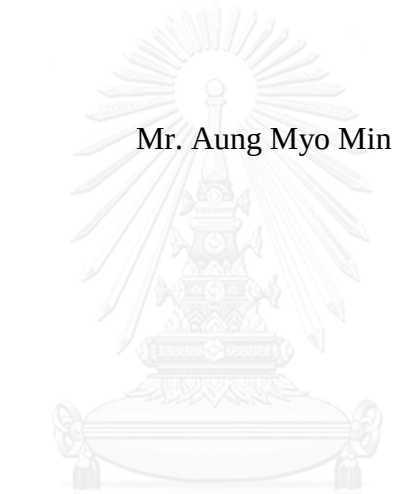
FACTORS INFLUENCING CUSTOMER SATISFACTION TOWARDS OUT-PATIENT DEPARTMENT SERVICES OF PRIVATE HOSPITALS IN YANGON, THE REPUBLIC OF THE UNION OF MYANMAR

Mr. Aung Myo Min



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ปัจจัยที่มีผลต่อความพึงพอใจของผู้ป่วยนอกในโรงพยาบาลเอกชนในย่างกุ้ง สาธารณรัฐแห่งสหภาพเมียนมาร์

นายอ่อง เมียว มิน

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต
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อ่อง เมียว มิน : ปัจจัยที่มีผลต่อความพึงพอใจของผู้ป่วยนอกในโรงพยาบาลเอกชนในย่างกุ้ง สาธารณรัฐแห่งสหภาพเมียนมาร์ (FACTORS INFLUENCING CUSTOMER SATISFACTION TOWARDS OUT-PATIENT DEPARTMENT SERVICES OF PRIVATE HOSPITALS IN YANGON, THE REPUBLIC OF THE UNION OF MYANMAR) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ดร.ธัชนันท์ โกมลไพศาล, 84 หน้า.

วิทยานิพนธ์ฉบับนี้ใช้การศึกษาเชิงปริมาณแบบภาคตัดขวาง โดยอาศัยการเลือกกลุ่มตัวอย่างแบบหลายขั้นตอน เช่น การเลือกกลุ่มตัวอย่างแบบโควต้า การเลือกกลุ่มตัวอย่างแบบสุ่ม และ การเลือกกลุ่มตัวอย่างแบบสะดวก

มีผู้ตอบแบบสอบถามที่สร้างขึ้นโดยผู้วิจัยทั้งหมด 440 คนและใช้สมการถดถอยโลจิสติกแบบเป็นลำดับขั้นในการวิเคราะห์ข้อมูล

ผลการศึกษาพบว่า ที่ตั้งของสถานพยาบาลที่ให้บริการผู้ป่วยนอก จำนวนครั้งที่ผู้ป่วยนอกเคยเข้ารับการรักษา และค่าใช้จ่ายรายเดือนของครอบครัวนั้นมีความสัมพันธ์อย่างมีนัยสำคัญกับความพึงพอใจโดยทั่วไปของผู้รับบริการ เวลาที่ได้รับคำปรึกษาจากแพทย์ การให้คำแนะนำเกี่ยวกับใบสั่งยาของแพทย์ และการให้บริการรักษาเฉพาะทางของแผนกผู้ป่วยนอกมีผลในเชิงบวกอย่างมีนัยสำคัญทางสถิติต่อความพึงพอใจต่อพฤติกรรมและการให้บริการของพนักงาน ระยะเวลาในการรอผลตรวจจากแลปและการทำเอ็กซ์เรย์มีผลอย่างมีนัยสำคัญทางสถิติต่อความพึงพอใจต่อการให้บริการทางด้านแลปและการทำเอ็กซ์เรย์ ในขณะที่ ระยะเวลาในการรอพบแพทย์ รวมไปถึงค่ายาที่แผนกผู้ป่วยนอกมีผลอย่างมีนัยสำคัญทางสถิติต่อความพึงพอใจในแง่ของความสามารถในการเข้าถึงและความสะดวกสบายของการบริการของแผนกผู้ป่วยนอก

