
1	Lewis and Booms	1983	A measure of how well the service level matches customers' expectations.
2	Grönroos	1984	A result of what consumers receive and how they receive it.
3	Parasuraman *et al.*	1985	A gap between patient's expectation and perception of service along the quality dimensions.
4	Webster	1989	A measure of how well the service level delivered matches customers' expectations on a consistent basis.
5	Bojanic,	1991.	The ability of a service in providing customer satisfaction related to other alternatives"
6	Bergman and Klefsjo	1994	An ability to satisfy the needs and expectations of the customer.
7	Evans and Lindsay,	1996	The total characteristics of service related to its ability to satisfy given needs of customer.
8	Pui Mun Lee	2006.	The ability to meet or exceed customer expectations.
9	Mosad Zineldin	2006	The art of doing the right thing, at the right time, in the right way, for the right person – and having the best possible results.

The quality of healthcare service

Unlike the quality of other manufactured goods, the quality of healthcare services is very elusive (Lim, 2000). Even though there are several definitions on the

quality of healthcare service in the literature, it is still a complicated and indistinct concept (Grönroos, 2000).

According to Martinez Fuentes (1999), the quality of healthcare service is a "multidimensional concept which reflects a judgment about whether services provided for patients were appropriate and whether the relationship between doctor and patient was proper". The researchers have different opinions on dimensionality of quality of healthcare services. Parasuraman (1988) indicated that elements of quality of healthcare services can be divided into five dimensions including tangible, reliability, responsiveness, empathy and assurance. Some others mentioned that affordability and accessibility also can be important dimensions of quality of healthcare services; however, most researchers classify the elements of quality of healthcare services into different dimensions based on their own opinion and experience in this field.

There are two approaches towards conceptualization of the quality of healthcare service. One is the traditional medical approach which focuses on the outcome of healthcare services and is defined by the point of providers' view (what is provided). Another one is user based approach and emphasizes the process of healthcare from the patient's perspective (how the service is provided) (Newcome, 1997). In general, the researchers have defined the quality of healthcare service in terms of the technical aspect and interpersonal care of service (Kane et al., 1997; Cleary & McNeil, 1988; O'Connor & Shewchuk, 1989; Li & Collier, 2000; Sower et al., 2001; Goldstein & Schweikhart, 2002). Accordingly, the quality of healthcare service is classified as a technical quality and a client quality. In the

healthcare sector, the technical quality is also referred to as a clinical or professional quality while the client quality is an interpersonal care quality. Institute of Medicine of USA defined the quality of healthcare in terms of technical aspects as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (McGlynn, 1995) and it is a great consensus on the definition of quality of healthcare service among healthcare researchers.

Brook and Williams (1975) also defined the technical quality as "the ability of hospitals to achieve high standards of patient health through medical diagnosis, procedures and treatment, and ultimately creating physical or physiological effects on patients". It is essentially "what" the customer receives from the service provider and how well the diagnostic and therapeutic processes are applied. In other words, the technical quality includes the competence and clinical skills of the doctors and nurses, the laboratory technicians' expertise in conducting tests and so on (Tomes and Ng, 1995).

Donabedian (1982) also indicated that the most important aspects of clinical quality include "the qualifications of the provider using the proper diagnostic equipment, and the selection, timing, and sequencing of the medical diagnosis and treatment".

Regarding client quality, there are also many definitions. Brook and Williams (1975) defined the client quality as "how" service is delivered and the interactive relationship between the service provider and the patient. This definition is consistent with the statement by Øvretveit (1992) "client quality relates to the

patients perceptions of the service regarding friendliness of service provider, timely delivery and information given by service provider, etc".

There are three core themes to assess the patient provider interaction: manner, communication, and relationship. The manner describes the attitude and behavior of a service provider (Dagger at al., 2007). For example: "The staffs are supportive" and "They are caring and they're empathetic."

Communication reflects the "interactive nature of the interpersonal process" (Wiggers et al., 1990). Communication includes the "transfer of information between a provider and a customer and the degree of interaction". For instance, "They have good communication skills" and "They listen to me attentively."

The final theme, relationship, refers to the "closeness and strength of the relationship developed between a provider and a customer" (Beatty et al., 1996).

Zeithaml and Bitner (2000) and Weitzman (1995) suggested that besides the technical aspects of healthcare and the interpersonal relationship between healthcare providers and patients, the amenities of care also need to be taken into account to define the quality of healthcare service. Some others consider that administrative issues are also important in the assessment of the quality of healthcare service (Duggirila et al., 2008).

Furthermore, Donabedian (1982) identified three approaches for defining the quality of health care as structure, process, and outcome, which include both aspects of technical and client quality. This three element model remains as a gold standard for defining quality measurement (Harrington & Pigman, 2008).

Structural measures are features related to the healthcare setting including its design, management and procedures (Campbell et al, 2000). Two domains of structure have been defined: physical and staff characteristics. Physical characteristics include resources such as personnel, equipment and buildings, organization of resources and management. Opening hours and the existence of a booking system for appointment is a part of management. Staff skill-mix and team working can be included in staff characteristics. For instance, education, certification, and experience of doctors are part of dimensions of staff characteristics (Campbell et al, 2000). Generally, healthcare organizations that have the necessary quantity and quality of human and material resources and other structural supports are well prepared to deliver health services with good quality (Campbell et al, 2000).

Process measures evaluate whether appropriate actions were taken and how well these actions were performed. Two key processes of care have often been defined: technical and interpersonal care (Blumenthal, 1996; Donabedian, 1988, 1992; Tarlov et al., 1989; Stefen, 1988).

Outcome is the consequence of care. The outcome can be measured by the health status of patients and patients' evaluation. Even though measuring the health status of patients is quite objective compared to user evaluation, it is difficult to measure just after one service and episode of care is completed. An episode can include hospitalization or post-acute care. For instance, in order to assess the outcome of care provided for patients with acute myocardial infarction, outcome measures can include cases of re-infarction.

The structure as well as processes of care have an influence on outcome of care. For instance, in terms of health status, patients with breast cancer may die because a screening test (structure) is unavailable or the test result is misread (process) (Campbell et al., 2000).

In the medical field, the assessment of quality of healthcare service was solely based on the outcome of health service; however, recently, evaluation of processes of healthcare has been done in terms of the technical aspects of health care but not of interpersonal care. Unfortunately, the assessment of interpersonal care is left behind in the assessment of service quality in the healthcare sector in developing countries; however, many researchers have mentioned the importance of taking into consideration the assessment of interpersonal care from the point of patient view because improving the client quality in health care organization is a key factor in improving the overall quality of healthcare (Zineldin, 2006).

Wiggers (1990) also noted the importance of interpersonal skills when assessing healthcare services. Furthermore, Collier (1994) mentioned that evaluating the client quality is crucial because a poor client quality can overshadow higher levels of clinical quality.

Ideally, the quality which is defined from the point of patients' view is a perceived service quality and is explained as the consumer's judgment about excellence of overall health services including every aspect of service such as technical, functional, environmental and administrative, based on perceptions of what is received and what is given (Zeithaml, 1988).

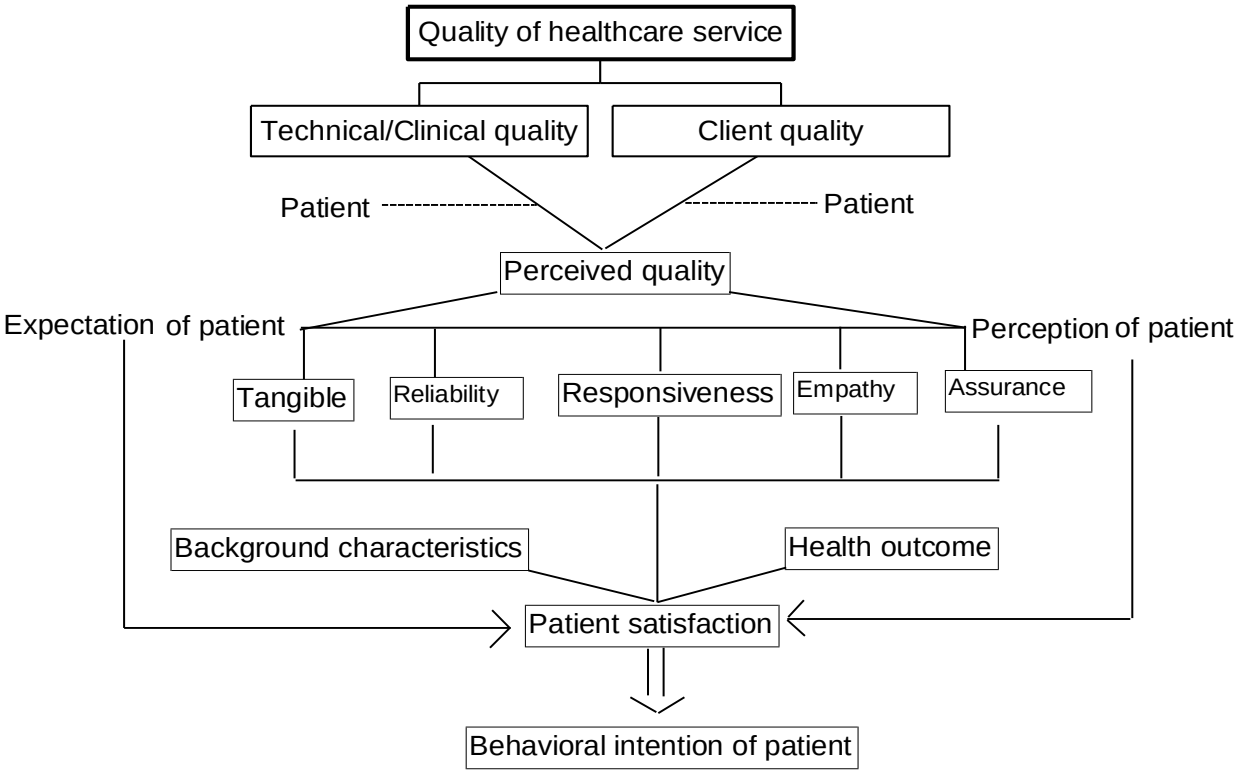
In another word, the perceived service quality can be defined as a difference between patients' expectation and perception on health services including every aspect of service such as technical, interpersonal, environmental and administrative (Zeithaml, 1988). However, the technical quality can't be evaluated by patients due to their lack of expertise (Newcome, 1997) in the medical field, while the client (interpersonal) quality can be assessed by patients.

As the perceived service quality is a cognitive construct, it influences on patient satisfaction with the healthcare provided (Choi et al., 2005). Nowadays, consideration of patient satisfaction has become an integral part of hospital management across the world (Smith et al) and also a fundamental requirement for health care providers (Choi et al, 2005). Therefore, it is also becoming a challenging issue for healthcare providers to realize what elements of patients' perception significantly influence on patient satisfaction. Many literatures pointed out that there is a positive relation between patient satisfaction and perception of patients on the healthcare service provided. Carman (2000) also pointed out that "perception of service quality is an attitude, and that the attitude is a function of some combination of attributes that a patient considers to be components of quality". However, the influence of various service quality dimensions on patient satisfaction varies in different contexts such as public and private hospitals or primary and more advanced healthcare organizations. In general, several recent studies have shown that many of these health service quality dimensions significantly influence on patient satisfaction (Bowers et al.,1994; Brown et al.,

1989; Gooding, 1995; Reidenbach & Sandifer-Smallwood, 1990; Woodsie & Shinn, 1989).

Moreover, patient satisfaction has a positive relationship with purchase intentions. Hall and Dornan (1990) found that satisfied patients earned more medical recommendations instantly than those who were less satisfied. Accordingly, I developed the theoretical framework of my study and it is shown in figure 3.1.

Figure 3.1 Theoretical framework



How to measure the quality of healthcare services?

In the past two decades, the service management literature has focused on the conceptualization and modeling of perceived service quality and has offered several tools for its measurement which can be applicable to healthcare services (Silvestro, 2005).

Several researchers mentioned the necessity and importance of measuring quality of healthcare services and indicated that the quality of healthcare doesn't improve unless it is measured. It has to be measured to effectively manage healthcare services (Mejabi & Olujide, 2008).

However, the quality of healthcare service is difficult to evaluate due to its abstractness, the high degree of intangibility and high professionalism demanded. On the other hand, patients are quite unique as customers compared to other customers in different services. They are worried about the outcome of the treatment and the process of being treated. These characteristics make the measurement of the quality of healthcare service more complex (Taner and Antony, 2006). Up to date, two major concerns exist regarding the assessment of the quality of health care service. First, who will assess the quality and second, on what criteria? Regarding the first concern, as briefly mentioned previously, the patients cannot judge the technical competence of the hospital and its staff due to a lack of expertise in healthcare field (Bopp, 1990). In such cases, patients would evaluate the technical quality of care in different ways, even if the same services were delivered to them (Bopp, 1990; Parasuraman, 1994). Øvretveit (1992) also emphasized that technical quality must be assessed by clinical peers.

But the patients can make a judgment on the manner in which medical care is delivered to them; in short, they can evaluate the client quality of healthcare (Pendleton, 1984). The assessment of the perception of patients is part of an approach to improve the quality of healthcare (Smith, 2001). In another word, the patients' evaluation can be utilized to evaluate and continuously monitor quality by focusing on the weaker aspects of the healthcare delivery system.

However, in recent years the patient perceptions are increasingly used to measure the quality of healthcare services. In reality, the healthcare sector has been slow to move from a provider-based approach to user-based approach to assess the quality of healthcare services. As a consequence, service providers and researchers are trying to implement meaningful customer-oriented quality assessment measures (Michael et al., 2001; Murfin et al., 1995).

Many researchers have emphasized the importance of patients' perspective in assessing the quality of healthcare; however, some object that patients can be good judges of quality. According to O'Connor (1994), ''It's the patient's perspective that increasingly is being viewed as a meaningful indicator of health services quality and may, in fact, represent the most important perspective''.

Moreover, Peterson (1988) indicated that it is not important whether patients are right or wrong; what is the most important in assessing the quality of health care is how patients felt about the service provided.

Some authors stated that the quality of healthcare can be most effectively evaluated by observation and interview with patients during the process of service delivery (Harrington, 2008). Donabedian also mentioned that from the point of

user evaluation, patients can evaluate interpersonal care/process/ and some structural elements.

Obtaining patient perceptions may also be less expensive (Davies, 1988) and more reliable than other methods of assessing quality, such as physician peer review (Brook & Appel, 1973) and it does not depend on the completeness of medical records, which rarely capture information on inter personal aspects of care or the health status (Davies, 1988). Therefore, patients can evaluate the quality of healthcare services in terms of interpersonal aspects of quality.

Regarding the second concern on criteria to evaluate the quality of health care, the quality of medical care has traditionally been measured using objective criteria such as mortality and morbidity. Therefore, quality was defined by only clinicians in terms of the technical delivery of care (Dagger et al., 2007). Criteria to evaluate the technical quality of care can be standard guidelines on diagnosis and treatment. Concerning the criteria to evaluate client quality, there is no universal criteria and many researchers are struggling to establish criteria to evaluate client/interpersonal quality.

In 1985, Parasuraman proposed the SERVQUAL (SERVICE QUALITY) instrument which was later refined in 1988 and was reviewed in 1991 to evaluate the perceived quality of healthcare services. It has been extensively accepted and utilized as a generic instrument that captures the multidimensionality of healthcare service quality.

Since it was developed, the SERVQUAL model has been used in numerous studies across different countries such as in the USA (Babakus & Mangold, 1992),

Hong Kong (Lam, 1997), Spain (Fuentes, 1999), Singapore (Lim & Nelson, 2000), UEA (Jabnoun & Chaker, 2003), Malaysia (Sohail, 2003) and in Egypt (Mostafa, 2005) even though all dimensions of this model originally haven't been referred in all studies. Many researchers expanded and adapted this model in accordance with their own situation and system; and evaluated the quality of healthcare in various health settings in different countries.

SERVQUAL instrument

SERVQUAL is an instrument "for assessing customer perceptions and expectations of service quality in service organizations. In short, it is based on the gap measures of expectation and perception of patients regarding the quality of health care services (Parasuraman et al., 1988).

Perhaps it is the most widely tested and evaluated instrument for the generic measurement of perceived quality (Davies et al., 1999). This instrument was frequently applied in for-profit services in developed countries. However, a number of researchers have evaluated the quality of health care using this tool in public hospitals. Babakus and Mangold (1992) and Taylor and Cronin (1994) tested the SERVQUAL in healthcare services and concluded these dimensions were appropriate and transferable to hospital services, although Taylor and Cronin commented that health service managers should adapt the SERVQUAL model in accordance with their own environments rather than automatically adopt it. Youssef (1996) and Curry & Sinclair (2002), who empirically tested the

SERVQUAL model in UK hospitals, also mentioned that this survey instrument was broadly transferable to health services in both public and private sector.

Exploratory research conducted in 1985 showed that clients judge the service quality by using this instrument regardless of type of service, even though the importance of dimensions varies from service to service (Luke, 2007).

The SERVQUAL instrument consists of 22 pairs of statements that measure consumer's expectations and perceptions of service performance; and these statements are loaded into 5 dimensions of service quality including reliability, responsiveness, assurance, empathy and tangibles.

Reliability is the ability to perform the promised service accurately and dependably. It means that the service is accomplished on time without any errors (Parasuraman, 1991).

Responsiveness is the willingness to assist patients and provide prompt service (Parasuraman, 1991). Keeping customers waiting with no apparent reason can create a low perception of quality.

Assurance is the ability to be knowledgeable, to show courtesy and to convey trust and confidence (Parasuraman, 1991). It includes the following features: competence to perform service, politeness and respect for customers and effective communication with the customer.

Empathy is provision of care and the ability to show compassion towards customers. It includes approachability, sensitivity, and understanding patients' needs (Parasuraman, 1991).

Tangibles refer to the appearance of physical facilities, equipment, personnel and communication materials. The conditions of physical surroundings such as cleanliness and noisiness are also tangible features of care (Parasuraman, 1991).

Parasuraman (1988) used these five dimensions to form an assessment of service quality based on the comparison between expected and perceived services.

The evaluation of these 22 statements is expressed using a 7 point Likert scale, labeled from "Strongly Disagree" (value 1) to "Strongly Agree" (value 7). The score for the quality of service is calculated by computing the difference between perception and expectation scores. Consequently, the gap score (difference between perception and expectations) results in a value ranging from -6 (lowest quality) to +6 (highest quality).

By summing the gap scores for each of the items, the perceived service quality is measured by the following equation:

$$Q=\sum_{x=1}^{22} (Px-Ex)/22$$

Where: Q – is the perceived service quality; and Px and Ex – are ratings corresponding to perception and expectations of the "x" statement (Parasuraman et al., 1985)

Although the SERVQUAL instrument has faced many critics, several authors (Rohini & Mahadevappa, 2006) listed the advantages of SERVQUAL as follows:

- It is accepted as a standard for assessing different dimensions of service quality.

- It has been shown to be valid for a number of service situations.
- It has been known to be reliable.
- The instrument is parsimonious in that it has a limited number of items. This means that customers and employers can fill it out quickly.
- It has a standardized analysis procedure to aid interpretation and results.

Despite its critics, the SERVQUAL has been widely used in many service industries including hotels, travel agencies, higher education, real states, accountancy, architecture, construction services, hospitals, dentistry, call centers (Foster, 2001).

Therefore, I decided to use this instrument for my study.

CHAPTER 4

METHODOLOGY OF THE STUDY

This chapter explains the methodology for this research, including the research design, rationale for the sample selection, sampling method, and the process of data collection and the structure of the questionnaire.