ในการจะยกระดับการบริการของแผนกผู้ป่วยนอกนั้น ระยะเวลาในการพบแพทย์ของผู้ป่วยสมควรได้รับการปรับปรุง การให้บริการควรถูกทำให้เร็วขึ้นโดยไม่มีการล่าช้า การให้การรักษาเฉพาะทาง และ ข้อมูลเบื้องต้นเกี่ยวกับแผนกผู้ป่วยนอกและบริการที่โรงพยาบาลมีควรได้รับการเผยแพร่

สาขาวิชา เศรษฐศาสตร์สาธารณสุขและการจัดการบริการสุขภาพ ลายมือชื่อนิสิต .....

ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

ปีการศึกษา 2557

5785681429 : MAJOR HEALTH ECONOMICS AND HEALTH CARE MANAGEMENT
KEYWORDS: CUSTOMER SATISFACTION / OUTPATIENT DEPARTMENT SERVICES / PRIVATE HOSPITALS / YANGON / THE REPUBLIC OF THE UNION OF MYANMAR

AUNG MYO MIN: FACTORS INFLUENCING CUSTOMER SATISFACTION TOWARDS OUT-PATIENT DEPARTMENT SERVICES OF PRIVATE HOSPITALS IN YANGON, THE REPUBLIC OF THE UNION OF MYANMAR. ADVISOR: . TOUCHANUN KOMONPAISARN, Ph.D., 84 pp.

The study was cross-sectional, quantitative, descriptive study. The Multistage sampling design including quota sampling, simple random sampling and convenience sampling methods were used to identify respondents for the study. The self-administered structured questionnaire survey was applied to 440 respondents. Data analysis employed regression model with ordered logistic method.

The study revealed that the location of the outpatient department services, the respondents' number of outpatient department services visits and average total family expenditure per month had significant relationship with general customer satisfaction; doctors' consultation time, availability of written prescription guidance and specialty services at outpatient department services. had statistically significant relationship with customer satisfaction towards staff behaviors and services; duration of waiting time to get laboratory services and radiology services had statistically significant relationship with customer satisfaction towards laboratory and radiological services; duration of waiting time for seeing with medical doctors and expense incurred for medication at outpatient department services had statistically significant relationship with customer satisfaction towards accessibility and convenience of the outpatient department services..

To provide better outpatient department services, the duration of time taken by the doctors in dealing with patients should be improved. Service delivery should be speeded up by reducing any delays. The specialty services should be available at hospital outpatient department and general initial information about hospital outpatient department and available services should be publicized.

Field of Study:	Health Economics and Health Care Management	Student's Signature	.....
		Advisor's Signature	.....
Academic Year:	2014		

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MAY THE GOD SHOWERS BEST BLESSINGS UPON YOU ALL!

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CHAPTER I
INTRODUCTION

1.1. Significance and rationale

Along with ages, the objectives of the health care service delivery have been changed according to the needs of the customers and availability of resources. The 19th century (1850) was an era called symptoms-centered. Health care was focused on local understandings and perceptions rather than scientific basis. Early 20th century (1900) was basic science or disease centered era, health care was viewed as doing experiments towards diseases to get scientific reasons. Mid of the 20th century (1950) was clinical science or patient centered era. Diagnosis and treatment of diseases was the main interested area in that era. Late 20th century (1975) was called public health or community centered era. Community as a whole was focused in terms of preventive, diagnosis and treatment rather than individualized. Start of 21st century (2000) was political health science or people centered era. Health as a view of public interest, public participation and proper allocation of resources reflecting the needs of community members were ensured. (Chanawongse, 1994)

World Health Organization identified future development of the health as human centered; meaning that health care services would be focused to secure patient needs and rights in order to offer quality health care services that assure customer satisfaction. (WHO, 1998)

In recent age, people are staying in the world of information and technology. Information and technology becomes most advanced hence people have been better informed than the past. In the health care industry, patients know their needs and are increasingly well informed about their rights. They are becoming aware that health care services should be qualified and ensure the satisfaction of the clients. If the health care services do not attain the customer satisfaction via the quality process, those services are regarded as low quality services with poor performance. Performance of the health care services can be determined by measuring customer satisfaction level.

Nowadays, not only service providers, hospital managers, administrators, and evaluators but also practitioners and customer are recognizing the importance of customer satisfaction, Linder-Peltz (1992) stated. (Aday & Walker Jr, 1996)

The process of health care services delivery can be improved by measuring current level of customer satisfaction and filling the gaps. High satisfaction level indicates the service delivery meets the preferences of the clients and/or the service procedure is well. Low satisfaction level alarms the management to fill the needs of customer requirements or improve the process of service delivery. Once customer satisfaction has been acknowledged as critical not only for the hospital but also for any health service provision, it is important to identify the underlying factors that determine the level of customer satisfaction.

Reviewing of relevant literature provides the evidences that measuring customer satisfaction allows to determine the quality of current health service delivery and explore the strategic ways to improve it. Following paragraph shows some of the highlighted points of referenced literatures.

Accessing the performance of the health service delivery and selection of strategic options for health care provision could be most probably done by measuring customer satisfaction, Fitz Patrick Ray (1991) mentioned. (Linder-Pelz, 1982) The assessment process of customer satisfaction should not be one time procedure. The continuous monitoring and evaluation process is required in order to explore gaps of the service deliveries and initiate proper corrective strategies. One of the researches stated that the measure of customer satisfaction has been ignored by many of the service providers though it is important. (Aday & Walker Jr, 1996) Thus, the periodic assessment of patient manner and satisfaction is suggested to carry out. (Fitzpatrick, 1991) Applying such a regular assessment system will allow continuing view on service delivery system and earliest recognition of the gaps.

In addition, through the comprehensive search among the previous studies, only one customer satisfaction related study in Myanmar by Win & Panzal (2009) had been discovered. The study was conducted at only one private hospital in Yangon and explored the level of customer satisfaction towards outpatient department services of that studied hospital.

In general, private hospitals in Myanmar have the shortcomings in the area of service provision sector particularly in demanding outpatient department services. The consequences are patient complaints and customer dissatisfaction. Those shortcomings in the area of health service provision arise from both quantitative and qualitative shortage of the private hospitals services. The quantitative shortage of the service leads to become the demands exceeding than the supplies which is exacerbated by the qualitative limitations. World Health Organization mentioned that the patient expectation of services quality and the quality of actual service provision could be contradicted due to scarce resources and it would result the declination in customer satisfaction level. (Ministry of Health, 2006)

The aforementioned three reasons – (1) customer satisfaction has been acknowledged as critical for the hospital and any health service provision as well around the world, it is important to identify the underlying factors that determine the level of customer satisfaction (2) scare relevant study regards customer satisfaction of health care services in Myanmar (3) customer satisfaction towards health care service provision especially in demanding outpatient department services is being a crucial area to be improved at private hospitals in Myanmar; serves the main basis for my interest in the topic of factor influencing customer satisfaction towards outpatient department services of private hospitals in my native country.

Though the study regards factors influencing customer satisfaction towards health care service provision is highly demanding, there are couples of constraints against studying of customer satisfaction at the public hospitals in Myanmar. As a result of semi-dictatorship political influence, sensitiveness towards exploring/disclosing about the government health care structures/services and centralized administrative complexity, securing the approval for customer satisfaction related study at the public hospitals is totally not practical. So, to my best at given conditions, studying customer satisfaction towards private hospital services becomes the scope of the study and it would be an initiative and applicable for further customer satisfaction studies towards private and public hospital services as well.