Research design

This study is designed as a cross sectional and quantitative study. The research is done by following steps:

- Studying the current situation of Mongolian health system especially regarding hospital system
- Defining research goals and objectives
- Reviewing literature in similar fields
- Defining the research method
- Developing the questionnaire
- Conducting a pilot study to test the comprehensibility of the questionnaire
- Refining the questionnaire based on the results of the pilot study
- Interviewing patients
- Entering and analyzing data
- Drawing conclusions

The study area

The study covered three district hospitals which are Chingeltei District Hospital, Sukhbaatar District Hospital and Bayanzurkh District Hospital.

Sampling and data collection

In the framework of this study, only primary data were collected from in-patients of the three previously mentioned district hospitals between 1 August, 2009 and 1 November, 2009. The data collectors visited the hospitals with an interval of ten days in order to fill questionnaires from newly admitted patients because the average length of stay in the district hospital is 9-10 days (Ministry of Mongolia, 2007). Totally, each hospital took 9 days of data collection work and the in-patients were individually asked to answer the questionnaires. During each visit, patients were randomly chosen to participate in the study from the list of patients. The number of patients was divided into groups which consisted of five patients and every 5^{th} patient of each group was asked to participate in the study. In cases in which the approached patients were not interested in participating in the study, the data collectors moved to the next patient according to our method. Due to the time constraints, it was not possible to interview more than 6 or 7 patients per day. Patients eligible for responding to the questionnaires were adults between 18-75 years old, who stayed more than 3 days in hospital and were admitted in the department of internal medicine and neurology. The questionnaire consisted of 29 questions which were divided into 5 dimensions. My plan was to include a sample of approximately 155 patients, given an alpha error rate of 0.05, power of

0.8 and ratio of sample size is 1. More assumptions have been shown in table 4.1. Stata 10 statistical software was used to calculate the sample size. I estimated the mean score for expectation to be 6.125 and for perception 5.445 in accordance with average of mean scores from previous studies (Lim, 2000; Karassavidou, 2000; Luke 2007). Similarly, the SD was assumed to be 1.1 for expectation of patients and 2.3 for perception of patients (Table 4.1). Finally, 157 questionnaires were collected for the data analysis.

Table 4.1 The estimation of sample sizes for two samples with repeated measures

Assumptions:	
alpha = 0.0500 (two-sided)	
power = 0.8000	
m1 = 6.125	
m2 = 5.445	
sd1 = 1.1	
sd2 = 2.3	
n2/n1 = 1.00	
number of follow-up measurements	= 1
number of baseline measurements	= 1
correlation between baseline & follow-up	= 0.300
Method: CHANGE	
relative efficiency = 0.714	
adjustment to sd = 1.183	
adjusted sd1 = 1.302	
adjusted sd2 = 2.721	
Estimated required sample sizes:	
n1 = 155	
n2 = 155	

The validity and reliability of questionnaire

The SERVQUAL questionnaire was used in this study. The preliminary study was conducted and the original standard SERVQUAL questionnaire with 22 questions was used in order to clarify how understandable the questionnaire was and how it would be answered by patients. 29 patients participated in the preliminary study and there were several questions which made patients confused. Therefore, according to the patients' suggestion it was decided to adapt it to the current situation and 29 questions allocated into 5 dimensions were used in my study. (See Appendix).

In order to assess the discriminant validity of dimensionality of the instrument used to measure the perceived quality of healthcare services, the data was subjected to exploratory factor analysis. The data used for the factor analysis was the expected values of the hospital service quality because the dimensionality of the quality of service should be based on what customers expect but not what customers perceive (Luke, 2007).

Prior to presenting the result of factor analysis, the factorability of variables was checked using the Bartlett's test of sphericity. The Bartlett's test of sphericity showed that the variables could be grouped into certain factors/dimensions. (Chi square 2380.179, df=406, and $p<0.001$). KMO (Kaiser-Meyer-Olkin) value was 0.718 and it indicated that the degree of common variance among the 29 variables is middling. (see table 4.2)

Table 4.2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.718
Bartlett's Test of Sphericity	Approx. Chi-Square	2380.179
	df	406
	Sig.	.000

In the initial solution of factor analysis, each variable is standardized to have a mean of 0.0 and a standard deviation of ±1.0. Thus the variance of each variable is equal to 1.0 and the total variance to be explained is 29 referring to the number of questions. Since a single variable can account for 1.0 unit of variance, a useful factor must account for more than 1.0 unit of variance, or have an eigenvalue $\lambda >$ 1.0, otherwise the factor extracted explains no more variance than a single variable. Interestingly, in this study, several variables loaded heavily into different factors from the prior dimensions proposed by Parasuramen (1988). As shown in table 4.3, variables are loaded into 7 factors and eigenvalue λ is between 1.393 and 4.994 for 7 factors/dimensions which are extracted after factor analysis. After varimax rotation, eigenvalue λ ranged from 1.649 to 3.383. In other words, the factor pattern was not heavily changed when data was rotated. Therefore, the dimensionality of variables into 7 factors could be considered as valid.

The cumulative percentage of variance extracted by the 7 factors was 60.712%. Total variance explained (60.712%) by these seven components exceeds the 60% threshold usually accepted in social sciences to support the solution (Hair et al., 1995).

Table 4.3 Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.994	17.220	17.220	4.994	17.220	17.220	3.383	11.667	11.667
2	3.082	10.626	27.846	3.082	10.626	27.846	3.264	11.254	22.921
3	2.598	8.960	36.805	2.598	8.960	36.805	2.897	9.991	32.912
4	2.104	7.255	44.061	2.104	7.255	44.061	2.742	9.456	42.367
5	1.850	6.380	50.441	1.850	6.380	50.441	1.993	6.873	49.240
6	1.585	5.467	55.908	1.585	5.467	55.908	1.678	5.786	55.026
7	1.393	4.804	60.712	1.393	4.804	60.712	1.649	5.686	60.712
8	1.376	4.746	65.459						
9	1.212	4.180	69.639						
10	1.128	3.891	73.530						
11	.987	3.403	76.933						
12	.907	3.129	80.062						
13	.848	2.923	82.985						
14	.670	2.310	85.295						
15	.656	2.261	87.557						
16	.557	1.921	89.477						
17	.479	1.651	91.128						
18	.427	1.471	92.599						
19	.346	1.194	93.794						
20	.315	1.086	94.880						
21	.272	.939	95.818						
22	.233	.804	96.622						
23	.217	.749	97.371						
24	.210	.725	98.096						
25	.182	.629	98.725						
26	.148	.511	99.236						
27	.096	.333	99.568						
28	.068	.236	99.804						
29	.057	.196	100.000						

Extraction Method: Principal Component Analysis.

Table 4.4 shows how variables are loaded into 7 factors.

Table 4.4 Rotated Component Matrix

	Component						
	1	2	3	4	5	6	7
E1	.666	.041	.137	-.062	.050	.051	.008
E2	.818	-.096	.131	-.063	-.020	-.188	.017
E3	.765	.161	.043	.130	-.044	-.046	-.026
E4	.854	.216	-.149	.033	-.061	-.010	.084
E5	.841	.109	-.009	.100	.017	.146	.110
E6	.038	.035	.030	-.134	.928	.013	.095
E7	-.004	-.007	.036	-.138	.940	-.031	.087
E8	.114	.901	.021	.157	-.006	-.063	-.021
E9	.149	.870	-.028	.108	.003	-.086	-.052
E10	.144	.233	-.112	.126	.045	.398	-.115
E11	.162	.118	.458	.070	-.083	.164	-.017
E12	-.218	.017	.610	.058	.012	.061	.234
E13	.026	.278	.056	.548	.135	.051	-.191
E14	-.038	-.020	.064	.699	-.203	.042	.019
E15	.004	.205	.447	.192	.063	-.080	-.184
E16	.094	.071	.853	.046	.052	-.081	-.033
E17	.081	-.065	.060	-.022	.134	-.118	.818
E18	.082	.169	-.030	-.065	.072	.009	.865
E19	-.065	-.190	.005	-.011	-.015	.798	-.004
E20	-.036	-.131	.081	-.084	.042	.809	-.027
E21	-.093	.065	.228	.798	.026	.069	-.032
E22	.092	-.152	-.274	.638	.045	-.102	-.047
E23	.123	.758	.362	.028	-.033	-.109	.108
E24	.038	.781	.346	.056	-.075	-.012	.154
E25	.022	.145	-.268	.308	.035	-.118	-.039
E26	.050	.139	.281	.656	-.172	-.013	.089
E27	.166	.162	.246	.408	-.082	.037	.011
E28	-.110	-.156	-.095	.160	.302	.192	.047
E29	.110	.126	.834	.072	-.005	-.114	.006

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 6 iterations.

In order to make it more visible, it is described in table 4.5 in accordance with factors.

Table 4.5. Factor loading

Variables	Factors						
	1	2	3	4	5	6	7
E1	.666						
E2	.818						
E3	.765						
E4	.854						
E5	.841						
E8		.901					
E9		.870					
E23		.758					
E24		.781					
E11			.458				
E12			.610				
E15			.447				
E16			.853				
E29			.834				
E13				.548			
E14				.699			
E21				.798			
E22				.638			
E25				.308			
E26				.656			
E27				.408			
E6					.928		
E7					.940		
E28					.302		
E10						.398	
E19						.798	
E20						.809	
E17							.818
E18							.865
Cronbach alpha	0.849	0.896	0.724	0.703	0.720	0.760	0.7

Extraction method: Principle Component Analysis (N=157)

Cronbach alpha for each factor was greater than 0.7 and it indicates that all 7 dimensions are reliable. Since all variables are loaded into 7 dimensions/factors, I named them based on the statements loaded into factors.

Factor 1 –Tangibility

E1. DH should have up to date and well maintained equipment

E2. Cleanliness and hygiene in district hospitals should be excellent

E3. The nurses and doctors should be clean and well-groomed.

E4. The DH should thoroughly provide information on hospital service

E5. The patient room should be comfortable enough

The first factor, which explained 11.7% of the total variance, was labeled - the *tangibility* of the healthcare service quality. Factor 1 contains 5 items the same as in original questionnaire.

Factor 2- Communication

E8. Doctors should explain to patients about their health conditions, diagnosis and treatment in an understandable way.

E9. Nurses should explain to patients exactly when and what they are going to do.

E23. Doctors should have good knowledge to answer patient's questions

E24. Nurses should have good knowledge to answer patient's questions

The second factor explained 11.3% of the total variation and was labeled – *communication factor*. This factor includes 4 items and these 4 variables loaded differently from our original questionnaire. The question 8 and 9 can reflect the

communication between patients and doctors. Moreover, having good knowledge to answer patients' questions greatly influences good communication between them.

Factor 3 – Responsiveness

E11- Doctors should respond immediately when called by patients.

E12. Nurses should respond immediately when called by patients

E15. Waiting time for admission shouldn't be so long /more than a week/

E16. Waiting time for daily service shouldn't be so long /more than 45 min/

E29. Operating hours in district hospital should be convenient to patients.

The third factor explained 10% of total variance and was labeled as responsiveness factor. It includes 5 items and 4 of them except question 29 were included in responsiveness factor in our initial questionnaire. However, item 29 can reflect the good responsiveness of service if customers can have the wanted service in time.

Factor 4 – Empathy

E13. Doctors should be willing to help patients

E14. Nurses should be willing to help patients.

E21. Doctors should be respectful to patients

E22. Nurses should be respectful to patients

E25. Nurses in district hospital should be caring

E26. Doctors in district hospital should listen to patients attentively

E27. Nurses in district hospital should listen to patients attentively

The forth factor explained 9.4% of total variance and was labeled as empathy factor. It includes 7 items and even though variables reflecting the empathy factor were loaded with responsiveness variables proposed by Parasuraman (1988), this loading deemed to make sense: being helpful for patients and respecting patients are also ways in which patients want compassion from doctors and nurses towards them.

Factor 5- Reliability

E6. DH should provide treatment, diagnostic tests and other services in a certain time

E7. When patient has a problem, DH should show sincere interest to solve it.

E28. Doctors should spend enough time for patients.

The fifth factor explained 6.9% of total variance and was labeled as reliability factor. It includes 3 items and item 28 also loaded differently from initial dimensionality, however, it makes sense that if doctors spend enough time for patients then doctors may deem more dependable. Therefore, it might also be a reliability factor.

Factor 6- Accountability

E10. Doctors should monitor your health status regularly/daily.

E19. Patients should feel confident when receiving medical treatment.

E20. District hospitals should provide privacy during treatment.

The sixth factor explained 5.8% of total variance and was labeled as accountability factor. It includes 3 items.

Factor 7 –Assurance

E17. Doctors should be competent

E18. Nurses should be skillful

The last, seventh, factor explained 5.7% of total variance and was labeled as assurance factor. It includes 2 items.

According to this factor loading, I considered that it makes sense to load all variables into the 7 dimensions which I named and the value of the *alpha coefficient* ranged from .700 to .896 (alpha > .70, see Table 4.5) indicating that these seven dimensions are reliable measures of service quality (Nunnaly, 1978).

The full questionnaire was reliable for analyzing data considering Cronbach's Alpha=0.759.

The validity of the dimensionality of these groups supports the suggestions made by Barakus and Boller (1992) and Cronin and Taylor (1992) that the dimensions of SERVQUAL may depend on the type of the industry being studied even though the questionnaire was adapted in current situation. Therefore, it was decided to keep these dimensions and analyze the data accordingly.

CHAPTER FIVE

THE RESULTS OF THE STUDY

This chapter introduces the results of the study and is divided into the following parts:

5.1 Description of the sample

5.2 The analysis of SERVQUAL instrument

5.3 The analysis of patients' overall satisfaction in relation to their perception of patients regarding healthcare services offered at district hospitals.

5.1 Description of the sample

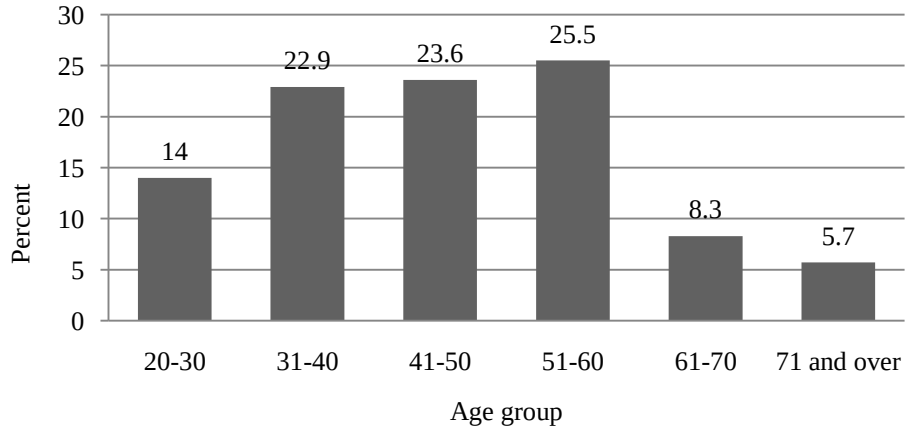
Totally 157 patients who had been admitted in 3 district hospitals, namely Chingeltei, Bayanzurkh and Sukhbaatar, in Ulaanbaatar city between August-November, 2009 were involved in this study.

Gender: Distribution of respondents by gender shows that females make up 54.8 per cent (86 patients) and males make up 45.2 (71 patients) percent of all participants.

Age: 14 percent of participants were between 20-30 years old, 22.9 percent were between 31-40, 23.6 were 41-50, 25.5 were 51-60, 8.3 were 61-70 and 5.7 percent were older than 71 years old.

The figure 5.1 shows the age structure of participants of the study.

Figure 5.1 Age structure of the participants (by percent)



Education level: 80 (51%) of all participants had high school education and the rest of participants had college or university education (Table 5.1).

Occupational status: Of all participants, 5 patients (3.2%) were university student, 72 /45.9%/ patients worked in either the public or private sector and 80 participants /51%/ were either unemployed or retired (Table 5.2).

Table 5.1 Education level of participants

Education level	Number of patients
High school	80 /51%/
College	11 /7%/
University	66 /42%/
Total	157 /100%/

Table 5.2 Occupational status of participants

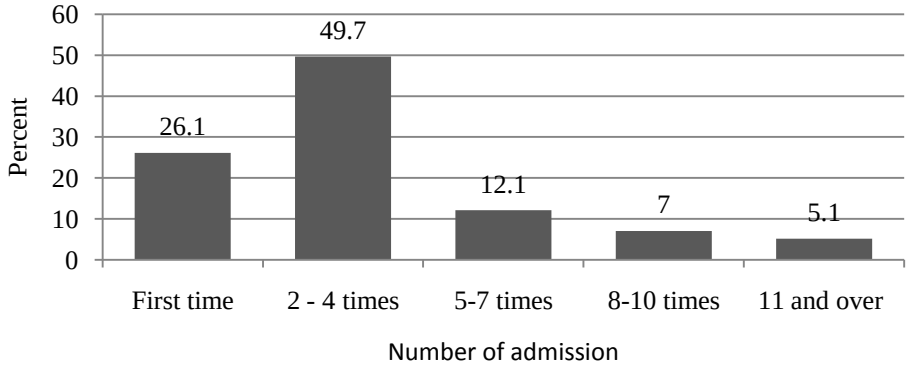
Occupation	Number of patients
Student	5 /3.2%/
Employee in public sector	27 /17.2%/
Employee in private sector	45 /28.7%/
Unemployed	42 /26.8%/
Retired	38 /24.2%/
Total	157 /100%/

Admitted hospitals: 53 patients (33.8 percent) of all participants were admitted in Chingeltei District hospital, 50 patients (31.8 percent) in Bayanzurkh district hospital and 54 (34.4percent) patients were admitted in Sukhbaatar district hospital.

Number of admissions: The number of admission in hospital varied from patient to patient. There were 41 patients (26.1%) who had been admitted for the first time. The highest number of admission to the hospital among participants of study was 15 times. The majority of participants had been admitted in district hospitals 2-7 times. The number of admissions in the hospital is presented in figure 5.2.

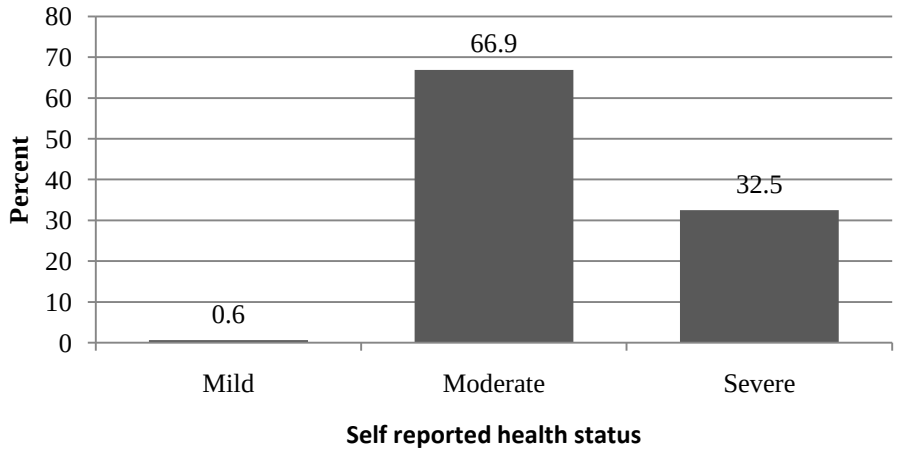
Length of stay in hospital: 28 patients (17.8%) of participants had been staying from 4 to 5 days in hospital when the questionnaires were collected and 129 patients (82.2%) had been staying from 6 to 10 days. None of the participants of study had been staying more than 10 days in hospital.

Figure 5.2. Number of admission to the hospital



Self reported health status at admission: Only 1 patient (0.6%) reported her health status as mild. 105 (66.9%) patients reported as moderate and 51 patients (32.5%) reported as severe at their admission. (Figure 5.3)

Figure 5.3. Self reported health status at admission (by percent)



Choice of the hospitals: 154 patients (98.1%) had been admitted to the hospital in accordance with their residential status while the other 3 (1.9%) patients had been admitted because their acquaintances worked in one of those hospitals.