1.2. Research Questions

I. What are the underlying factors that determine customer satisfaction towards Outpatient Department Services of Private Hospitals in Yangon, the Republic of the Union of Myanmar

II. What is the relationship between underlying factors and customer satisfaction towards Outpatient Department Services of Private Hospitals in Yangon, the Republic of the Union of Myanmar

1.3. Research hypothesis

- H0: There is no relationship between customer satisfaction (dependent variables) and the studied underlying factors (independent variables)
- H1: There is a relationship between customer satisfaction (dependent variables) and the studied underlying factors (independent variables)

1.4. Objectives of the research

I. To explore the underlying factors that determine customer satisfaction towards Outpatient Department Services of Private Hospitals in Yangon, the Republic of the Union of Myanmar

II. To determine the relationship between the underlying factors and customer satisfaction towards Outpatient Department Services of Private Hospitals in Yangon, the Republic of the Union of Myanmar

1.5. Expected benefits

- Study expects to explore the underlying factors that determine customer satisfaction towards out-patient department services of the private hospitals hence it can be used to identify the service area to be focused, offer more efficient services and used as a tool for further development of services delivery.
- Study expects to determine the relationship between underlying factors (independent variables) and customer satisfaction towards out-patient department services of the private hospitals (dependent variables).

1.6. Obstacles

- The process of securing the approval of hospital management in order to conduct the survey need substantial advocacy and clarification addressing that the study result will be reported as a generalized total picture, any information

which could be able to identify the studied hospital will not appear in the report and is solely for the use of education and research purposes.

- Social desirability bias was likely as the research data was collected by requesting the respondents to complete the questionnaires in the compound of the hospitals and immediately after consultation with physicians.

CHAPTER II
BACKGROUND INFORMATION

2.1. General demographic background of Myanmar

Myanmar is located in South East Asia. The neighboring countries at the eastern border are China, Thailand and Laos; at the western border, there are India and Bangladesh. The country has 17 administrative States and Divisions. In 2005-06, 55.4 million populations were estimated and the adult literacy rate is comparatively high as it was 94.1% during 2006.

2.2. Background Information about Myanmar health care system

2.2.1. Health care services of Myanmar

Along with political and administrative alterations of the nation, Myanmar health care system is gradually developing. The key health care providers are taking different responsibilities and though their roles are changing as needed, Ministry of Health remains the major provider of comprehensive health care for the entire country according to the social objectives set up by the National Health Committee (NHC) composed of various ministers and senior officials from different ministries and institutions. Mix of public and private system is included both in health care financing and provision. Both public, private (not for profit) institution such as Myanmar Red Cross Society (MRCS), Ziwita Darna Sanga Hospital, Muslim Free Hospitals and private (for profit) providers contribute the needs of health care for the nation. (Ministry of Health, 2014)

Under the public sector; Department of Health, one of the seven departments under the Ministry of Health plays a major role in providing comprehensive health care across the nation. Public sector possess 832 hospitals, 86 primary health centers, 348 maternal and child health centers and 1456 rural health centers throughout the whole country as of 2005-2006. (Myanmar Health Information System) Regarding the human capital, there are 18584 registered medical doctors, 19776 registered nurses and 16745 registered midwives. The population ratio of medical doctors is 1:2959 and a nurse is 1:2781. (Myanmar Health Information System)

The private (for profit) sector mainly provides ambulatory care across the country by means of small and medium sized private clinics. Only in Yangon,

Mandalay, Nay Pyi Daw and very few large cities the private sector offers institutional care through well-equipped standardized hospitals. (Ministry of Health, 2014)

The private (not for profit) sectors or health care organizations provide ambulatory care along with some degree of institutional cares and health promotion through social services and networks. Most of the private (not for profit) hospitals or health care services based in some cities and townships are running by Community Based Organization (CBOs) or religious based society. (Ministry of Health, 2014)

2.2.2. Characteristics of private hospitals in Myanmar

In terms of private (for profit) sector, all the tertiary, secondary and primary private hospitals are based in capitals i.e. Yangon, Mandalay, Nay Pyi Daw and some other big cities. Though (100) private hospitals has been registered throughout the country; all the most popular, modernized and quality hospitals are located in Yangon. Precisely, there are (19) private hospitals in entire Yangon. According to the geo-administrative set up, Yangon has been divided into 4 particular parts i.e. Eastern district, Western district, Southern district and Northern district. (6) out of (19) private hospitals are located at Eastern District, (12) out of (19) hospitals are located at Western District, (1) hospital is located at Northern District and no hospitals in southern district.

In term of hospital beds, there are altogether (4,141) hospital beds throughout the whole country where (1,760) beds are in Yangon i.e. (42.50%) of total hospital beds across the nation, where (540) hospitals beds are located at Eastern Yangon, (1,120) beds are in Western Yangon and Northern Yangon possesses (100) hospital beds. (http://mphassociation.org/member_list)

The sizes of the hospitals are varied. The smallest one has (11) hospital beds in which the largest one possesses (300) beds and the rest varies in between. Many big-sized hospitals are located at western district and it hosts highest number of hospitals (12 hospitals) and hospital beds (1,120 beds) as well.

The name list of private hospitals along with number of hospital beds available and their locations are shown in table (1.3).

Table 1.3: The list of private hospitals and along with number of hospital beds available and their locations

No.	Hospital Name	Location (district)	No of hospital beds
1.	Aung Yadanar	Eastern	70
2.	East West Parami	Eastern	25
3.	OSC	Eastern	100
4.	Shwe La Min	Eastern	34
5.	Tet Lann	Eastern	11
6.	Pinlong	Eastern	300
Total hospital beds in Eastern district			540
1.	Academy	Western	40
2.	Asia Royal	Western	220
3.	Bahosi	Western	120
4.	Green Cross	Western	50
5.	Mahar Myaing	Western	70
6.	Parami	Western	65
7.	Sakura	Western	150
8.	Shin Pa Gu	Western	49
9.	SSC	Western	200
10.	Thukha Kabar	Western	50
11.	Thukha Waddy	Western	16
12,	Victoria	Western	90
Total hospital beds in Western district			1,120
1.	Pun Hlaing	Northern	100
Total hospital beds in Northern district			100
Total hospital beds in entire Yangon			1,760

Source: Myanmar Private Hospital Association Website

CHAPTER III
LITERATURE REVIEW

The following relevant areas of research study will be explored in detail at the literature review chapter.

3.1 Customer satisfaction

3.1.1 Meaning and scope of customer satisfaction

3.1.2 Benefits of measuring customer satisfaction

3.2 Customer satisfaction related questionnaire

3.3 Customer satisfaction related researches

3.4 Socio-demographic factors

3.5 Customer perception towards quality of outpatient department services

3.6 Accessibility to the outpatient department services

3.1. Customer satisfaction

3.1.1. Meaning and scope of customer satisfaction

Customer personal feeling of satisfaction or dissatisfaction with the perceived service performance and outcomes relates with the expectation can be regarded as customer satisfaction. In other word, customer satisfaction is function of perceived service performance and customer expectation. (Linder-Pelz, 1982) In the field of health care profession, customer point of view towards medical services that they had been received and the outcomes of the medical intervention can be generally defined as patient satisfaction.

Investigation of quality of health care services is crucial in the context of health sectors for evaluation purpose and development of the currently provided health care services. One of the core indicators to access the quality of health care services is customer satisfaction. The quality of nursing care services should also be inclusive in addressing the customer satisfaction towards health care services. All the health services providers have to know the determinants that influence the customer satisfaction in order to improve the quality of the services delivered. (Peter, Magnus, & Bengt, 2002)

Australian federal evaluation policy has focused on efficiency, effectiveness and accountability in its objectives since 1982. (Fitzpatrick, 1991)

There is a perception that access to the health and nursing services by the customer is strongly related with their satisfaction level. (Jawahar, 2007) In the world of vigorously competitive health care services, customer satisfaction becomes one of the key factors to be able to receive the profitable market share or survive in a long run. Health acre intervention plans might not accredit well in the absence of particular customer satisfaction level. (Mandokhail, Keiwkarnka, & Ramasoota, 2007) The major sources to be able to explore the information about customer purchasing decision, the consequences of policy implication and initiate the proposals for the development of new strategies for service delivery are the thorough evaluative analysis of customer satisfaction measures. (Avis, Bond, & Arthur, 1995)