5.2 The analysis of SERVQUAL instrument

In terms of expectation in all dimensions, the mean score ranged between 6.06 and 6.99. The mean of total perception scores ranged between 3.14 and 6.28.

The table 5.3 shows the descriptive statistics of expectation and perception scores assigned by patients provided by healthcare services in district hospitals.

For each pair of statements, the gap between expectation and perception was computed as follow:

Q (Quality gap) =Perception (P) - Expectation (E)

Table 5.4 shows the means of SERVQUAL scores (scores on expectation, perception of patients and gap (Q) between them) in accordance with all statements. (Refer to appendix for expectations (E1-E29) and perceptions (P1-P29) of patients)

Table 5.3 Descriptive statistics of Expectations (E) of patients (N=157)

	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15
Minimum	4	6	6	5	5	5	5	5	5	6	6	6	5	6	5
Maximum	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Mean	6.1	6.76	6.68	6.49	6.5	6.32	6.31	6.31	6.3	6.96	6.7	6.71	6.57	6.65	6.09
Std.Deviation	0.677	0.43	0.467	0.627	0.606	0.633	0.608	0.649	0.625	0.192	0.459	0.454	0.545	0.479	0.624

	E16	E17	E18	E19	E20	E21	E22	E23	E24	E25	E26	E27	E28	E29
Minimum	6	6	6	5	5	6	6	6	6	6	5	5	6	5
Maximum	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Mean	6.4	6.99	6.98	6.51	6.48	6.69	6.85	6.54	6.54	6.99	6.49	6.06	6.99	6.46
Std.Deviation	0.492	0.08	0.137	0.538	0.55	0.462	0.361	0.5	0.5	0.113	0.514	0.643	0.113	0.513

Descriptive statistics of Perceptions (P) of patients (N=157)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
Minimum	1	3	4	1	1	1	1	1	1	5	1	1	2	2	2
Maximum	5	7	7	6	6	6	6	6	6	7	6	6	7	7	6
Mean	3.41	4.99	6.24	3.6	3.14	4.54	4.14	4.6	3.72	6.28	3.78	3.73	4.46	4.57	4.04
Std.Deviation	1.074	0.987	0.788	1.28	1.337	1.279	1.232	1.091	1.28	0.791	1.374	1.366	1.258	1.252	0.845

	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29
Minimum	3	2	2	2	1	1	1	2	2	1	2	2	2	2
Maximum	6	7	7	6	6	6	6	7	7	6	6	6	6	6
Mean	3.95	4.78	4.86	4.45	3.73	3.58	3.22	4.5	4.45	3.36	4	3.91	4.1	4.46
Std.Deviation	0.696	1.06	1.059	1.04	1.082	1.282	1.328	1.175	1.157	1.302	1.074	1.112	1.055	0.675

Table 5.4. Mean of SERVQUAL scores

Statements		Expectations	Perceptions	SERVQUAL Score
Tangibles				
Q1	DH has up to date and well maintained equipment.	6.1	3.41	-2.69
Q2	Cleanliness and hygiene in district hospitals are excellent.	6.76	4.99	-1.77
Q3	The nurses and doctors are clean and well-groomed.	6.68	6.24	-0.44
Q4	The DH thoroughly provide information on hospital service	6.49	3.6	-2.89
Q5	The patient room is comfortable enough	6.5	3.14	-3.36
Communication				
Q8	Doctors explain to me about my health conditions, diagnosis and treatment in understandable way.	6.31	4.6	-1.71
Q9	Nurses explain to me exactly when and what they are going to do.	6.3	3.72	-2.58
Q23	Doctors have good knowledge to answer my question	6.54	4.5	-2.04
Q24	Nurses have good knowledge to answer my questions	6.54	4.45	-2.09
Responsiveness				
Q11	Doctors respond immediately when called by me.	6.96	3.78	-3.18
Q12	Nurses respond immediately when called by me.	6.7	3.73	-2.97
Q15	Waiting time for admission is not so long /more than a week/	6.09	4.04	-2.05
Q16	Waiting time for daily service is not so long /more than 45 min/	6.4	3.95	-2.45
Q29	Operating hours in district hospital is convenient to patients.	6.46	4.46	-2
Empathy				
Q13	Doctors are helpful for me	6.57	4.46	-2.11
Q14	Nurses are helpful for me.	6.65	4.57	-2.08
Q21	Doctors are respectful to me	6.69	3.58	-3.11
Q22	Nurses are respectful to me.	6.85	3.22	-3.63
Q25	Nurses in district hospital are caring	6.98	3.36	-3.63
Q26	Doctors in district hospital listen to me attentively	6.49	4	-2.49
Q27	Nurses in district hospital listen to me attentively	6.06	3.91	-2.15
Reliability				
Q6	DH provide treatment, diagnostic tests and other services in a certain time	6.32	4.54	-1.78
Q7	When I have a problem, DH shows willingness to solve it.	6.31	4.14	-2.17
Q28	Doctor spend enough time to check and to advice to me	6.99	4.1	-2.89
Accountability				
Q10	Doctor monitors my health status regularly/everyday.	6.96	6.28	-0.68
Q19	I feel confident when receiving medical treatment.	6.51	4.45	-2.06
Q20	District hospitals provide privacy during treatment	6.48	3.73	-2.75
Assurance				
Q17	Doctors are competent	6.99	4.78	-2.21
Q18	Nurses are skillful	6.98	4.86	-2.12

Subsequently, the highest and lowest five means of SERVQUAL scores are presented in table 5.5 and as it can be seen, the highest mean of expectation score (6.99) was for statement 17 and 28 which stated that doctors should be competent and doctors should spend enough time to check up patients, respectively. The lowest mean of expectation (6.06) was for statement 27 which stated that nurses should attentively listen to patients.

Moreover, the highest mean of perception (6.28) was for statement 10 which was related to routine/daily check-up by doctors, while statement 5 which stated comfortableness of patients' room had the lowest mean among other perceptions.

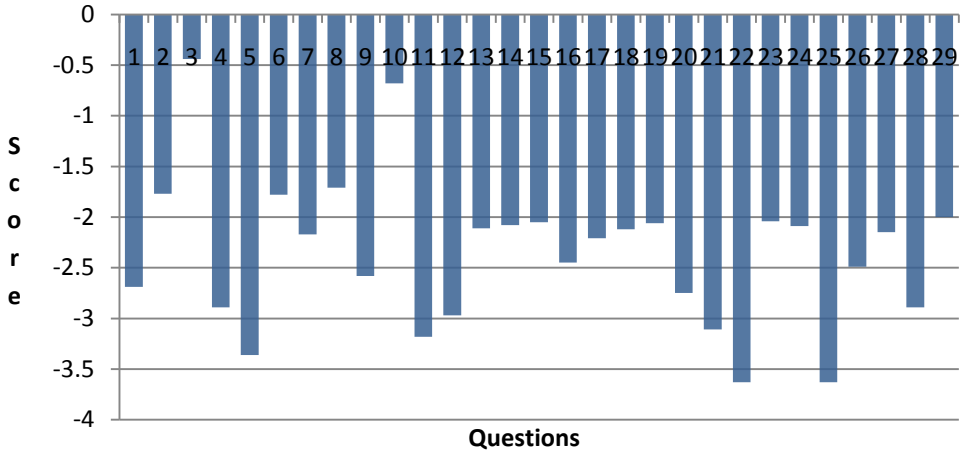
The largest gap (-3.63) between expectation and perception score was for statement 22 and 25 regarding courtesy and care of nurses in district hospital. The smallest gap score was -0.44 and it shows that cleanliness and tidiness of doctors and nurses of district hospitals is close to meet patients' expectation.

Table 5.5. The first five largest/smallest mean of SERVQUAL scores

The five highest expectations		The five lowest expectations	
Statements	Mean scores	Statements	Mean scores
Q17	6.99	Q27	6.06
Q28	6.99	Q15	6.09
Q25	6.98	Q1	6.1
Q18	6.98	Q9	6.3
Q10/Q11	6.96	Q8/7	6.31
The five highest perceptions		**The five lowest perceptions**	
Statements	Mean scores	Statements	Mean scores
Q10	6.28	Q5	3.14
Q3	6.24	Q22	3.22
Q2	4.99	Q25	3.36
Q18	4.86	Q1	3.41
Q17	4.78	Q21	3.58
The five largest differences		**The five smallest differences**	
Statements	Mean scores	Statements	Mean scores
Q25	-3.63	Q3	-0.44
Q22	-3.63	Q10	-0.68
Q5	-3.36	Q8	-1.71
Q11	-3.18	Q2	-1.77
Q21	-3.11	Q6	-1.78

According to the computation of gap score, all gap scores were below zero: This indicates that none of perceptions of patients met their expectations. Figure 5.4 showed the means of gap scores in terms of all statements/questions.

Figure 5.4. The mean of gap scores

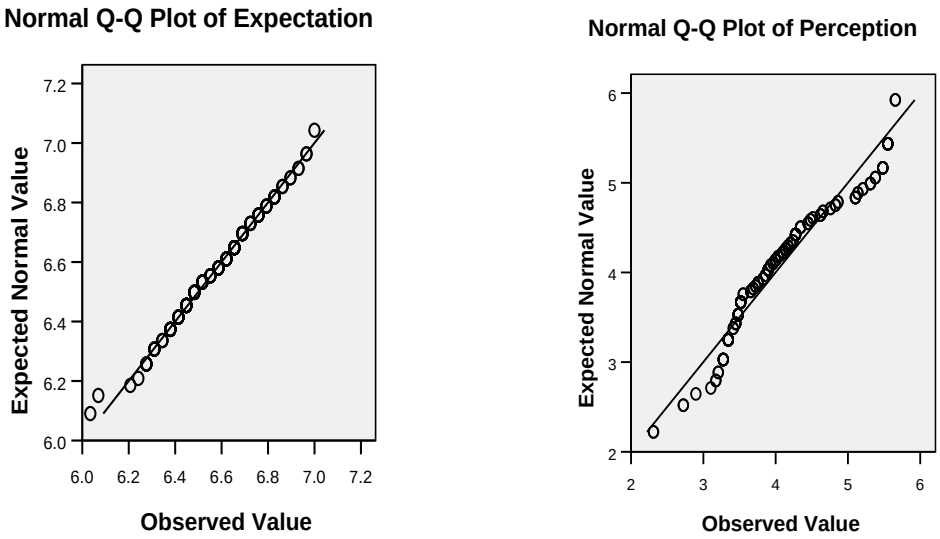


However, the mean of the gap between expectation and perception scores ranged between -3.63 and -0.44. The paired sample t-test was used to clarify whether or not the difference in the means of total expectation and perception score assigned by patients is statistically significant. In order to run the paired sample t test, the following assumptions required for t test were checked.

- Normality
- Independence of observations

Normality - The assumption which refers to whether the two sets of variables (expectation and perception of patients) are normally distributed was checked using the Q-Q plot and two sets of variables were shown to be normally distributed. It is shown in figure 5.5.

Figure 5.5 Q-Q plots of variables on expectations and perceptions of the patients



Independence of observations –The Durbin-Watson coefficient which is used to test the independence of observations was 1.8 (it should be between 1.5 and 2.5 for independent observations) and this assumption met for paired sample t test.

The result of the paired sample t test is shown in table 5.6 and 5.7.

The results presented in table 5.6 shows that difference between two sets of mean is 6.57-4.07=2.5.

Table 5.6 Paired Samples Statistics (total expectations and perceptions of patients)

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Expectation	6.5667	157	.17944	.01432
	Perception	4.0727	157	.75557	.06030

Table 5.7 Paired Samples Test (total expectations and perceptions of patients)

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Expectation – Perception	2.49396	.72177	.05760	2.38018	2.60774	43.295	156	.000

Moreover, the table 5.7 shows a statistically significant difference in the mean of expectation and perception scores (t (156) =43.295, $p<0.001$); therefore, the paired sample t-test concluded that there is a statistically significant difference in the means of total perceptions and expectations of patients regarding healthcare services offered at district hospitals. (t (156)=41.194, $p<0.05$ two-tailed).

However, the results do not report the size of difference between expectation and perception scores. Therefore, in order to assess the magnitude of the difference I calculated the effect size since the 'effect size' is a simple way of quantifying the size of the difference between two groups (Coe, 2000). The effect size conveys whether an observed difference is substantively important. The effect size is calculated as follows:

$$r \text{ (effect size)} = t^2/(t^2+df) = 43.3^2/(43.3^2+156) = 0.92$$

According to Cohen (1988), the size effect is interpreted as followings:

r=0.1-0.3 – small effect

r=0.3-0.5 – middle effect

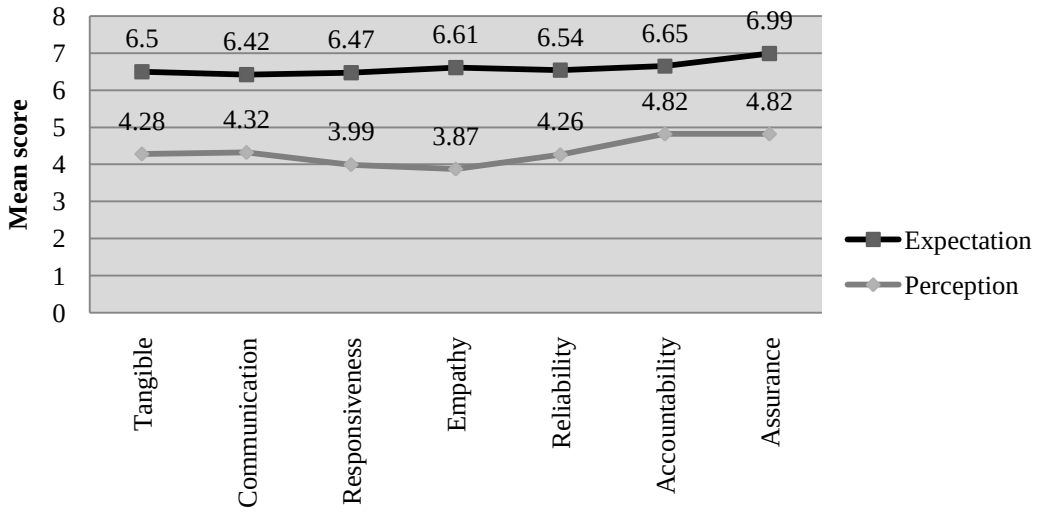
r>0.6 – large effect

Given our effect size value of 0.92 for the difference between means of expectations and perceptions, it can be concluded that this was a large effect.

We already checked the difference in the mean of total expectations and perceptions scores. Therefore, the next step was to check the difference between the means of expectations and perceptions scores with respect to each of seven SERVQUAL dimensions by averaging the SERVQUAL scores on the statements which make up the dimensions.

The figure 5.6 illustrated the means of expectations and perceptions in terms of 7 dimensions of service quality.

Figure 5.6. Means of expectations and perceptions (by dimensions)



As shown in figure 5.6, the means of expectation scores seemed to be greater than the respective means of perception. In order to check whether these differences are statistically significant or not, the paired sample t-test was applied for each pair of the 7 dimensions. The result of t-test is shown in table 5.8.

Table 5.8. Paired Samples Test (difference between expectations and perceptions by dimensions)

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Tangible Exp – Tangible Perc	2.22803	.68029	.05429	2.12078	2.33527	41.037	156	.000
Pair 2	Communication Exp – Communication Perc	2.10669	.98799	.07885	1.95094	2.26244	26.718	156	.000
Pair 3	Responsiveness Exp – Responsiveness Perc	2.48408	.80228	.06403	2.35760	2.61055	38.796	156	.000
Pair 4	Empathy Exp – Empathy Perc	2.74158	1.06329	.08486	2.57396	2.90921	32.307	156	.000
Pair 5	Reliability Exp – Reliability Perc	2.28450	1.08329	.08646	2.11373	2.45528	26.424	156	.000
Pair 6	Accountability Exp – Accountability Perc	1.83015	.88483	.07062	1.69066	1.96964	25.916	156	.000
Pair 7	Assurance Exp – Assurance Perc	2.16879	1.02930	.08215	2.00652	2.33105	26.401	156	.000

Exp-Expectation; Perc-Perception

According to the results presented in table 5.8, the mean in the difference between expectations and perceptions in tangible scores is 2.23 with 95% confidence interval ranging from 2.12 to 2.34. The test result shows that there is a statistically significant

difference between the mean of expectation scores (M=6.5, SD=0.45) and perception scores (M=4.28, SD=0.67) in terms of tangible dimension. (t (156)=41.037, p<0.0001) The calculation of size effect for tangible scores ($r=41^2/ (41^2+156) =0.92$) shows the large effect size.

The mean in the difference in "communication" dimension scores is 2.1 with 95% confidence interval ranging from 1.95 to 2.26. The test result shows the statistically significant difference between the mean of expectation scores (M=6.42, SD=0.5) and perception scores (M=4.3, SD=0.9) in terms of communication dimension. (t (156)=26.7, p<0.0001)

The calculation of effect size for communication scores ($r=26.7^2/ (26.7^2+156) =0.82$) shows also the large effect size.

The mean in the difference in "responsiveness" scores is 2.48 with 95% confidence interval ranging from 2.36 to 2.6. The test result also shows a statistically significant difference in the mean of expectation scores (M=6.47, SD=0.35) and perception scores (M=3.99, SD=0.7) in terms of responsiveness dimension (t (156)=38.8, p<0.0001).

The calculation of effect size for responsiveness scores ($r=38.8^2/ (38.8^2+156) =0.91$) shows also a large effect size.

The mean in the difference in "empathy" scores is 2.74 with 95% confidence interval ranging from 2.57 to 2.91. The test result also showed a statistically significant

difference in the mean of expectation scores (M=6.61, SD=0.28) and perception scores (M=3.87, SD=1.03) in terms of empathy dimension. (t (156)=32.3, p<0.0001)
The calculation of effect size for "empathy" scores ($r=32.3^2/ (32.3^2+156) =0.87$) shows also the large effect size.

The mean in the difference in "reliability" scores is 2.28 with 95% confidence interval ranging from 2.11 to 2.46. The test result also shows a statistically significant difference in the mean of expectation scores (M=6.54, SD=0.41) and perception scores (M=4.26, SD=1) in terms of reliability dimension. (t (156)=26.4, p<0.0001)
The calculation of effect size for reliability scores ($r=26.4^2/ (26.4^2+156) =0.82$) shows also the large effect size.
The mean difference in "accountability" scores is 1.83 with 95% confidence interval ranging from 1.69 to 1.97. The test result also shows a statistically significant difference between the mean score of expectations (M=6.65, SD=0.33) and perceptions (M=4.82, SD=0.81) in terms of reliability dimension. (t (156)=25.9, p<0.0001)
The calculation of effect size for accountability scores ($r=25.9^2/ (25.9^2+156) =0.81$) shows also the large effect size.

The mean in the difference in "assurance" scores is 2.17 with 95% confidence interval ranging from 2 to 2.33. The difference in the mean of expectation (M=6.99, SD=0.1) and perception (M=4.82, SD=1.03) scores is statistically significant in

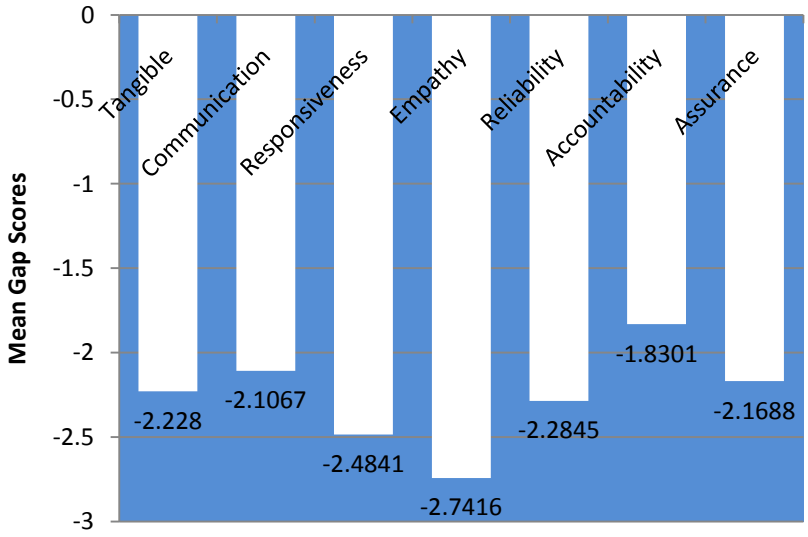
accordance with the test result in terms of assurance dimension. (t (156)=25.9, p<0.0001)

The calculation of effect size for accountability scores ($r=25.9^2/ (25.9^2+156) =0.81$) shows also the large effect size.