Customer satisfaction measurement could be sub-divided into three distinct sections as follow 1) customer satisfaction as an emotional response (cognitive) 2) customer satisfaction response addressing specific area of interest (certain product, service experience) 3) customer satisfaction response measured at specific point of time (response sourced after accumulated experience) (Maxwell, 1984)

Wares and associates developed very initial heath care services related customer satisfaction taxonomy that include questionnaire to access customer satisfaction towards health care services and sample answers to be able to determine satisfaction or not. After the Wares and associates initiation, client satisfaction towards health care services and service providers has been studied with great interest which in turn generated a large number of relevant publications. (Doyle & Ware Jr, 1977) In Sweden, to be able to provide better quality services and improve efficiency and effectiveness of the services procedure, the client satisfaction studies were begun in 1990. (Garpenby, 1999)

World Health Organization (WHO) suggested following areas for customer satisfaction analysis;

1) The reliability of the services i.e. a state of assurance towards the provided service along with a nature of consistency and dependable manner;
2) The responsiveness of the services i.e. a state of willingness of the service provider in order to fulfill the requirements of the customers;
3) The courtesy of the service providers
4) The confidentiality of the services including personal records of the customers

Customers' point of view may be assessed by following particular questionnaire;

- physical facility/infrastructure of the service
- the behaviors of service support staffs
- availability of preliminary information (sources)
- the efficiency of counselors
- the expense of the offered services
- the relevancy of service provision and the needs of customers
- the accessibility of the services
- waiting time for the process of service delivery
- appointment frequency
- available consultation time with physician
- the humanity of services
- the effectiveness of services provided (WHO, 2000)

The feeling of customers' pleasure towards the quality of the provided health care services, skills of the medical personnel, infrastructures and the regular usage of the services by the large number of customers indicated the high customer satisfaction level. On the other hand, the customers would feel disappointed and the usage of health care services would be reduced if the aforementioned relevant factors that contribute quality of the services were not standardized. Improvement should be addressed primarily for all the weakened particular service areas - for instance: long waiting time, delayed pharmacist, investigation and ambulatory services in order to secure the higher satisfactory outcome.(Haldar, Sarkar, Bisoi, & Mondal, 2008)

According to the aforementioned referenced researches, the service quality of the health care institutions and the progress of quality improvement measures can be assessed by customer satisfaction levels. Hospital outpatient department is regarded as one of the most important units amongst the other units because many of the customers used to come to the hospital as outpatients. In addition, hospital outpatient department is the initial communication point with the first-timed customers who can also be regarded as long-run regular customers for any medical requirements ahead if they satisfy with the service delivery. First impression of client satisfaction in

outpatient department services is very critical because the customers will go back to the community after getting the required medical interventions and they will most probably disclose the health care services they have been received at least to their family members and relatives or at most to the wider community members. Previous studies have explored the shortcomings related with hospital outpatient department such as congested number of patients, unethical or malpractice behaviors of the staffs, unreasonable delay for specialty services etc. finally conclusion could be made as hospital outpatient department services are of vital importance of the hospital and the comments and feedback reactions from the customers are imperative to upgrade the service quality. (Jawahar, 2007)

3.1.2. Benefits of measuring customer satisfaction

Why customer satisfaction is crucial for health care services? There are numbers of justifications. Suppose the patient is not satisfied with the medical services that he/she is receiving, he would frequently alter the services providers or change the prepaid health care package from time to time, comply to lesser degree with the prescribed medications and sue the health services providers for malpractices behaviors and ethical ignorance in utmost cases.(Kressin et al., 1999)

Compliance of medication which consequently could contribute positive outcome effect on patient health status is considerably depended on customer satisfaction. (Kumari et al., 2009) Moreover, higher adherence to the planned medical care and more efficient use of health care service pattern can be seen in patients with higher satisfaction level towards health care services (Fitzpatrick, 1991) hence in order to justify any initiatives of health services, the level of customer satisfaction can be used as one of substitute indicators. (Avis et al., 1995)