According to the above results, there are statistically significant differences in the mean of expectation and perception scores assigned by patients along each of 7 dimensions.

Figure 5.7 shows the means of the gap scores for seven SERVQUAL dimensions. The mean of gap scores for seven dimensions ranges from -2.74 to -1.83. The empathy dimension of healthcare services provided by district hospital has the highest gap score (-2.74) and accountability of staff shows the lowest gap (-1.83).

Figure 5.7 Gap Score (by dimensions)

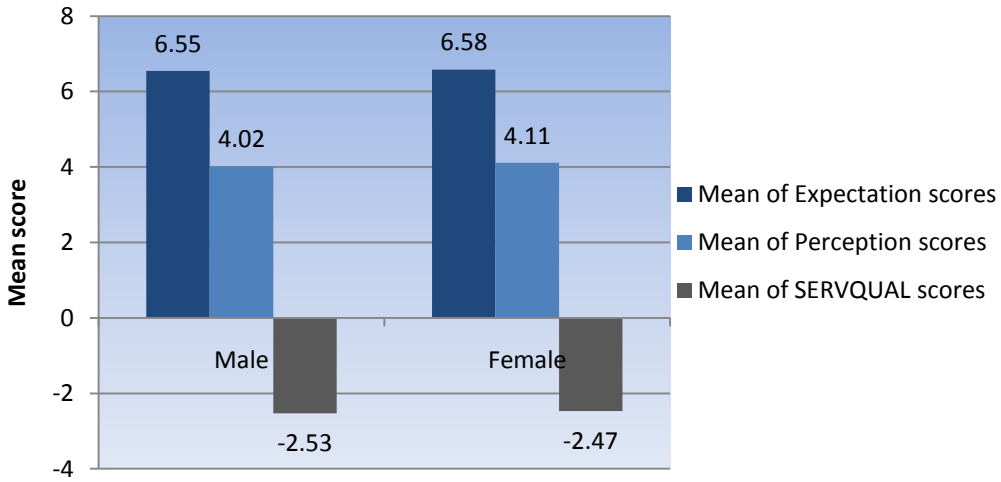


Finally, in the framework of analysis of SERVQUAL instrument, the differences in the mean of expectations/perceptions and gap are checked in relation to patients' background factor.

***Gender*:** - The mean of expectations and perceptions for male patients was 6.55 and 4.02, respectively. The mean of expectation and perception for female patients was 6.58 and 4.11, respectively. Moreover, mean of gap was -2.53 for male patients and -2.47 for female patients.

The figure 5.8 shows the means of SERVQUAL scores by gender.

Figure 5.8 Mean of SERVQUAL scores (by gender)



According to the result of ANOVA test, there was no significant difference in the means of expectation scores between male and female patients (F (1,155) =1.019, p=0.314). Similarly, there was no significant difference in the means of perception

scores (F (1,155) =0.585, p=0.445) as well as mean of gap scores (F (1, 155 =0.302, p=0.583). (table 5.9).

Table 5.9 ANOVA for SERVQUAL scores (by gender)

		Sum of Squares	df	Mean Square	F	Sig.
Expectation	Between Groups	.033	1	.033	1.019	.314
	Within Groups	4.990	155	.032		
	Total	5.023	156			
Perception	Between Groups	.335	1	.335	.585	.445
	Within Groups	88.722	155	.572		
	Total	89.057	156			
Gap	Between Groups	.158	1	.158	.302	.583
	Within Groups	81.110	155	.523		
	Total	81.268	156			

I also checked the differences in each of the 7 dimensions between men and women and found no statistically significant differences.

Age: - The means of SERVQUAL scores do not depend on the age of participants. The table 5.10 shows that there is little or no association between age and perception (r=0.102, p=0.206), expectation (r=0.06, p=0.493) and gap score (r=0.093, p=0.249).

Table 5.10 Correlations between age and SERVQUAL scores

		Age	Expectation	Perception	Gap
Age	Pearson Correlation	1	.055	.102	.093
	Sig. (2-tailed)		.493	.206	.249
	N	157	157	157	157

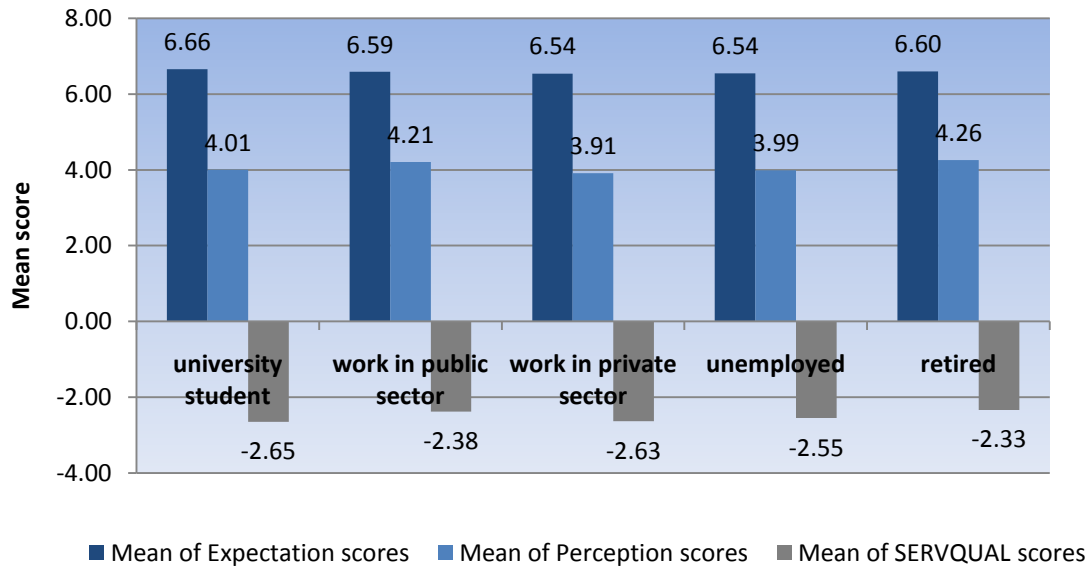
** Correlation is significant at the 0.01 level (2-tailed).

No statistically significant difference in each of 7 dimensions was found in accordance with age.

Occupation: The student-patients had the highest expectation (M=6.66, SD=0.18) while unemployed patients (M=6.54, SD=0.19) and patients who worked in private sector (M=6.54, SD=0.18) had lowest expectation. The retired patients had the highest perception (M=4.26, SD=0.81) and patients who worked in private sector had the lowest perception (M=3.91, SD=0.73). The largest gap score was observed among student-patients (M=-2.65, SD=0.73) and the smallest gap score was observed among retired patients (M=-2.33, SD=0.79).

The figure 5.9 showed the mean of SERVQUAL scores in accordance with occupation.

Figure 5.9 Means of SERVQUAL scores (by occupation)



However, result of ANOVA test showed that there were no significant differences in mean of expectation scores in terms of occupation (F (4,152) =1.064, p=0.376). Similarly, there were no significant differences in the mean of perception scores (F (4,152) =1.469, p=0.214) as well as mean of gap scores (F (4, 152 =1.157, p=0.332). (Table 5.11)

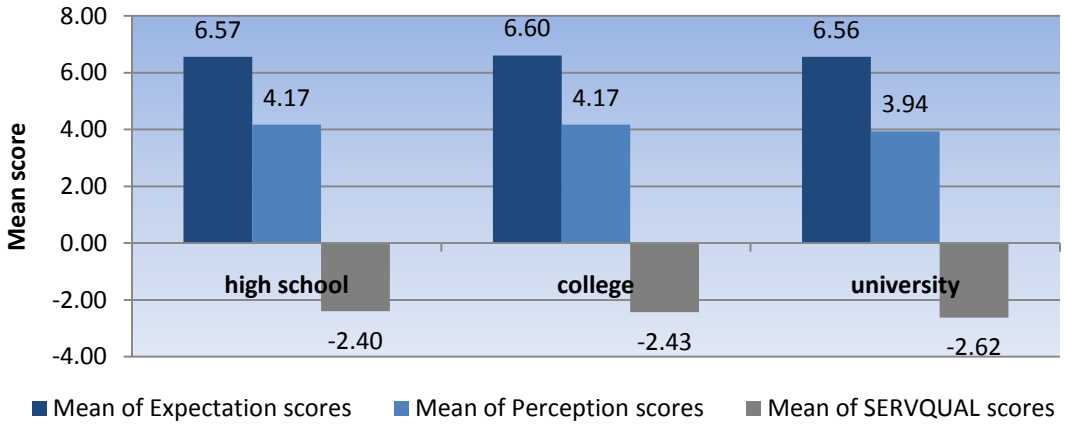
Table 5.11 ANOVA for SERVQUAL scores (by occupation)

		Sum of Squares	df	Mean Square	F	Sig.
Expectation	Between Groups	.137	4	.034	1.064	.376
	Within Groups	4.886	152	.032		
	Total	5.023	156			
Perception	Between Groups	3.314	4	.829	1.469	.214
	Within Groups	85.743	152	.564		
	Total	89.057	156			
Gap	Between Groups	2.401	4	.600	1.157	.332
	Within Groups	78.867	152	.519		
	Total	81.268	156			

Moreover, statistically significant differences in the each of 7 dimensions were not found in relation to occupational status of patients.

Education: The patients who had college education had the highest expectation (M=6.60, SD=0.21) and patients having university education had the lowest perception compared to other patients (M=3.94, SD=0.7). The figure 5.10 showed the means of SERVQUAL scores by education level.

Figure 5.10 Means of SERVQUAL scores (by education level)



According to the ANOVA test result, there were no significant differences in the means of expectation scores in terms of the education level of patients (F (2,154) =0.229, p=0.796). Similarly, there were no significant differences in the means of perception scores (F (2,154) =1.790, p=0.170) as well as mean of gap scores (F (2, 154 =1.861, p=0.159) in terms of education level of patients. (Table 5.12)

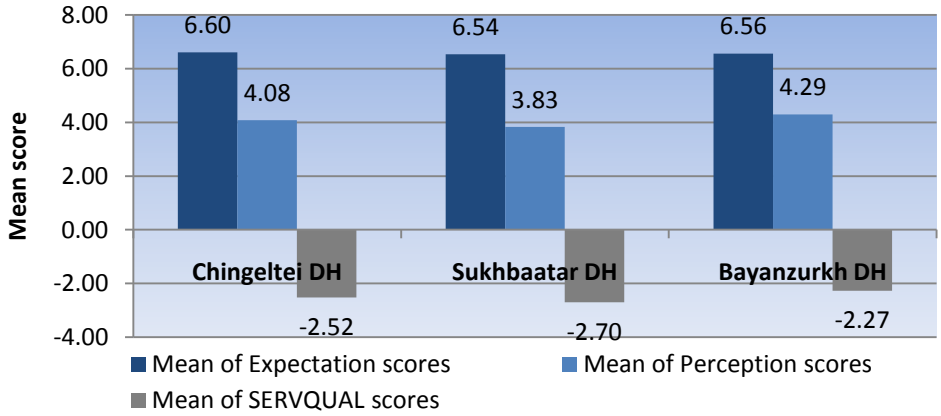
Table 5.12. ANOVA for SERVQUAL scores (by education level)

		Sum of Squares	df	Mean Square	F	Sig.
Expectation	Between Groups	.015	2	.007	.229	.796
	Within Groups	5.008	154	.033		
	Total	5.023	156			
Perception	Between Groups	2.023	2	1.012	1.790	.170
	Within Groups	87.034	154	.565		
	Total	89.057	156			
Gap	Between Groups	1.918	2	.959	1.861	.159
	Within Groups	79.350	154	.515		
	Total	81.268	156			

No statistically significant differences in the each of 7 dimensions were found in relation to educational status of patients.

Admitted hospitals: The patients admitted in Bayanzurkh district hospital had the highest perception (M=4.29, SD=0.86) while patients admitted in Sukhbaatar district hospital had the lowest perception (M=3.83, SD=0.64) regarding the healthcare services. The smallest gap score was observed among patients admitted in Bayanzurkh district hospital (M=-2.27, SD=0.83) while the largest gap score was observed among patients admitted in Sukhbaatar district hospital (M=-2.7, SD=0.62) The figure 5.11 showed means of SERVQUAL scores by hospital admitted.

Figure 5.11 Mean of SERVQUAL scores (by hospital admitted)



The result of the ANOVA test showed no significant difference in the means of expectation scores in terms of hospital admitted (F (2,154) =1.591, p=0.207),

however, there was a statistically significant difference in the means of perception scores in terms of hospital admitted (F (2,154) =4.973, p=0.008) as well as in the mean of gap scores (F (2, 154 =4.988, p=0.008). (Table 5.13) To determine the effect size of differences in the means of the perception scores, Eta squared was calculated using the following formula:

Eta squared= Sum of squares between two groups/Total sum of squares = 5.402/89.057=0.06

The result of eta squared 0.06 is considered to be small effect size in accordance with Cohen (1988). Therefore, even though the difference in the means of perception scores in terms of hospitals admitted is statistically significant, the actual difference is quite small.

The effect size of difference in the mean of gap scores was also 0.06 (Eta squared= Sum of squares between two groups/Total sum of squares= 4.944/81.268=0.06) it showed small effect size.

Table 5.13 ANOVA for SERVQUAL scores (by hospital admitted)

		Sum of Squares	df	Mean Square	F	Sig.
Expectation	Between Groups	.102	2	.051	1.591	.207
	Within Groups	4.922	154	.032		
	Total	5.023	156			
Perception	Between Groups	5.402	2	2.701	4.973	.008
	Within Groups	83.655	154	.543		
	Total	89.057	156			
Gap	Between Groups	4.944	2	2.472	4.988	.008
	Within Groups	76.324	154	.496		
	Total	81.268	156			

Since there were significant differences in the means of gap scores, I checked which dimensions were evaluated differently by patients in which hospital. According to the result of ANOVA, there were statistically significant differences in the means of gap scores in responsiveness (F (2,154)=3.191, p=0.044), empathy (F(2,154)=4.575, p=0.012), reliability (F(2,154)=8.369, P<0.001) and accountability dimensions (F (2,154)=3.348, p=0.038). (Table 5.14)

Table 5.14 ANOVA for gap score (by admitted hospital)

		Sum of Squares	df	Mean Square	F	Sig.
Gap Tangible	Between Groups	1.662	2	.831	1.815	.166
	Within Groups	70.534	154	.458		
	Total	72.197	156			
Gap Communication	Between Groups	4.066	2	2.033	2.113	.124
	Within Groups	148.209	154	.962		
	Total	152.275	156			
Gap Responsiveness	Between Groups	3.995	2	1.998	3.191	.044
	Within Groups	96.415	154	.626		
	Total	100.410	156			
Gap Empathy	Between Groups	9.891	2	4.945	4.575	.012
	Within Groups	166.482	154	1.081		
	Total	176.373	156			
Gap Reliability	Between Groups	17.948	2	8.974	8.369	.000
	Within Groups	165.122	154	1.072		
	Total	183.070	156			
Gap Accountability	Between Groups	5.090	2	2.545	3.348	.038
	Within Groups	117.048	154	.760		
	Total	122.137	156			
Gap Assurance	Between Groups	2.878	2	1.439	1.365	.259
	Within Groups	162.399	154	1.055		
	Total	165.277	156			

The post hoc test revealed that the means of gap scores in responsiveness (p=0.038), empathy (0.012), reliability (p<0.001) and accountability (p=0.032) dimensions of quality of healthcare service were significantly different between Bayanzurkh and Sukhbaatar district hospitals. Only significant values were presented in table 5.15.

Table 5.15 Multiple Comparisons of gap scores (by admitted hospitals)

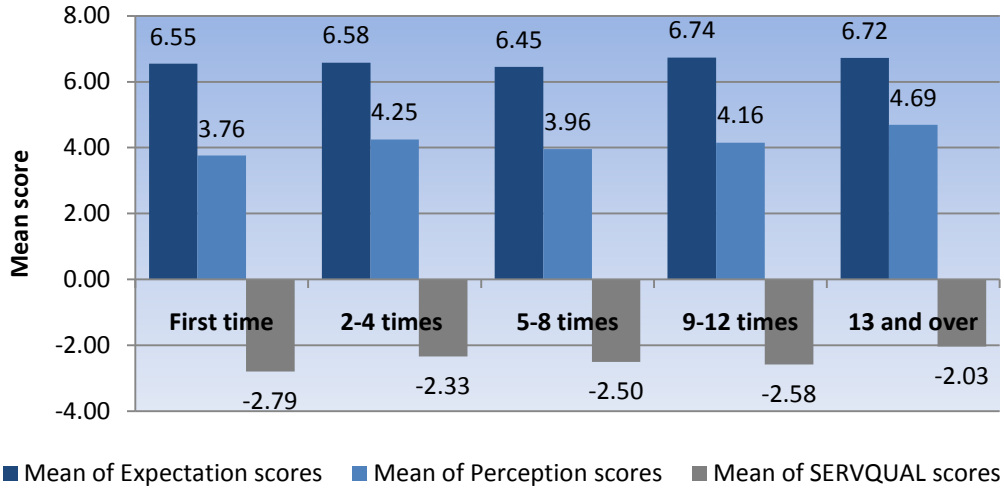
Dependent Variable	(I) Hospital admitted	(J) Hospital admitted	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Responsiveness	SBD	BZD	-.39200(*)	.15529	.038	-.7679	-.0161
GapEmpathy	SBD	BZD	-.59852(*)	.20406	.012	-1.0924	-.1046
GapReliability	SBD	BZD	-.80938(*)	.20323	.000	-1.3013	-.3175
GapAccountability	SBD	BZD	-.44222(*)	.17110	.032	-.8564	-.0281

Bonferroni

Number of admission: The patients admitted in hospital for the first time had the lowest perception (M=3.76, SD=0.65) compared to other patients while patients admitted in hospital more than 13 times had the highest perception (M=4.69, SD=0.88).

The figure 5.12 showed the means of SERVQUAL scores by number of admission.

Figure 5.12 Means of SERVQUAL scores (by number of admission)



The result of ANOVA test showed statistically significant differences in the mean of expectation scores (F (4,152) =6.534, p<0.001), perception scores (F (4,152) =3.533, p=0.009) and gap scores (F (4,152) =3.087, p=0.018) in terms of number of admissions in hospital. (Table 5.16)

Table 5.16 ANOVA for SERVQUAL scores (by number of admission)

		Sum of Squares	df	Mean Square	F	Sig.
Expectation	Between Groups	.737	4	.184	6.534	.000
	Within Groups	4.286	152	.028		
	Total	5.023	156			
Perception	Between Groups	7.576	4	1.894	3.533	.009
	Within Groups	81.481	152	.536		
	Total	89.057	156			
Gap	Between Groups	6.105	4	1.526	3.087	.018
	Within Groups	75.163	152	.494		
	Total	81.268	156			

To determine the effect size between the differences of the mean of expectation scores, Eta squared was calculated:

Eta squared= Sum of squares between two groups/Total sum of squares= 0.737/5.023=0.15

The effect size between the differences of the mean of perception score is 0.08.

Eta squared= Sum of squares between two groups/Total sum of squares= 7.576/89.057=0.08

The effect size between the differences of the mean of gap score is 0.08.

Eta squared= Sum of squares between two groups/Total sum of squares= 6.105/81.268=0.08

The effect size between the differences of the mean of SERVQUAL scores ranged from 0.08 to 0.15; therefore, even though the differences in the mean of SERVQUAL scores in terms of the number of admissions were statistically significant, the actual differences were quite small.

I also checked the differences in each of the 7 dimensions in accordance with number of admissions to the hospital and found statistically significant differences in patients' perceptions on responsiveness ($F(4,152) = 3.491$, $p=0.009$), empathy ($F(4,152) = 3.441$, $p=0.010$), reliability ($F(4,152) = 3.855$, $p=0.005$), and accountability dimensions ($F(4,152) = 2.653$, $p=0.035$). It is shown in table 5.17.

The patients who had been admitted for the first time appeared to have lower perceptions on those dimensions.

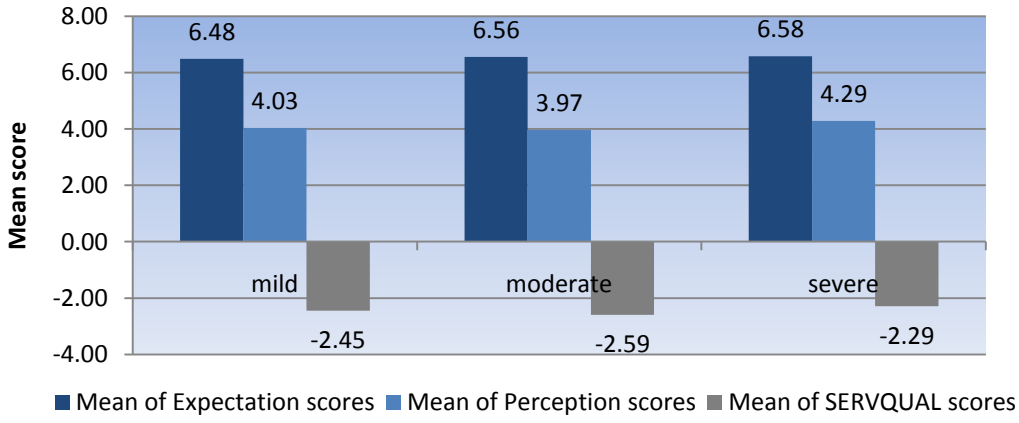
Table 5.17 ANOVA for perception of patients (by number of admission)

		Sum of Squares	df	Mean Square	F	Sig.
Responsiveness Perc	Between Groups	6.450	4	1.613	3.491	.009
	Within Groups	70.209	152	.462		
	Total	76.659	156			
Empathy Perc	Between Groups	13.802	4	3.450	3.441	.010
	Within Groups	152.426	152	1.003		
	Total	166.228	156			
Reliability Perc	Between Groups	14.610	4	3.653	3.855	.005
	Within Groups	144.028	152	.948		
	Total	158.638	156			
Accountability Perc	Between Groups	6.723	4	1.681	2.653	.035
	Within Groups	96.283	152	.633		
	Total	103.006	156			

Perc- Perception

Self reported health status: The patients who evaluated their health condition as moderate had the lowest perception (M=3.96, SD=0.74) and the largest gap score (M=-2.59, SD=0.71) was observed for those patients. The figure 5.13 shows means of SERVQUAL scores by self reported health status.

Figure 5.13 Mean of SERVQUAL scores (by self reported health status)



However, the ANOVA test result showed no significant differences in the means of expectation scores in relation to self reported health status of patients (F (2,154) =0.284, p=0.753). Similarly, there was no significant differences in the means of perception scores (F (2,154) =3.095, p=0.05) as well as mean of gap scores (F (2, 154 =3.010, p=0.054). (table 5.18)

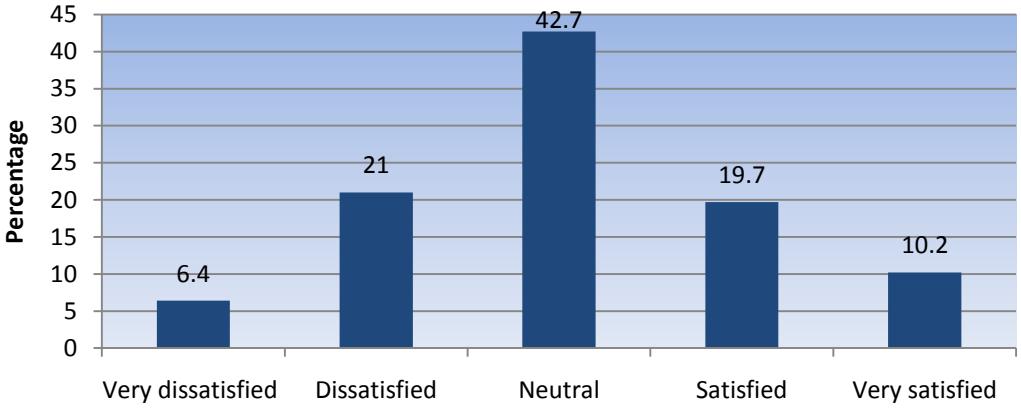
5.18 ANOVA for SERVQUAL scores (by self reported health status)

		Sum of Squares	df	Mean Square	F	Sig.
Expectation	Between Groups	.018	2	.009	.284	.753
	Within Groups	5.005	154	.032		
	Total	5.023	156			
Perception	Between Groups	3.441	2	1.721	3.095	.048
	Within Groups	85.616	154	.556		
	Total	89.057	156			
Gap	Between Groups	3.058	2	1.529	3.010	.052
	Within Groups	78.210	154	.508		
	Total	81.268	156			

5.3. The analysis of patients' overall satisfaction

In the framework of this study, patients' overall satisfaction with healthcare service offered at district hospitals was assessed in accordance with scale ranging 1 (very dissatisfied) to 5 (very satisfied). 42.7% of all patients were neither satisfied nor dissatisfied. 6.4% of participants were very dissatisfied while 10.2% were very satisfied with healthcare services. (Figure 5.14) The mean of overall satisfaction was 3.06 with SD of 1.06.

Figure 5.14 Frequency of overall patient satisfaction (by percentage)



Subsequently, the patients' overall satisfaction was analyzed univariately by their demographic indicator, number of admissions in hospital and self reported health condition.

Age: The overall satisfaction is not increasing or decreasing depending on the age of patients. The non-parametric correlation coefficients showed no correlation between overall satisfaction and patients' age. (rho=0.109, p=0.175 and Kendall's tau_b=0.083, p=0.17) (Table 5.19)

Table 5.19 Correlations between overall satisfaction and age

			Age
Kendall's tau_b	OVSAT	Correlation Coefficient	.083
		Sig. (2-tailed)	.170
		N	157
Spearman's rho	OVSAT	Correlation Coefficient	.109
		Sig. (2-tailed)	.175
		N	157

I studied the differences in the means of overall satisfaction between different age groups and the mean of overall satisfaction ranged between 2.85 and 3.89 for six age groups as presented in table 5.20. The patients aged from 61 to 70 years were more likely to be less satisfied with overall healthcare service. (M=2.85, SD=0.337) while patients older than 71 years were more likely satisfied with service (M=3.89, SD=0.93).

Table 5.20 Descriptives of overall satisfaction (by age group)

Age group	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
20-30	22	2.91	1.109	.236	2.42	3.40
31-40	36	3.06	.984	.164	2.72	3.39
41-50	37	2.95	.970	.160	2.62	3.27
51-60	40	3.15	1.027	.162	2.82	3.48
61-70	13	2.85	1.214	.337	2.11	3.58
71 and over	9	3.89	.928	.309	3.18	4.60
Total	157	3.06	1.036	.083	2.90	3.23

The differences in the means of overall satisfaction between patients in different age groups were proved not to be statistically significant by Kruskal-Wallis test. (p=0.2) (Table 5.21)

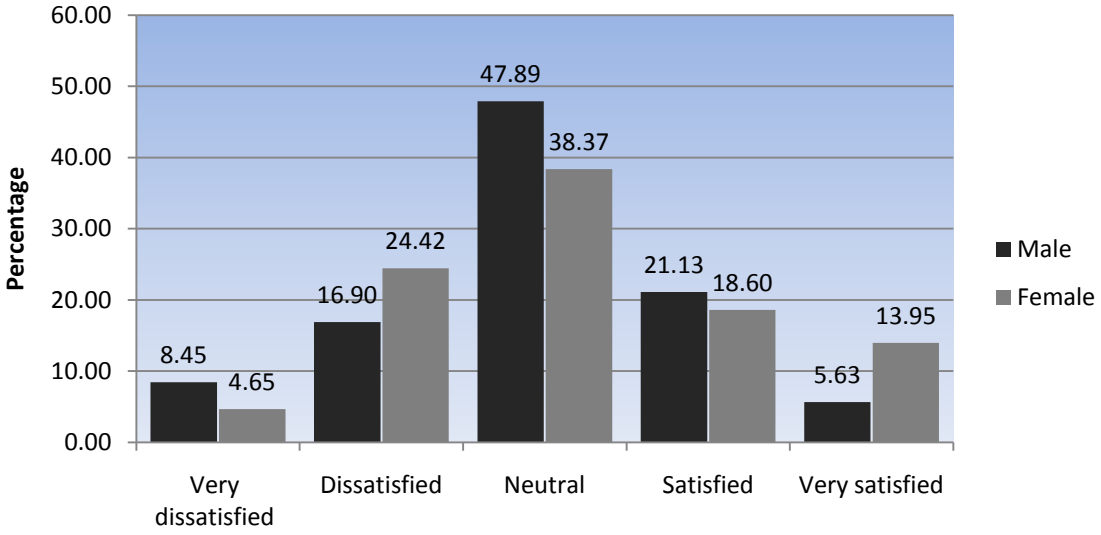
Table 5.21 Test Statistic for overall satisfaction (by age group)

	OVSAT
Chi-Square	7.286
df	5
Asymp. Sig.	.200

a Kruskal Wallis Test

Gender: The means of overall satisfaction of male patients and female patients were 2.99 with SD of 0.978 and 3.13 with SD of 1.082, respectively. The figure 5.15 showed that how differently male and female patients were satisfied with healthcare services offered at district hospital.

Figure 5.15 Overall satisfaction of patients by gender (by percentage)



As shown in figure 5.15, 47.89% of all male patients and 38.37% of all female patients are neither satisfied nor dissatisfied. Percentage of female patients (13.95%) who are very satisfied with service is higher than percentage of male patients (5.63) who are very satisfied. However, female patients are more likely to be dissatisfied rather than male patients. The Mann-Whitney U test tested that whether these differences were statistically significant or not. The result of Mann-Whitney U test

showed no significance differences in the mean of overall satisfaction between male and female patients. (p=0.589) (Table 5.22)

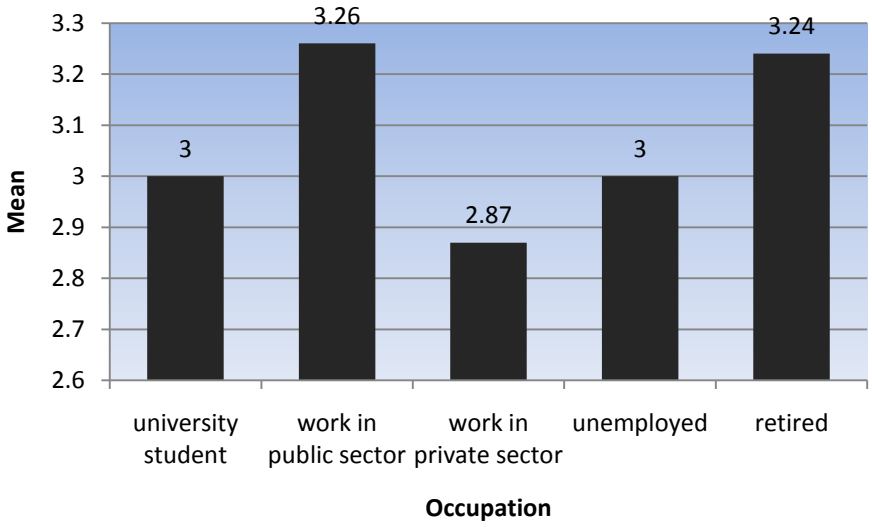
Table 5.22 Test Statistics for overall satisfaction (by gender)

	OVSAT
Mann-Whitney U	2907.000
Wilcoxon W	5463.000
Z	-.542
Asymp. Sig. (2-tailed)	.588
Point Probability	.000

a Grouping Variable: Gender

Occupation: The patients who worked in public sector were more likely to be satisfied (M=3.26, SD= 0.22) compared to other participants. Patients who worked in private sector were less satisfied (M=2.87, SD=0.14) with healthcare services. Mean of satisfaction was 3 for both student-patients (SD=0.55) and unemployed patients (SD=0.14). In addition, the mean of satisfaction for patients working in public sector was 3.26 with SD of 0.22. (Figure 5.16)

Figure 5.16. The means of overall satisfaction of patients (by occupation)



The Kruskal-Wallis test showed no significant differences in the means of satisfaction between patients in accordance with their occupational status (p=0.259). (table 5.23)

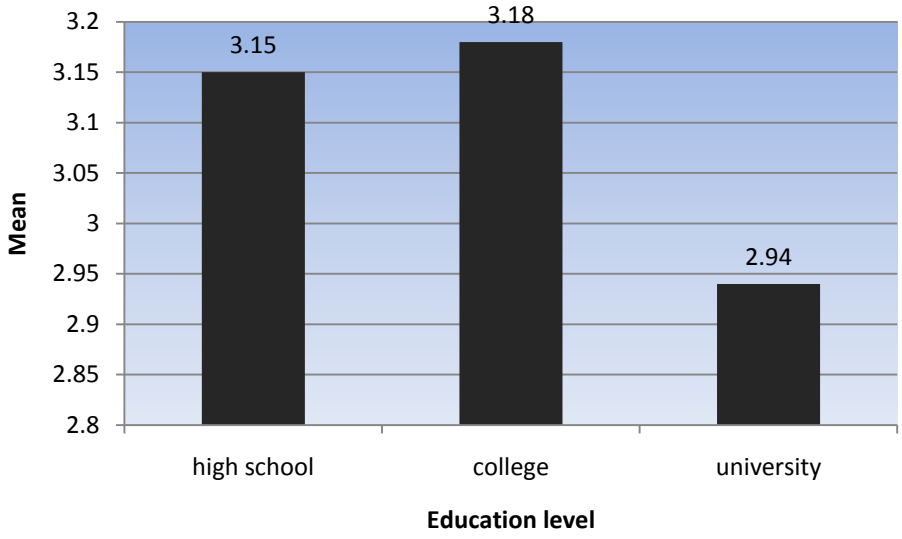
Table 5.23 Test Statistics for overall satisfaction of patients (by occupation)

	OVSAT
Chi-Square	4.025
df	3
Asymp. Sig.	.259

a Kruskal Wallis Test

Education level: The mean of satisfaction was 3.15 and 3.18 for patients who had high school and college education, respectively. However, patients who got university education were less satisfied with service (M=2.94, SD=0.112) (Figure 5.17)

Figure 5.17. The means of satisfaction (by educational level)



The result of Kruskall-Wallis test showed no significance difference in the means of satisfaction between patients with different education levels. (p=0.503) (Table 5.24)

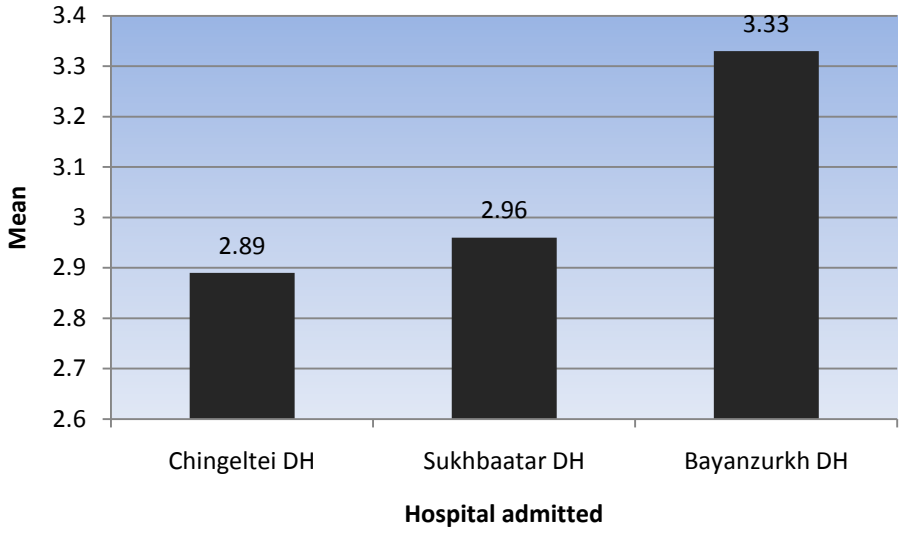
Table 5.24. Test Statistics for overall satisfaction of patients

	OVSAT
Chi-Square	1.372
df	2
Asymp. Sig.	.503

a Kruskal Wallis Test
b Grouping Variable: education

Admitted hospitals: The patients admitted in Bayanzurkh district hospital were more likely to be satisfied (M=3.33, SD=0.156) with healthcare service offered at Bayanzurkh district hospital. The patients admitted in Chingeltei district hospital were less satisfied. The figure 5.18 showed the means of satisfaction by hospitals admitted.

Figure 5.18. The means of satisfaction (by hospital admitted)



However, the result of Kruskall-Wallis test didn't show statistically significance differences in the means of satisfaction between patients admitted in 3 different district hospitals. (p=0.051) (Table 5.25)

Table 5.25 Test Statistics for overall satisfaction of patients (by admitted hospitals)

	OVSAT
Chi-Square	5.941
df	2
Asymp. Sig.	.051

a Kruskal Wallis Test
b Grouping Variable: Hospital admitted

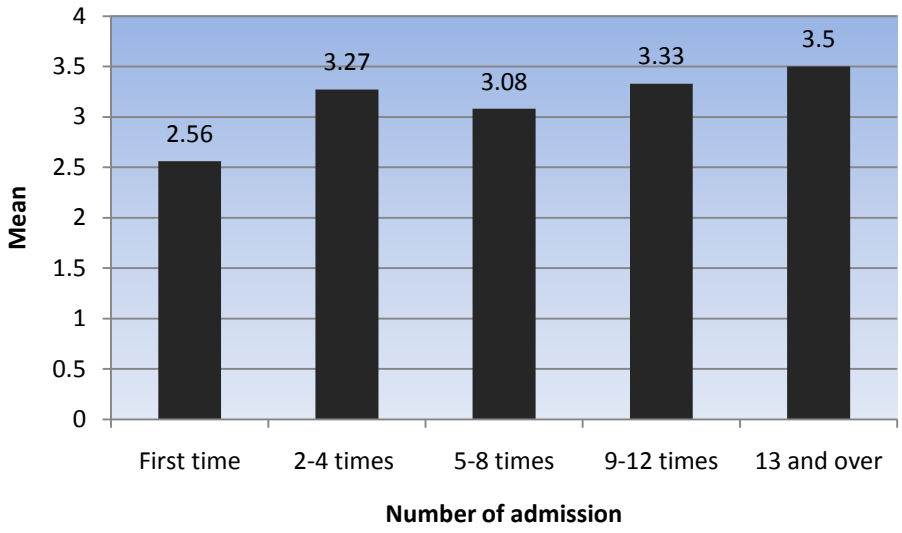
Number of admissions: Non-parametric correlation test showed little or no correlation between the number of admission to the hospital and overall satisfaction of patients. (rho=0.177, p=0.03) (Table 5.26)

Table 5.26 Correlations between number of admission and overall satisfaction

			number of admission	OVSAT
Spearman's rho	OVSAT	Correlation Coefficient	.177(*)	1.000
		Sig. (2-tailed)	.027	.
		N	157	157

However, as shown in figure 5.19, the patients admitted for the first time were less satisfied (M=2.56, SD=0.838) compared to other patients. Patients admitted in hospital more than 12 times were more satisfied. (M=3.5, SD=0.707).