Nowadays, the demands of health service taker are continually growing by looking for the quality services which could ensure precise and reasonable outcome justification. (Kumari et al., 2009)

3.2. Customer satisfaction related questionnaire

The underlying factors of customer satisfaction can be appropriately assessed by using Patient Satisfaction Questionnaire short-form (PSQ-18) developed by Grant N. Marshall and Ron D. Hay and issued by RAND Corporation. (Marshall & Hays, 1994) The RAND stands for Research ANd Development and the corporation is a

global nonprofit institution based in California, USA with offices across the world. Through the work of research and analysis basis, the institution aims to help for improving policy and decision-making worldwide. The PSQ-18 is a shortened version of Patient Satisfaction Questionnaire III (PSQ-III) which includes 50 question items. The short form PSQ-18 consists of 18 question items. The PSQ-18 touches all the seven dimensions of the customer satisfaction regards health care service delivery initially measured in PSQ-III as well. The seven dimensions of the customer satisfaction that have been measured in PSQ-18 include generalized satisfaction, technical quality, manner of interpersonal relation, communication, financial point of view, availability of time with physicians, accessibility and convenience. The internal consistency reliability of the PSQ-18 is generally adequate to apply in accessing customer satisfaction of health service delivery. The subscales of PSQ-18 are correlated substantially with relevant subscales of its full version predecessor PSQ-III. In addition, the overall pattern of correlation among PSQ-18 subscales is very similar to PSQ-III. Those preliminary similarities recommend the usage of PSQ-18 instead of full version PSQ-III once brevity questionnaire is needed to apply.

Aside from PSQ-18, additional question items from the research study (Win & Panzal, 2009) will be incorporated in the research questionnaire. In the study of (Win & Panzal, 2009), the Cronbach's alpha coefficient for reliability test of questionnaire regarding perception of client related with health care service quality was 0.86, health care services accessibility was 0.80 and patient satisfaction towards the services was 0.88.

In addition to the modification of PSQ 18 questionnaire and question items from research study of (Win & Panzal, 2009), the researcher himself will develop additional appropriate questions in order to be able explore the underlying factors of customer satisfaction.

3.3. Customer satisfaction related researches

The customer satisfaction study conducted at outpatient department services of Institute of Medical Sciences Islamabad, Pakistan reported that (54%) of the total sample had high level of overall customer satisfaction. Regarding different varieties of service, high satisfactory level had been reported by (53%) of total respondents for service related with physical facilities, (65%) of total respondents for service related

to medical equipment and pharmacy services, (61.5%) for physicians' service, (76.5%) for nursing care service, (77.5%) for registration service and (81%) for service regarding laboratory tests expenditure. The Likert five point scoring technique was applied and the mean value was used as a cut point in order to determine the level of customer satisfaction in that study. In terms of socio-demographic characteristics; age, marital status, education, occupation and income showed statistically significant association with customer satisfaction. (P-value<0.05) Regarding accessibility status of the out-patient department services; travelling distance to the service provider and timing of outpatient department services items showed statistically significant association (P-value<0.05) with customer satisfaction variable. (Javed, 2005)

A research done in outpatient department of one of the tertiary hospital at India explored the level of patient satisfaction towards services of outpatient department, logistic procedure of outpatient department, performance and behaviors of hospital staffs, waiting time, appointment procedure, infrastructure, supportive service process. The result showed that among 200 total samples, 90-95% of respondents were overall satisfied with the out-patient department services delivery of the studied hospital except prolonged waiting time has been reported by some of the respondents and suggestion to have more friendliness behavior of the nurses. (Jawahar, 2007)

3.4. Socio-demographic characteristics

Though socio-demographic factors of the patients had been studied in various research studies, their importance on patient satisfaction have not yet revealed consistently. Variations among the studied sample and particular characteristic of the background factors might be the facts for inconsistent results related with socio-demographic factors of patient satisfaction. (Mandokhail et al., 2007)