Figure 5.19 Means of satisfaction (by group of number of admission)



Kruskal-Wallis test showed (table 5.27) that there was a statistically significance difference in the means of satisfaction between patients who were admitted in

hospital for a different number of times. (p=0.005); however, it is not possible to know which groups significantly differed from each other since Kruskal-Wallis test is limited for post hoc test. Chi square test couldn't be applied for post hoc test because assumption indicating no cells with an expected count less than 5 for chi square test was violated. There were 15 cells which had an expected count less than 5 and the results would be misleading. Therefore, our interpretation is limited concluding that at least one group differed from one group in terms of mean of satisfaction.

Table 5.27 Test Statistics for overall satisfaction of patients (by number of admission)

	OVSAT
Chi-Square	14.670
df	4
Asymp. Sig.	.005

Kruskal Wallis Test

Self reported health status: Patients who rated their health status as severe deemed more likely to be satisfied (M=3.25, SD=0.145) whereas patients rated as moderate were less satisfied (M=2.97, SD=0.101). Since we have only one patient who rated his health status as mild, the mean couldn't be calculated. The Kruskal Wallis test also showed that mean of satisfaction did not differ within patients rating their health as mild, moderate and severe. (p=0.184) (Table 5.28)

Table 5.28 Test Statistics for overall satisfaction of patients
(by self reported health status)

	OVSAT
Chi-Square	3.213
df	2
Exact Sig.	.184
Point Probability	.000

a Kruskal Wallis Test
b Grouping Variable: self reported health status

Length of stay: Non parametric correlation test showed no correlation between length of stay and patients' overall satisfaction. (rho= -0.01) (Table 5.29)

Table 5.29 Correlations between length of stay and overall satisfaction

			Length of stay	OVSAT
Spearman's rho	OVSAT	Correlation Coefficient	-.011	1.000
		Sig. (2-tailed)	.895	.
		N	157	157

The result of Mann-Whitney U test also showed no significant difference in the mean of satisfaction between patients staying up to 5 days (M=3.14, SD=0.16 and patients staying more than 5 but less than 10 days (M=3.05, SD= 0.095) (P=0.706). (table 5.30)

Table 5.30. Test Statistics for overall satisfaction of patients (by length of stay)

	OVSAT
Mann-Whitney U	1723.000
Wilcoxon W	10108.000
Z	-.400
Asymp. Sig. (2-tailed)	.689
Exact Sig. (2-tailed)	.706

a Grouping Variable: LOS

Since we finished the univariate analysis, in the next step the ordinal regression method was used to model the relationship between overall patient satisfaction and perception of patients concerning the healthcare services provided in district hospitals. In this study, the overall patient satisfaction is a response variable and measured in an ordered, categorical, five- point Likert scale. Explanatory variables included background factors of patients such as age, gender, occupation and educational status, the number of admissions, length of stay, the admitted hospital, self reported health status and 29 items related to perception of dimensions of healthcare services including tangibility, communication, responsiveness, reliability, empathy, accountability and assurance. Regression methods such as linear, logistic, and ordinal regression are useful tools to analyze the relationship between multiple explanatory variables and satisfaction results (Chen, 2004). However, the ordinal regression method must be chosen to obtain valid results in order to study the effect of explanatory variables on all levels of the categorical response variable (Chen, 2004). Therefore, the ordinal regression model was chosen in the data analysis of my study.

In ordinal regression analysis, the two major link functions, logit and complementary log log (clog log), are commonly used to build specific models. There is no clear cut method to distinguish the preference of using different link functions. Researchers suggested that if one link function didn't provide a good fit to the data, then the other link function might be a viable alternative. As a result, it was worth trying the alternative link function to see if the model turned out to be the better one (Chen, 2004). Therefore, I used both link functions to build the best model.

In the first model, totally 23 explanatory variables, namely, the number of admission, hospital admitted and 21 explanatory variables on perception of patients were included to be analyzed. The variable on number of admission was included because it was significantly associated with overall satisfaction in univariate analysis. The variable on admitted hospital was also included as an interesting variable. Even though there were originally 29 explanatory variables in the study, eight of them were excluded from the model because of collinearity and it can cause a loss in power and it might make interpretation more difficult**.** The tolerance and VIF, which stands for *variance inflation factor,* should be tested to check collinearity. The "tolerance" is "an indication of the percent of variance in the predictor that cannot be accounted for by the other predictors, hence very small values indicate that a predictor is redundant, and values that are less than 0.10 may merit further investigation" (Chen, 2003). The VIF is 1 / tolerance and as a rule of thumb, a variable whose VIF values is greater than 10 may merit further investigation (Chen, 2003).

In the study, the collinearity diagnostic showed that VIF values for these eight variables ranged between 10.454 and 24.418 which are greater than 10. Tolerance ranged between 0.041 and 0.096.

The result of the study for the first candidate model with logit function showed that there was significant difference for the corresponding regression coefficients across the response categories, suggesting that the model assumption of parallel lines was violated. (X^2=222.431 with df of 72, $p<0.001$). (Table 5.31) Link functions are used to form the ordinal regression models under a strong assumption of parallel lines, any

departures from this assumption might result in incorrect analysis and conclusion (McCullagh, 1980).

Table 5.31. Test of Parallel Lines (Logit link of Ordinal regression analysis for complete model)

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	222.431			
General	.000(a)	222.431	72	.000

Link function: Logit.

Therefore the logit function cannot to be used and the result from the first candidate model with logit link is not presented.

Since the first model with logit link failed to satisfy the assumption of parallel lines, the first model with clog log link was used in ordinal regression analysis. In the first candidate model with clog log link function, the model fitting information provides that the model built is fitted. ($X^2(72) = 445.781$, $P<0.001$) (Table 5.32)

Table 5.32 Model Fitting Information
(Clog-log link of Ordinal regression analysis for complete model)

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	445.781			
Final	.000	445.781	24	.000

Link function: Complementary Log-log.

In addition to that, the first candidate model with clog-log function satisfied the assumption of parallel lines (table 5.33) and 94.2 of variance can be explained by the significant independent variables. (Table 5.34)

Table 5.33 Test of Parallel Lines
(Clog-log link of Ordinal regression analysis for complete model)

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	.000			
General	.000(a)	.000	72	1.000

Link function: Complementary Log-log.

Table 5.34. Pseudo R-Square
(Clog-log link of Ordinal regression analysis for complete model)

Cox and Snell	.942
Nagelkerke	1.000
McFadden	1.000

Table 5.35 shows that four thresholds of the model equation are significantly different from zero and substantially contributed to the values of the response probability in different categories. Moreover, the overall satisfaction of the patients was significantly associated with eight explanatory variables regarding perception of patients: Provision of information on hospital service (p=0.004), comfortableness of patients' room (p=0.004), nurses' care (p=0.017), respectfulness of nurses (p=0.031), explanation of procedure done by nurses (p=0.015), routine/daily health check up by doctors (p=0.002), helpfulness of nurses (p=0.025) and attentiveness of doctors to listen to patients (p=0.019).

These eight significant explanatory variables exhibited positive regression coefficients, indicating that patients who had high perceptions on these explanatory variables were likely to have higher overall satisfaction. Of these eight items on

perception of patients regarding health service offered at the district hospital, 50 percent or four perception items were related to empathy, 25 percent or two perception items were related to tangible and 12.5 percent were related to communication and accountability dimensions, respectively.

Table 5.35 Parameter Estimates
(Clog-log link of Ordinal regression analysis for complete model)

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[OVSAT = 1]	7.113	1.732	16.871	1	.000	3.719	10.507
	[OVSAT = 2]	9.121	1.758	26.915	1	.000	5.675	12.567
	[OVSAT = 3]	11.402	1.840	38.397	1	.000	7.796	15.008
	[OVSAT = 4]	13.283	1.957	46.060	1	.000	9.447	17.119
Location	admission	.048	.039	1.510	1	.219	-.028	.123
	P1	.176	.151	1.357	1	.244	-.120	.473
	P2	-.362	.222	2.649	1	.104	-.798	.074
	P3	-.019	.200	.009	1	.925	-.410	.372
	P4	.358	.124	8.369	1	.004	.116	.601
	P5	.434	.152	8.177	1	.004	.137	.732
	P7	-.067	.194	.120	1	.729	-.448	.314
	P8	-.192	.162	1.408	1	.235	-.508	.125
	P9	.388	.160	5.902	1	.015	.075	.702
	P10	.707	.229	9.551	1	.002	.258	1.155
	P11	-.032	.158	.041	1	.839	-.342	.277
	P12	.008	.152	.003	1	.956	-.289	.305
	P 14	.503	.224	5.025	1	.025	.063	.942
	P15	-.226	.183	1.525	1	.217	-.586	.133
	P16	.529	.289	3.346	1	.067	-.038	1.096
	P19	-.128	.204	.393	1	.531	-.528	.272
	P21	.262	.161	2.638	1	.104	-.054	.578
	P22	.374	.173	4.652	1	.031	.034	.714
	P25	.476	.199	5.689	1	.017	-.867	-.085
	P26	.445	.190	5.499	1	.019	.073	.816
	P28	-.008	.169	.002	1	.960	-.340	.323
	P29	.014	.245	.003	1	.955	-.466	.493
	[Hospital=1]	-.397	.273	2.115	1	.146	-.932	.138
	[Hospital=2]	-.135	.304	.198	1	.657	-.731	.461
	[Hospital=3]	0(a)	.	.	0	.	.	.

Link function: Complementary Log-log. a This parameter is set to zero because it is redundant.

Moreover, we tested the accuracy of the classification results for the satisfaction response categories. The cross tabulating method in SPSS was used to categorize the predicted and actual responses and table 5.36 displays the result.

Table 5.36 Predicted Response Category * OVSAT Crosstab (complete model)

			Actual response category					Total
			VERY DISSATISFIED	DISSATISFIED	NEUTRAL	SATISFIED	VERY SATISFIED	
Predicted Response Category	VERY DIS SATISFIED	Count	4	0	0	0	0	4
		% within Predicted Response Category	100.0%	.0%	.0%	.0%	.0%	100.0%
		% within OVSAT	40.0%	.0%	.0%	.0%	.0%	2.5%
		% of Total	2.5%	.0%	.0%	.0%	.0%	2.5%
	DIS SATISFIED	Count	4	13	4	0	0	21
		% within Predicted Response Category	19.0%	61.9%	19.0%	.0%	.0%	100.0%
		% within OVSAT	40.0%	39.4%	6.0%	.0%	.0%	13.4%
		% of Total	2.5%	8.3%	2.5%	.0%	.0%	13.4%
	NEUTRAL	Count	2	19	51	6	0	78
		% within Predicted Response Category	2.6%	24.4%	65.4%	7.7%	.0%	100.0%
		% within OVSAT	20.0%	57.6%	76.1%	19.4%	.0%	49.7%
		% of Total	1.3%	12.1%	32.5%	3.8%	.0%	49.7%
	SATISFIED	Count	0	1	12	20	1	34
		% within Predicted Response Category	.0%	2.9%	35.3%	58.8%	2.9%	100.0%
		% within OVSAT	.0%	3.0%	17.9%	64.5%	6.3%	21.7%
		% of Total	.0%	.6%	7.6%	12.7%	.6%	21.7%
	VERY SATISFIED	Count	0	0	0	5	15	20
		% within Predicted Response Category	.0%	.0%	.0%	25.0%	75.0%	100.0%
		% within OVSAT	.0%	.0%	.0%	16.1%	93.8%	12.7%
		% of Total	.0%	.0%	.0%	3.2%	9.6%	12.7%
Total		Count	10	33	67	31	16	157
		% within Predicted Response Category	6.4%	21.0%	42.7%	19.7%	10.2%	100.0%
		% within OVSAT	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	6.4%	21.0%	42.7%	19.7%	10.2%	100.0%

The model demonstrated high prediction accuracy

(2.5%+8.3%+32.5%+12.7%+6.9%=62.9%) for all five categories combined.

In the first model built for ordinal regression, the model was fitted ($X^2(72) = 445.781$, $P<0.001$), pseudo R square was 94.2%, the assumption of parallel lines were satisfied and accuracy of classification of response categories was 62.9%.

In the data analysis of my study, the principle of parsimony was followed. The principle of parsimony should be applied to the model construction (Chen, 2004) and Webster's dictionary defines the parsimony as "stinginess, meaning that if fewer explanatory variables are sufficient to explain the effects of the explanatory variables, the regression model doesn't need to include unnecessary variables". If models contain many explanatory variables, it could show inaccurate results and result in instability of model structure. Based on the principle of parsimony, the reduced model that met the screening criteria such as assumption of parallel lines, goodness of fit of the model, higher pseudo R square and higher accuracy of classification of response categories should be considered as the ideal model. Therefore, stepwise ordinal regression model is used to apply the principle of parsimony to the model.

Since all perception items were univarietely associated with overall satisfaction score, the variables which had the least effect to univarietly explain the response variable were excluded one by one from the first model until exclusion of variable decreased the amount of variation explained by model. At the same time, model fitting and violation of assumption of parallel lines were tested for each model.

In the process of model building, totally 11 the perception items (15, 3, 10, 4, 29, 16, 8, 2, 28, 1 and 11) were excluded from the first model.

Finally, the most parsimonious model was constructed with 12 explanatory variables. The final model with complementary clog log link function satisfies the assumption of parallel lines (p=1.0) (table 5.39) and the model fitting information provides that the model built is fitted. ($X^2(13) = 445.781$, $P<0.001$) (Table 5.37) Upon exclusion of several variables, 94.2 of variance were still explained by the significant independent variables. (table 5.38).

Table 5.37. Model Fitting Information
(Clog-log link of Ordinal regression analysis for parsimonious model)

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	445.781			
Final	.000	445.781	13	.000

Link function: Complementary Log-log.

Table 5.38 Pseudo R-Square

Cox and Snell	.942
Nagelkerke	1.000
McFadden	1.000

Table 5.39 Test of Parallel Lines
(Clog-log link of Ordinal regression analysis for parsimonious model)

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	.000			
General	.000(a)	.000	39	1.000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
b Link function: Complementary Log-log.

In the final model, the overall satisfaction of the patients was significantly associated with six explanatory variables regarding perception of patients: comfortableness of patients' room ($p=0.007$), explanation of procedure done by nurses ($p=0.003$), helpfulness of nurses ($p<0.001$), respectfulness of nurses ($p=0.008$), nurses' care ($p=0.004$), and attentiveness of doctors to listen to patients ($p=0.016$).

These six significant explanatory variables showed positive regression coefficients, indicating that patients who had higher perceptions on these explanatory variables were likely to have higher overall satisfaction. The estimates are in ordered log odd scale and for instance, for comfortableness of the patients' room, it can be said that for one unit increase in perception score on comfortableness of room, we would expect a 0.331 increase in the expected value of overall satisfaction in the log odds scale, given that all of the other variables in the model are held constant. (Table 5.40)

Table 5.40 Parameter Estimates (Clog-log link of Ordinal regression analysis for parsimonious model)

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[OVSAT = 1]	3.222	.733	19.323	1	.000	1.785	4.658
	[OVSAT = 2]	5.118	.732	48.859	1	.000	3.683	6.553
	[OVSAT = 3]	7.273	.832	76.373	1	.000	5.642	8.904
	[OVSAT = 4]	8.942	.993	81.002	1	.000	6.994	10.889
Location	admission	.043	.036	1.485	1	.223	-.026	.113
	P5	.331	.123	7.195	1	.007	.089	.573
	P7	-.042	.153	.077	1	.782	-.342	.257
	P9	.332	.111	8.964	1	.003	.115	.549
	P12	.046	.109	.177	1	.674	-.167	.258
	P14	.679	.189	12.857	1	.000	.308	1.050
	P19	.016	.166	.009	1	.925	-.310	.341
	P21	.217	.128	2.850	1	.091	-.035	.468
	P22	.401	.152	6.985	1	.008	.104	.698
	P25	.497	.171	8.437	1	.004	-.833	-.162
	P26	.348	.144	5.822	1	.016	.065	.630
	[Hospital=1]	-.419	.258	2.628	1	.105	-.925	.087
	[Hospital=2]	.043	.272	.025	1	.874	-.489	.575
	[Hospital=3]	0(a)	.	.	0	.	.	.

Link function: Complementary Log-log.
a This parameter is set to zero because it is redundant.

Moreover, we tested the accuracy of the classification results for the satisfaction response categories in the final model. Table 5.41 displays the result.

Table 5.44 Predicted Response Category * OVSAT Crosstabulation (parsimonious model)

			OVSAT					Total
			VERY DISSATISFIED	DISSATISFIED	NEUTRAL	SATISFIED	VERY SATISFIED	
Predicted Response Category	VERY DISSATISFIED	Count	2	0	0	0	0	2
		% within Predicted Response Category	100.0%	.0%	.0%	.0%	.0%	100.0%
		% within OVSAT	20.0%	.0%	.0%	.0%	.0%	1.3%
		% of Total	1.3%	.0%	.0%	.0%	.0%	1.3%
	DISSATISFIED	Count	6	11	4	0	0	21
		% within Predicted Response Category	28.6%	52.4%	19.0%	.0%	.0%	100.0%
		% within OVSAT	60.0%	33.3%	6.0%	.0%	.0%	13.4%
		% of Total	3.8%	7.0%	2.5%	.0%	.0%	13.4%
	NEUTRAL	Count	2	21	56	10	0	89
		% within Predicted Response Category	2.2%	23.6%	62.9%	11.2%	.0%	100.0%
		% within OVSAT	20.0%	63.6%	83.6%	32.3%	.0%	56.7%
		% of Total	1.3%	13.4%	35.7%	6.4%	.0%	56.7%
	SATISFIED	Count	0	1	7	15	0	23
		% within Predicted Response Category	.0%	4.3%	30.4%	65.2%	.0%	100.0%
		% within OVSAT	.0%	3.0%	10.4%	48.4%	.0%	14.6%
		% of Total	.0%	.6%	4.5%	9.6%	.0%	14.6%
	VERY SATISFIED	Count	0	0	0	6	16	22
		% within Predicted Response Category	.0%	.0%	.0%	27.3%	72.7%	100.0%
		% within OVSAT	.0%	.0%	.0%	19.4%	100.0%	14.0%
		% of Total	.0%	.0%	.0%	3.8%	10.2%	14.0%
Total		Count	10	33	67	31	16	157
		% within Predicted Response Category	6.4%	21.0%	42.7%	19.7%	10.2%	100.0%
		% within OVSAT	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	6.4%	21.0%	42.7%	19.7%	10.2%	100.0%

The model demonstrated high prediction accuracy (1.3%+7%+35.7%+9.6%+10.2%=63.8%) for all five categories combined and it has higher accuracy than in the first model.

The reduced model with complementary log log link appeared to be the best model in my study and based on the model fitting statistics, the accuracy of classification results and the principle of parsimony. Therefore the result of study was presented within the best model.

Finally, I tested the association between overall satisfaction of the patients and their willingness to recommend the district hospital to others.

Non-parametric correlation (table 5.41) test showed that there was a strong correlation between overall satisfaction of the patients and their willingness to recommend the district hospital to others. (r=0.753)

Table 5.41 Correlations between intention to recommend hospitals and overall satisfaction

			OVSAT	RECCOM
Spearman's rho	OVSAT	Correlation Coefficient	1.000	.753(**)
		Sig. (2-tailed)	.	.000
		N	157	157

** Correlation is significant at the 0.01 level (2-tailed).

In the framework of the whole data analysis of the study, firstly I presented the characteristics of sample; secondly, I analyzed the SERVQUAL instrument and

finally searched what perception items on healthcare services offered at hospital were significantly associated with overall patients' satisfaction and patients' intention to recommend the district hospital to others depending on their overall satisfaction.

CHAPTER SIX

DISCUSSION OF THE FINDINGS

The current study examined the perceived quality of healthcare services as indicated by the difference between patients' expectations and actual experience. This study also addressed the significant elements of patient perception influencing their overall satisfaction with healthcare services provided at district hospitals in Ulaanbaatar city, Mongolia.

The result of this study provides insights to both health care providers and hospital managers to improve service quality and patient satisfaction in the hospital environment in Mongolia.

Theoretically, the model identifies several quality elements influencing patients' satisfaction in district hospitals in Mongolia and the factor analysis of SERVQUAL instrument identified seven dimensions which represent patient-centered service quality indicators in the hospital setting.

Additional research is needed, however, replication and refinement of model is necessary. Over time and with identification of additional variables, it might be possible to introduce patient-driven quality standards to enable service providers to better address patients' needs. However, it should be kept in mind that patients' beliefs, perceptions and expectations cannot be fully captured in a questionnaire. Therefore, the use of qualitative research along quantitative methods in future studies

would provide a better understanding of the complex issue of quality in the health care sector.

The current analysis revealed areas in which hospitals were close to meeting patients' expectations and areas in which hospitals fall far short of expectations.

First, the descriptive measures of expectations and perceptions of patients as well as quality gap in district hospitals require some attention.

Patients had the highest expectation from the assurance factor which covers the issues of doctors' competence and nurses' skill. It clearly shows that doctors' competence, nurses' skill, and their ability to show confidence and security in their patients turned out to be the most critical services.

Patients also highly evaluated doctors' competence and nurses' skills. On the contrary, the result of the study done by Health Department of Ulaanbaatar city in 2009 showed that doctor's and nurses' of district hospitals have lack of theoretical knowledge on area in which they are working. Therefore, hospital managers shouldn't be satisfied with result of the current study and need to pay attention to doctors' and nurses' competence and knowledge through conducting frequent external and internal audit because patients' judgment on that concern might not be objective due to unfamiliarity of patients with most of the medical procedures they are receiving.

Accountability, which refers to daily/routine health check-up, privacy and confidentiality, follows. The third highest expectation is for the dimension of empathy issues which is related to helpfulness, respectfulness, and attentiveness of doctors and nurses.

Generally, patients have high expectations (Minimum mean score is 6.06 when 7 point Likert scale is used where 4 represents a neutral point) on all dimensions of quality of healthcare services. However, the high expectations of patients have been anticipated and it is also in line with previous studies in the field (Taner & Antony, 2006). A possible explanation is that there is a difficulty defining the adequate and the desired level of expectations on service quality due to the distinctive characteristics of the health care services, and its complex and risky nature.

Patients also appear to have high perceptions on the subject of doctor's routine health check up and tidiness of staff. It might be because the routine health check-up is a part of doctor's duty and doctors are monitored on whether or not they carry out their duties. Keeping personal hygiene is also their responsibility. Therefore, routine check-up and tidiness of staff might show high perceptions.

On the contrary, patients' evaluations suggest that they are disappointed regarding the quality of healthcare services in relation to care provided by nurse and respect shown by doctors and nurses which are included in empathy dimension. Particularly, patients of the district hospital are more sensitive to nursing elements especially nursing care and they graded their service low. It can be explained that the number of patients per nurse is greater than per doctor and nurses are overworked because beds

in district hospitals are mostly fully occupied. Moreover, patients more frequently experience nursing care rather than doctor's care in daily healthcare service. This might be another reason that nursing care and respectfulness of nurses are lowly perceived by patients.

The patients have low perceptions on comfortableness of patients' rooms and availability of modern equipment in district hospital. The study conducted by the Health Department of UB city also showed that most of the equipment was outdated in hospitals. Patients pointed out that patients influence each other's comfort because there are many patients (six to eight patients) in one room. Once there are six to eight patients in one room, it is clear that patients complain about their discomfort because patients are heterogeneous in terms of their lifestyle and behavior. For example, some patients go to bed early while others are used to sleeping late. In addition to that, food amount, quality and service in district hospitals are poor. Thus, almost every patient brings food from their home. There are no certain schedules for visit and a specific place to have a meal, and patients tend to eat their meal in their room. It leads to some difficulties and discomfort for other patients. First, Mongolians usually share their food with others and they feel inconvenient to have a meal alone. It is also complicated for visitors to decide how much food to prepare. Second, Mongolian food is mostly prepared with meat and the smell is quite strong. Therefore, patients' rooms sometimes would turn into a canteen not a hospital because of the smell.

In general, expectations of patients were higher than their perceptions and it shows that there is room for quality improvement initiatives in all seven dimensions. The

largest quality gaps are in the empathy dimension including elements on nursing care, respectfulness of doctors and nurses. Doctors' and staffs' neat appearance present the less problematic elements of the service quality in district hospital.

Second, it appears that the patients' perception and their satisfaction might depend on their age, gender, self reported health status, length of the stay, number of admissions to the hospital and types of hospital.

However, the result of the study showed no significant relationship between age, gender, occupation, education, self reported health status and length of stay in hospital. Our result is consistent with some studies; however, other studies found a significant relationship between age (Williams & Calnan, 1991), gender (Cooper-Patrick et al., 1999), education (Zemenchuk et al., 1996; Kareem, 1996) and patients' satisfaction as well as perceptions. (Mummalaneni & Gopalakrishna,1995). This disparity between studies might be explained by the fact that patients' needs and desires (or wishes) are shaped by their socio-cultural system in which the health care system is founded (Calnan, 1988) and it is conceivable that health care consumer behavior may also vary from one culture/nation to another.

Service satisfaction and dissatisfaction are indeed subject to cultural and personal issues. Thus, studies in different contexts can vary.

The number of admissions into the hospital has a great influence on patients' satisfaction and perceptions. Patients who were admitted for the first time have lower perception and less satisfaction with their hospital experience than those who had been admitted more than 12 times. A possible reason is that patients who were admitted for the first time might be more critical of the healthcare services than those who had been admitted several times. Moreover, these patients who had been admitted several times might be accustomed to healthcare services provided by district hospitals. This may reflect the more realistic opinion of people who had been admitted many times and how they feel toward the health care system based on their accumulated experiences with healthcare services. Or perhaps as people experience the healthcare services many times, they may just become less critical of healthcare services. Other surveys have also suggested that people accustomed to staying in hospitals might have different opinions compared to patients who are previously unfamiliar with a hospital service (Carman, 2000).

Patients' perceptions differed across the three district hospitals. However, the patients' expectations of the healthcare services provided by district hospitals were similar. Four out of seven quality dimensions were highly perceived by patients who were admitted into the Bayanzurkh district hospital compared to patients admitted into the other district hospitals. It can be explained that in the framework of privatization reform, under a management contract with Ulaanbaatar Health Department, some financial authorizations such as spending out of pocket expenses was given to

Bayanzurkh hospital for the first time among the district hospitals. Therefore, more attention might have been paid to patient oriented services.

Third, our final parsimonious regression model revealed six significant elements influencing patients' satisfaction. The comfort of the patients' room significantly influences their overall satisfaction. It is consistent with other studies, for instance, the study by Andaleeb (2001) found that tangibles such as comfort and clean environment played a crucial role in patient satisfaction. Many other studies indicated the importance of tangible dimension as a critical indicator of the customer satisfaction (Parasuraman et al., 1985: 1988; Carr-Hill 1992).

It is also noteworthy that the results of the studies in developing countries such as Bangladesh and Vietnam found the importance of tangible dimension for satisfaction with healthcare services, while patients of developed countries such as Singapore, Taiwan, South Korea, and USA are less sensitive for tangible elements such as comfort of the room, clean hospital environment, and modern equipment. Our study results might be no exception for this. Generally speaking, it is true that a comfortable environment helps them relax and deal better with their anxieties.

According to the result, explanation of procedure done by nurses has great influence on patient satisfaction. During service process, patients have a high degree of uncertainty and an insufficient knowledge about medical care and detailed explanation by service providers will also help customers to better understand how

the service operates. Therefore, importance of improvement in information efficiency shouldn't be neglected in hospital service setting.

Further, empathetic service such as nursing care, respectfulness and helpfulness of nurses had a significant influence on patients' overall satisfaction. However, doctors' attentiveness had an enormous positive impact on satisfaction. Unfortunately, many healthcare providers in district hospitals seem to forget how important these issues can be to patients. Even though patients require doctors to pay attention to them, considering the estimates/parameters of the model their satisfaction depends more on nursing elements. Estimate coefficient is higher (0.401-0.679) for nursing elements. As previously mentioned in this chapter, a significant relationship between those nursing elements and patients' satisfaction can be explained by the fact that patients might experience more with nurses rather than doctors in daily service.

Other studies also agree that the relationship between staff and patients could lead to a greater customer satisfaction. (Zifko-Baliga & Krampf, 1997; Polluste et al., 2000; Ramsey & Sohi, 1997; Kim et al., 2001).

Interestingly, even though the patients considered that the professional skills of doctors and nurses were crucial in the delivery of medical care and rated it as high, this factor did not have a strong influence on patient satisfaction. Patients could probably not evaluate technical skills and made their judgments based on their own impressions.

Forth, our study results discovered that patients who were satisfied with the hospital service have strong inclination to recommend that hospital to other patients. This makes our results to be in-line with some other studies (Elleuch, 2008).

Finally, similar research is suggested to be carried out among patients who get admitted in tertiary level hospitals by themselves and those who have been admitted in both secondary and tertiary level hospitals to reveal whether or not there is any disparity in perceived quality of healthcare services between secondary and tertiary level hospitals. Although many patients are bypassing the secondary level hospital (district hospital) and are admitted to tertiary level hospital by paying certain penalty fee, occupancy rate is still high in secondary level hospitals. Taking into account of this situation, it is possible that the cases which should be treated in district hospitals are admitted to tertiary level hospitals and many unnecessary cases are admitted in district hospitals to fully occupy beds in order to get full budget because the budget is allocated according to bed occupancy in district hospital. If district hospitals can play a gate keeping role in inpatient service, it is not only possible to decrease workload in tertiary level hospitals but also health expenditure in hospital care will be decreased.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

Conclusions of the study

The main goal of this research is to study the perceived quality of healthcare services and the relationship between the perception and satisfaction of patients with healthcare services provided at district hospitals of Ulaanbaatar city, Mongolia. Based on finding of the study, the following conclusions are drawn:

1. Expectations of patients regarding healthcare services provided by district hospitals are generally high. Most importantly, patients expect to be provided with healthcare services by competent doctors and skillful nurses in district hospital. On the other hand, waiting time for admission and availability of modern equipment were among lesser concerns by patients of district hospital.
2. Routine health check-up of patients obtained the highest perception. Assurance factor including doctors' competence and nurses' skill also obtained high perceptions from patients. Patients also had high perceptions regarding cleanliness of hospital and tidiness of staff.
3. Patients lowly evaluated tangible elements such as comfortableness of patients' room and availability of modern equipment. Empathy dimensions including nursing care, respectfulness of doctors and nurses also obtained the lowest perceptions of patients in district hospital.

4. Service quality gaps in all dimensions including tangible, responsiveness, reliability, empathy, communication, assurance and accountability exist in district hospitals of Ulaanbaatar city, Mongolia. Especially, the respectfulness of doctors/nurses, nursing care and comfort of the patients' room indicated the largest quality gaps in district hospital. On the other hand, cleanliness of hospital and tidiness of staff almost match patients' expectations and perceptions. Daily health check up of doctors also had a small quality gap.
5. Patients who had been admitted in hospital for the first time had lower perceptions on and are less satisfied with overall healthcare services than others. Patients who had been admitted more than 12 times had higher perceptions regarding overall healthcare services as well as they are more satisfied with service. No other background factors such as age, gender education and occupation appeared to influence perception and satisfaction of patients.
6. Patients' satisfaction significantly depend on empathetic services such as nursing care, respectfulness of nurses, helpfulness of nurses and attentiveness of doctors to patients. The level of comfort in the patients' room also has a great influence on patient satisfaction.
7. Patients who were satisfied with healthcare services were more likely to recommend district hospitals to others.

Recommendations

The current findings provide a guideline for healthcare provider and hospital managers for the allocation of efforts to maximize patient satisfaction and to improve the perceived quality of healthcare services. Based on the findings of the study, a number of reccomendations have been suggested.

1. Considering that empathy dimension shows large quality gap and significantly influences patient satisfaction, employee satisfaction in concert with patient satisfaction might be crucial because satisfied employees provide more empathetic service (Zeithaml & Bitner, 2000). In this regard, even though, low salary and work overload are creating less job satisfaction, it is suggested that hospitals could improve satisfaction among the healthcare providers within hospitals' capacity. For example, providing patients with opportunity to anonymously share their opinion and complain about service provided by their healthcare providers' can be a good method to collect information on behavior and attitude healthcare providers. Then incentives can be given to healthcare providers who didn't receive any complain regarding their behavior and attitude.
2. The regular feedback from patients (or their caregivers) can be integrated in the healthcare delivery system and the quality of healthcare service can be effectively monitored through patients' voice to bring improvements in

behaviors reflected in the doctor and nurse composites. It is also suggested that the satisfaction scores can be used in performance appraisal.

3. Concerning the comfort of patients' room, establishing one room as a canteen to have a meal or to meet visitors in district hospitals might be an optimal solution since it is not possible to reconstruct patients' room.

APPENDIX

The questionnaire:

We are assessing the quality of healthcare provided at district hospitals of Ulaanbaatar city, Mongolia. This study will greatly contribute to defining the ways how to improve the quality of healthcare services in district hospitals. We would like to ask you to share your opinions about healthcare service you received in this hospital.
The questionnaire is anonymous and information you provided here will be kept confidentially.

Part 1. General Information

1. The admitted hospital
   a. Chingeltei District Hospital
   b. Bayanzurkh District Hospital
   c. Nalaikh District Hospital
   d. SBDH

2. Age……

3. Gender
   a. Male
   b. Female

4. Occupation
   a. Student in high school
   b. Student in University
   c. Work in Public Sector
   d. Work in Private sector
   e. Unemployed
   f. Retired
   g. Others……

5. Education level
    a. High school
    b. College
    c. University
6. How many times have you been admitted in this hospital? ……

7. How many days have you been staying in hospital? ……

8. Self reported health status
    a. Mild
    b. Moderate
    c. Severe

9. Is your health condition improved?
    a. Yes
    b. No
    c. Worsened

Part 2. Below is a list of points describing EXPECTED hospital services. Please show the extent to which you think such a district hospital would possess the feature described by each statement. If you think a feature is not at all essential for excellent hospitals such as the one you have in mind, circle the number 1. If you feel a feature is absolutely essential for excellent hospitals, circle 7. If your feelings are less strong, circle one of the numbers in the middle. There are no right or wrong answers - all we are interested in is the number that truly reflects your feelings regarding hospitals that would deliver excellent quality of service.

	Tangible statements							
		Strongly disagree			Neutral		Strongly agree	
E1	DH should have up to date and well maintained equipment.	1	2	3	4	5	6	7
E2	Cleanliness and hygiene in district hospitals should be excellent.	1	2	3	4	5	6	7
E3	The nurses and doctors should be clean and well-groomed.	1	2	3	4	5	6	7
E4	The DH should thoroughly provide information on hospital service	1	2	3	4	5	6	7
E5	The patient room should be comfortable enough	1	2	3	4	5	6	7
	Reliability statements							
E6	DH should provide treatment, diagnostic tests and other services in a certain time	1	2	3	4	5	6	7
E7	When patient has a problem, DH should show sincere interest to solve it.	1	2	3	4	5	6	7
E8	Doctors should explain patients about their health conditions, diagnosis and treatment in understandable way.	1	2	3	4	5	6	7
E9	Nurses should explain to patients exactly when and what they are going to do.	1	2	3	4	5	6	7
E10	Doctors should monitor your health status regularly/daily.	1	2	3	4	5	6	7
	Responsiveness statements							
E11	Doctors should respond immediately when called by patients.	1	2	3	4	5	6	7
E12	Nurses should respond immediately when called by patients	1	2	3	4	5	6	7
E13	Doctors should be willing to help patients	1	2	3	4	5	6	7
E14	Nurses should be willing to help patients.	1	2	3	4	5	6	7
E15	Waiting time for admission shouldn't be so long /more than a week/	1	2	3	4	5	6	7
E16	Waiting time for daily service shouldn't be so long /more than 45 min/	1	2	3	4	5	6	7
	Assurance statements							
E17	Doctors should be competent	1	2	3	4	5	6	7
E18	Nurses should be skillful	1	2	3	4	5	6	7
E19	Patients should feel confident when receiving medical treatment.	1	2	3	4	5	6	7
E20	District hospitals should provide privacy during treatment	1	2	3	4	5	6	7
E21	Doctors should be respectful for patients	1	2	3	4	5	6	7
E22	Nurses should be respectful for patients	1	2	3	4	5	6	7
E23	Doctors should have good knowledge to answer patients question	1	2	3	4	5	6	7
E24	Nurses should have good knowledge to answer patients questions	1	2	3	4	5	6	7
	Empathy statements							
E25	Nurses in district hospital should be caring	1	2	3	4	5	6	7
E26	Doctors in district hospital should listen to you attentively	1	2	3	4	5	6	7
E27	Nurses in district hospital should listen to you attentively	1	2	3	4	5	6	7
E28	Doctors should spend enough time for patient	1	2	3	4	5	6	7
E29	Operating hours in district hospital should be convenient to patients.	1	2	3	4	5	6	7

Part 3. Below are list of features describing your PERCEPTION about district hospital. For each statement, please show the extent to which you believe the district hospital has the feature described by the statement. Once again, circling 1 means that you strongly disagree that the hospital you have attended has this feature and circling 7 means that you strongly agree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers - all we are interested in is a number that best shows your perceptions about the district hospital which has treated you.

Tangible statements								
		Strongly disagree			Neutral			Strongly agree
P1	DH has up to date and well maintained equipment.	1	2	3	4	5	6	7
P2	Cleanliness and hygiene in district hospitals were excellent.	1	2	3	4	5	6	7
P3	The nurses and doctors were clean and well-groomed.	1	2	3	4	5	6	7
P4	The DH thoroughly provided information on hospital service	1	2	3	4	5	6	7
P5	The patient room was comfortable enough	1	2	3	4	5	6	7
Reliability statements								
P6	DH provided treatment, diagnostic tests and other services in a certain time	1	2	3	4	5	6	7
P7	When I have a problem, DH showed willingness to solve it.	1	2	3	4	5	6	7
P8	Doctors explained me about my health conditions, diagnosis and treatment in understandable way.	1	2	3	4	5	6	7
P9	Nurses explained me exactly when and what they are going to do.	1	2	3	4	5	6	7
P10	Doctor monitored my health status regularly/everyday.	1	2	3	4	5	6	7
Responsiveness statements								
P11	Doctors responded immediately when called by me.	1	2	3	4	5	6	7
P12	Nurses responded immediately when called by me.	1	2	3	4	5	6	7
P13	Doctors were helpful for me	1	2	3	4	5	6	7
P14	Nurses were helpful for me.	1	2	3	4	5	6	7
P15	Waiting time for admission was not so long /more than a week/	1	2	3	4	5	6	7
P16	Waiting time for daily service was not so long /more than 45 min/	1	2	3	4	5	6	7
Assurance statements								
P17	Doctors were competent	1	2	3	4	5	6	7
P18	Nurses were skillful	1	2	3	4	5	6	7
P19	I felt confident when receiving medical treatment.	1	2	3	4	5	6	7
P20	District hospitals provided privacy during treatment	1	2	3	4	5	6	7
P21	Doctors were respectful for me	1	2	3	4	5	6	7
P22	Nurses were respectful for me.	1	2	3	4	5	6	7
P23	Doctors had good knowledge to answer my question	1	2	3	4	5	6	7
P24	Nurses had good knowledge to answer my questions	1	2	3	4	5	6	7
Empathy statements								
P25	Nurses in district hospital were caring	1	2	3	4	5	6	7
P26	Doctors in district hospital listened to me attentively	1	2	3	4	5	6	7
P27	Nurses in district hospital listened to me attentively	1	2	3	4	5	6	7
P28	Doctor spent enough time to check and to advice to me	1	2	3	4	5	6	7
P29	Operating hours in district hospital was convenient to patients.	1	2	3	4	5	6	7

Part 4.

Generally, how are you satisfied with healthcare services provided at district hospitals?

1 Very dissatisfied
2 Dissatisfied
3 Neutral
4 Satisfied
5 Very satisfied

Thank you for your participation in our study.

References

1. Andaleeb, S.S. (2001). Service quality perceptions and patient satisfaction: a study of hospitals in a developing country. *Journal of Social Science & Medicine, Vol 52* (9), pp.1359-1370

2. Babakus, E., & Mangold, W.G. (1992). Adapting the SERVQUAL scale to hospital services: an empirical investigation. *Health Services Research, Vol. 26* (6), pp.767-86.

3. Bayarsaikhan, D., & Kwon, S. (2005). Development of social health insurance in Mongolia: Successes, challenges and lessons. *International Social Security Review, Vol 58* (4), pp.27-44.

4. Beatty, Sharon E., Morris Mayer, James E. Coleman, Kirsty E. Ellis, and Jungki Lee (1996), Customer-Sales Associate Retail Relationships. *Journal of Retailing, Vol 72* (3), pp.223-247.

5. Bergman, B; & Klefsjo, B. (1994). *Quality: from Customer Needs to Customer Satisfaction*. NY: McGraw-Hill.

6. Blumenthal, D. (1996). Quality of care-What is it? *New England Journal of Medicine, Vol 335*, pp.891-894.

7. Bojanic, D.C. (1991). Quality Measurement in Professional Services Firms. *Journal of Professional Services Marketing, Vol 7* (2), pp.27-36.

8. Bolormaa,T., et al. (2007). Mongolia: Health system review. *Health Systems in Transition.* 9(4), pp 1–151.

9. Bopp, K.D. (1990). How patients evaluate the quality of ambulatory medical encounters: a marketing perspective. *Journal of Health Care Marketing, Vol. 10* (1), pp. 6-15.

10. Bowers, M.R., & Swan, J.E., Koehler, W. (1994). What attributes determine quality and satisfaction with health care delivery? *Health Care Management Review, Vol. 19* (4), pp.49-55.

11. Brook, R.H.,& Appel, F.A. (1973). Quality-of-care assessment: Choosing a method for peer review. *New England Journal of Medicine Vol 288* (25), pp.1323-1329.

12. Brown, S.W., & Swartz, Teresa A. A. (1989). Gap Analysis of Professional Service Quality. *Journal of Marketing, Vol 53* (2), pp.92-98.

13. Calnan, (1988). Towards a conceptual framework of lay evaluation of health care. *Journal of Social Science & Medicine, Vol 27* (9), pp.927-933

14. Campbell, S.M., Roland, S.O., & Buetow, S.A. (2000). Defining quality of care. *Journal of Social Science & Medicine, Vol. 51*, pp 1611-1625.

15. Carman, J.M. (2000). Patient perceptions of service quality: combining the dimensions. *Journal of Services Marketing, Vol 14* (4), pp.337-352

16. Carr-Hill, R.A. (1992). The measurement of patient satisfaction. *Journal of Public Health, Vol 14* (3), pp. 236-249

17. Chen, C.K., & John, H.Jr. (2004). Using Ordinal Regression Model to Analyze Student Satisfaction Questionnaires. *IR applications, Vol 1*, pp 1-12

18. Chen, X., Ender, P., Mitchell, M. & Wells, C. (2003). *Regression with SPSS*, Retrieved from http://www.ats.ucla.edu/stat/spss/webbooks/reg/default.htm.

19. Choi, K.S., Hanjoon Lee., Chankon Kim., & Sunhee Lee. (2005). The service quality dimensions and patient satisfaction relationships in South Korea:

comparisons across gender, age and types of service. *Journal of Services Marketing, Vol. 19* (3), pp 140-149.

20. Cleary, P. D., & McNeil, B. J. (1988). Patient satisfaction as an indicator of quality care. *Inquiry, Vol 25,* pp.25–36.
21. Coe Robert, (2000). What is an 'Effect Size'?. Retreived from: http://www.cemcentre.org/renderpage.asp?linkid=30325016
22. Cohen, J.W. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed). New York: Erlbaum
23. Collier, D. A. (1994). *The service quality solution*. Milwaukee, WI: Irwin Professional Publishing.
24. Cooper-Patrick, L. et al. (1999). Race, Gender, and Partnership in the Patient-Physician Relationship. *JAMA, Vol 282* (6), 583-589.
25. Cronin, J. Joseph. & Taylor, Steven. A. (1992). Measuring Service Quality: A Reexamination and Extension. *Journal of Marketing, Vol 56*(3), pp.55-68.

26. Curry, A., & Sinclair, E. (2002). Assessing the quality of physiotherapy services using SERVQUAL. *International Journal of Health Care Quality Assurance, Vol. 15* (4/5), pp.197-204.

27. Dagger, T.S, Jillian, C. S., & Lester, W. J. (2007). A Hierarchical Model of Health Service Quality: Scale Development and Investigation of an Integrated Model. *Journal of Service Research, Vol 10* (2), pp.123-142.

28. Davies, A.R., & Ware, J.E. (1988) Involving consumers in quality of care assessment. *Journal Health Affairs, Vol* 7, pp.33-46.

29. Davies, B., Baron, S., Gear, T., & Read, M. (1999). Measuring and managing service quality, *Marketing Intelligence & Planning, Vol. 17* (1), pp.33-40.

30. Donabedian, A. (1982). *Explorations in quality assessment and monitoring: The criteria and standards of quality,* Vol. 2. MI: Health Administration Press

31. Donabedian, A. (1988). The quality of care: How can it be assessed? *JAMA, Vol 260,* p.1743-1748.

32. Donabedian, A. (1992). Quality assurance in health care: a consumers' role. *Quality of Health Care, Vol 1,* pp.247-251.

33. Duggirala, D., Rajendran, C., & Anantharaman, R.N. (2008). Patient perceived dimensions of total quality service in healthcare. *Benchmarking: An International Journal, Vol. 15* (5), pp.560-83.

34. Elleuch, A. (2008). Patient satisfaction in Japan. *International Journal of Health Care Quality Assurance, Vol 21* (7), 692-705.

35. Evans, J.R; & Lindsay, W.M. (1996). *The Management and Control of Quality*, Cincinnati: West Publishing Company.

36. Foster, T. (2001), *Managing Quality: An Integrative Approach,* Prentice - Hall, Upper Saddle River, NJ: An-Najah Libraries

37. Fuentes, M. C. (1999), Measuring hospital service quality: a methodological study. *Managing Service Quality, Vol. 9* (4), pp.230-40.

38. Gerelmaa, L. (2009). Study of patient satisfaction: Comparative analysis between public and private hospitals of Ulaanbaatar city (Master's thesis, Ritsumeikan Asia Pacific University, 2009).

39. Goldstein, S. M., & Schweikhart, S. B. (2002). Empirical support for the Baldrige award framework in U.S. hospitals. *Health Care Management Review, Vol 27*(1), pp.62–75.

40. Gooding, S.K.S. (1995). Quality, sacrifice, and value in hospital choice. *Journal of Health Care Marketing*, *Vol. 15* (4), pp.24-31.

41. Grönroos, C. (1984). A service quality model and its implications. *European Journal of Marketing, Vol. 8*, pp.36-44.

42. Gronroos, C. (1990). *Service Management and Marketing: managing the moments of truth in service competition.* Lexington: Lexington Books

43. Grönroos, C. (2000), *Service Management and Marketing – A Customer Relationship Management Approach*, Wiley: Chichester.

44. Gummesson, E; & Gronroos, C. (1988). Quality of Services: Lessons From the Product Sector. In: Surprenant, C. *Add Value to Your Service: the key to success* (pp 35-39). Chicago: American Marketing Association.

45. Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (1995). *Multivariate data analysis (4th ed.): with readings.* Upper Saddle River, NJ, USA: Prentice-Hall, Inc

46. Hall, J. A. & M. C. Dornan. (1990). Patient socio-demographic characteristics as predictors of satisfaction with medical care: a meta-analysis. *Social Science and Medicine, Vol 30,* pp. 811-818.

47. Harrington, L., & Pigman, H. (2008). Quality Measurement. In Prathibha Varkey, *Medical Quality Management: Theory and Practice* (29-40). USA:Jones and Bartlett Publishers, LLC, and American College of Medical Quality.

48. Jabnoun, N., & Chaker, M. (2003). Comparing the quality of private and public hospitals. *Managing Service Quality, Vol. 13* (4), pp.290-300.

49. Kane, R. L., Maceijewski, M., & Finch, M. (1997). The relationship of patient satisfaction with care and clinical outcomes. *Medical Care, Vol 35*(7), pp. 714–730.

50. Karassavidou, E.(ND). Health Care Quality in Greek NHS Hospitals: No one knows better than patients.

Retrieved from: http://www.ep.liu.se/ecp/033/039/ecp0803339.pdf

51. Kareem, A. A., Aday, A., & Walker, G. (1996). Patient satisfaction in government health facilities in the state of Qatar. *Journal of community health, Vol 21*, pp.349–58.

52. Kim, W.G., Han, J.S., Lee, E. (2001). Effects of relationship marketing on repeat purchase and word of mouth. *Journal of Hospitality & Tourism Research*, *Vol. 25* (3), pp.272-88

53. Lam, S.S.K. (1997). SERVQUAL: a tool for measuring patients' opinions of hospital service quality in Hong Kong. *Total Quality Management*, *Vol. 8* (4), pp.145-53.

54. Lewis, R.C. & Booms, B.H. The Marketing Aspects of Service Quality. (1983) In: Berry, L.L.; Shostack, G.L; & Upah, G.D. *Emerging Perspectives on Service Marketing* (pp 99-107). Chicago: American Marketing Association.

55. Li, L. X.,& Collier, D. A. (2000). The role of technology and quality on hospital financial performance. *International Journal of Service Industry Management, Vol 11*(3), pp.202–224.

56. Lim, P.C., & Nelson, K.H. (2000). A study of patients' expectations and satisfaction in Singapore hospitals. *International Journal of Health Care Quality Assurance, Vol. 13* (7), pp. 290-299.

57. Luke, G. J. (2007). An assessment of the service quality expectations and perceptions of the Awali Hospital in the Kingdom of Bahrain. (Master's thesis, Rhodes Investec Business School, 2008) Retrieved from http://eprints.ru.ac.za/1177/1/MBA_Dissertation_2008_Final_Document_Submitted.pdf

58. Martinez Fuentes, C. (1999). Measuring hospital service quality: a methodological study. *Managing Service Quality, Vol. 9* (4), pp.230-40.

59. McCullagh, P. (1980). Regression Models for Ordinal Data. *Journal of the Royal Statistical Society, Vol 42*, pp. 109-142

60. McGlynn, E.A. (1995), Quality assessment of reproductive health services. *Western Journal of Medicine, Vol. 163* (3), pp.19-37.

61. Mejabi, O.V., & Olujide, J.O. (2008). Dimensions of Hospital Service Quality in Nigeria. *European Journal of Social Sciences, Vol. 5* (4), pp 141-159.

62. Michael, C. L., Lucie K. O., & Walter, L. L. (2001). Patients' Perceptions of Service Quality Dimensions: An Empirical Examination of Health Care in New Zealand. *Health Marketing Quarterly, Vol 19* (1), pp.3-22.

63. Ministry of Health and National Center for Health Development. (2006). *Annual health report 2005*. Ulaanbaatar, Mongolia

64. Ministry of Health and National Center for Health Development. (2008), *Health Indicators 2008*, Ulaanbaatar, Mongolia

65. MoH. (2005). *Health sector strategic master plan 2006–2015*. Ulaanbaatar: Core Group, Ministry of Health.

66. Mostafa, M.M. (2005). An empirical stud of patients' expectations and satisfactions in Egyptian hospitals. *International Journal of Health Care Quality Assurance, Vol. 18* (6), pp.516-531

67. Mummalaneni, V., & Gopalakrishna, P. (1995). Mediators vs. moderators of patient satisfaction: the role of socio-demographic characteristics might be less significant than previously thought. *Journal of Health Care Marketing, Vol. 15*, pp. 16-23.

68. Murfin, D.E., Bobo, B. S., & Adamantios Diamantopoulos. (1995). Perceived Service Quality and Medical Outcome: An Interdisciplinary Review and Suggestions for Future Research. *Journal of Marketing Management, Vol 11,* pp.97-117.

69. Newcome, L.N. (1997). Measuring of trust in health care. *Health Affairs, Vol. 16* (1), pp.50-51

70. Nunnaly, J. (1978). Psychometric theory. New York: McGraw-Hill

71. O'Connor, S. J., Shewchuk, R. M., & Carney, L. W. (1994). The great gap. *Journal of Health Care Marketing, Vol 14* (2), pp.32–39.

72. O'Connor, S., & Shewchuk, R. (1989). The influence of perceived hospital service quality on patient satisfaction and intentions to return. *Academy of ManagementProceedings,* pp.95–99.

73. Øvretveit, J. (1992). *Health Service Quality*, Blackwell, Oxford.

74. Parasuraman, A., Zeithaml, V. A., & Berry, L.L. (1994). Reassessment of Expectations as a Comparison Standard in Measuring Service Quality: Implications for Further Research. *Journal of Marketing, Vol 58* (1), pp.111-124.

75. Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing, Vol. 49* (4), pp. 41-50.

76. Parasuraman, A., Berry, L.L. & Zeithaml, V.A. (1991). Understanding Customer Expectations of Service. *Sloane Management Review, Spring*, pp.39-48.

77. Parasuraman, A., Berry, L.L. & Zeithaml, Valarie A. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality, *Journal of Retaling, Vol 64* (1), pp.12-40.

78. Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1988), SERVQUAL : a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, Vol. 64* (2), pp. 12-37.

79. Pendleton, D., Schofield, T., Tate, P., & Havelock, P. (1984). The Consultation: An Approach to Learning and Teaching, Oxford University Press, Oxford.

80. Petersen, M. B. H. (1988). Measuring patient satisfaction: collecting useful data. *Journal of Nursing Quality Assurance,2* (3), pp.25–35.

81. Pickering, E. (1991). New approaches to hospital accreditation. *Pan American Health Organization, World Health Organization, and Latin American Federation of Hospitals. Quality Assessment: Hospital Accreditation for Latin America and the Caribbean*, Kumarian Press, Bloomfield, CT, pp 1-8.

82. Polluste, K., Kalda, R., & Lember, M. (2000). Primary health care system in transition: the patient's experience. *International Journal for Quality in Health Care, Vol* 12, pp.503-509

83. Pui-Mun Lee., PohWah Khong., & Dhanjoo, N. G. (2006), Impact of deficient healthcare service quality. *The TQM Magazine Vol. 18* (6), pp. 563-571.

84. Ramsey, R., & Sohi, R. (1997). Listening to your customers: the impact of perceived salesperson listening behavior on relationship outcomes. *Journal of the Academy of Marketing Science, Vol. 25*, pp.127-37.

85. Reidenbach, R.E., & Sandifer-Smallwood, B. (1990). Exploring perceptions of hospital operations by a modified SERVQUAL approach. *Journal of Health Care Marketing, Vol. 10* (4), pp.47-55.

86. Rohini, R. & Mahadevappa, B. (2006). Service Quality in Bangalore Hospitals: An Empirical Study. *Journal of Services Research, Vol 6* (1), pp 59-84.

87. Sasser, W., Olsen, R. P. & Wyckoff, D.D. (1978). *Management of Service Operations: text, cases, and readings*. Boston: Allyn & Bacon.

88. Silvestro, R. (2005). Applying gap analysis in the health service to inform the service improvement agenda. *International Journal of Quality & Reliability Management, Vol 22*, (3), pp 215-233.

89. Smith, M., Meth Engelbrecht. (ND), Developing a Tool to assess Client Satisfaction at District Hospitals, *Technical Report 14* , South Africa: Health Systems Trust.

90. Sohail, M.S. (2003). Service quality in hospitals: more favorable than you might think. *Managing Service Quality, Vol. 13* (3), pp.197-207.

91. Sower,V., Duffy, J., Kilbourne,W.,Kohers, G.,& Jones, P. (2001). The dimensions of service quality for hospitals: Development and use of the KQCAH scale. *Health Care Management Review, Vol 26*(2), pp.47–59.

92. SSIGO. (2006). *Social insurance statistical compilation*. Ulaanbaatar: State Social Insurance General Office.

93. Stefen, G. E. (1988). Quality medical care: A defnition. *JAMA, Vol 260,* pp.56-61.

94. Taner, T., & Antony, J. (2006). Comparing public and private hospital care service quality in Turkey. *Leadershp in Health Services, Vol. 19* (2), pp. 1-10.

95. Tarlov, A. R., Ware, J. E., Greenfeld, S., Nelson, E. C.,Perrin, E., & Zubkof, M. (1989). The medical outcomes study: An application of methods for monitoring the results of medical care. *JAMA, Vol 262,* pp.925-930.

96. Taylor, S.A., & Cronin, J.J. (1994). Modelling patient satisfaction and service quality, *Journal of Health Care Marketing, Vol. 14* (1). pp.34-44.

97. Tomes, A. & Ng, S.C.P. (1995). Service quality in hospital care: the development of in-patient questionnaire. *International of Health Care Quality Assurance, Vol. 8* (3), pp. 25-33.

98. Ulaanbaatar Health Department. (2005). *Niisleliin hyn amiin eruul mendiin uzuulelt [Health indicators of people of the capital city]*. Ulaanbaatar: Ulaanbaatar Health Department.

99. Webster, C. (1989). Can consumers be segmented on the basis of their service quality expectations? *Journal of Services Marketing, Vol. 3* (2), pp. 35-53.

100. Weitzman, B.C. (1995). In: Kovner, A.R. Health care delivery in the United States, (5thed.). Berlin: Springer.

101. Wiggers, John H., Kathleen O, Donovan., Selina Redman., & Rob W, Sanson-Fisher. (1990). Cancer Patient Satisfaction with Care. *Cancer, Vol 66,* pp. 610-616.

102. Williams, S.J., & Calnan, M. (1991). Convergence and divergence: assessing criteria of consumer satisfaction across general practice, dental and hospital care settings. *Journal of Social Science & Medicine, Vol 33* (6), pp. 707-716.

103. Woodside, A.G., & Shinn, R. (1988). Consumer awareness and preference toward competing hospital services. *Journal of Health Care Marketing, Vol. 8* (1), pp.39-47.

104. Youssef, F.N., Nel, D., & Bovaird, T. (1996). Health-care quality in NHS hospitals. *International Journal of Health Care Quality Assurance, Vol. 9* (1), pp.15-28.

105. Zeithaml, V. A., & Bitner, M. J. (2000). Services marketing. New York: McGraw-Hill.

106. Zeithaml, V.A. (1988). Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence. *Journal of Marketing, Vol. 52*, pp.2-22.

107. Zemencuk, J. et al. (1996). Patients' desires and expectations for medical care: a challenge to improving patient satisfaction. *American journal of medical quality, Vol 14*, pp.21–27.

108. Zifko-Baliga, G. M., & Krampf, R. F. (1997). Managing perceptions of hospital quality. *Marketing Health Services, Vol 17*(1), pp.28–35.

109. Zineldin, M. (2006). The quality of health care and patient satisfaction: An exploratory investigation of the 5Qs model at some Egyptian and Jordanian

medical clinics. *International Journal of Health Care Quality Assurance, Vol. 19* (1), pp 60-92.