According to Mandokhail, 2007, in terms of marital status, the widow/separated group has comparatively lower satisfaction level whereas singles are comparatively more satisfied (93.55%) with the medical services that they received than other status of marriage. In that study, the results showed that there was statistically significant association among marital status and customer satisfaction (p-value 0.042), occupation as well with no association between satisfaction and other socio-demographic variables. (Mandokhail et al., 2007)

In the study of Lupton, 1997, age and education level revealed that no statistical associated with customer satisfaction level whereas gender shows the significant association (p-value < 0.001). Female had higher satisfaction level towards their physicians than the male. (Lupton, 1997) Similarly, another study conducted at OPD of Dhaka Medical College Hospital showed that level of satisfaction varied among the gender status with females significantly more satisfied (p-value < 0.05) than the males with the OPD health care services they received. (Islam & Jabbar, 2008)

Regarding the education status, one of the study researches showed that among the respondents with lower education status, higher satisfaction level with the availability and physical facilities of the services had been found out in which higher education respondents showed off their higher satisfaction level with quality of the services provided. The same study stated that income level was significantly associated solely with satisfaction towards quality of care; the poorer had higher satisfaction level regards quality of medical care. (Aday & Walker Jr, 1996)

3.5. Customer perception towards quality of out-patient department services

The attitude of the health service provider is one of the majority areas where the patient satisfaction level is impaired and the improvements with reform mechanisms are needed. (Muhondwa, Leshabari, Mwangu, Mbembati, & Ezekiel, 2008) The concept of power imbalance among patients and health care providers is against with the development of health care system in the recent days. The imbalance power distribution might result the patients to be more dependent towards the service providers and remain passive. The patients have to be viewed as the customers with full legitimate expectations, concerns and authorize to do valid conclusions towards the quality of services they have been provided. Health care personal have to realize that customer satisfaction level should be positively impacted via quality assurance and management interventions as well as professional aspects of technical skills should have to be raised for better quality health care. (Muhondwa et al., 2008) The same study reported that patient satisfaction regards laboratory services was associated with the duration of the waiting time. The X-rays department got excellent remark for their service from the (98%) of the total studied respondents and it revealed associated with patient satisfaction level in the similar study. There was

association among patient satisfaction and the pharmacy services of helping the patients to be able to understand the prescribed schedule of medication and regarding the waiting time to receive the counter services. (Muhondwa et al., 2008)

One study conducted in Male, Maldives reported that cleanliness of the hospital compound is one of the positive factors and customer satisfaction associated with relationship among the hospital staffs and the patients. (Ibrahim, 2008) There was a recommendation for supervision mechanism and provision of training for the hospital staffs in order to become more professionalism in custom care. (Boonjun, 2002)

Not only service quality but also customer expectation is deterministic in measuring the satisfaction level. The result of satisfaction level is high once the provided services meet or exceed with customer expectations. Even the poor quality health care services could generate high satisfaction result if the patient expectation level is relatively low or accessibility to the service center is limited. The high level of patient satisfaction does not necessarily mean that the provided service is good. It might imply low expectation towards poor quality services. In many cases, patients might say the health care service is satisfactory because of many underlying reasons, for instance; they might want to please the interviewer, they might worry for service withdrawal, the socio-cultural norms against the complaint towards health providers or socio-desirability bias of preferring to say "Satisfied" instead of "NO". (Aldana, Piechulek, & Al-Sabir, 2001)

3.6. Accessibility to the out-patient department services

The accessibility refers the feasibility of the person whether he could receive the health care services at any time with no constraint regards travelling time, travelling distance and cost of the care.

Many studies reported that patient wants the least waiting time and travelling distance to the health care facility. Waiting time include not only the time taken to receive curative care services but also the time to be spent to obtain the registration process, pharmacy services, lab and radiology services and all the rest of services as well.

According to many statistical data, the numbers of people looking for medical services and the numbers of health care facilities and personnel are imbalanced with

much higher patient loads than the health care infrastructure and human capital resources. Manpower development by means of both quality and quantity measures and sympathetic but efficient adherence to the time frame might reduce the waiting time of the patient to some particular extent. (Net, Sermsri, & Chompikul, 2007)

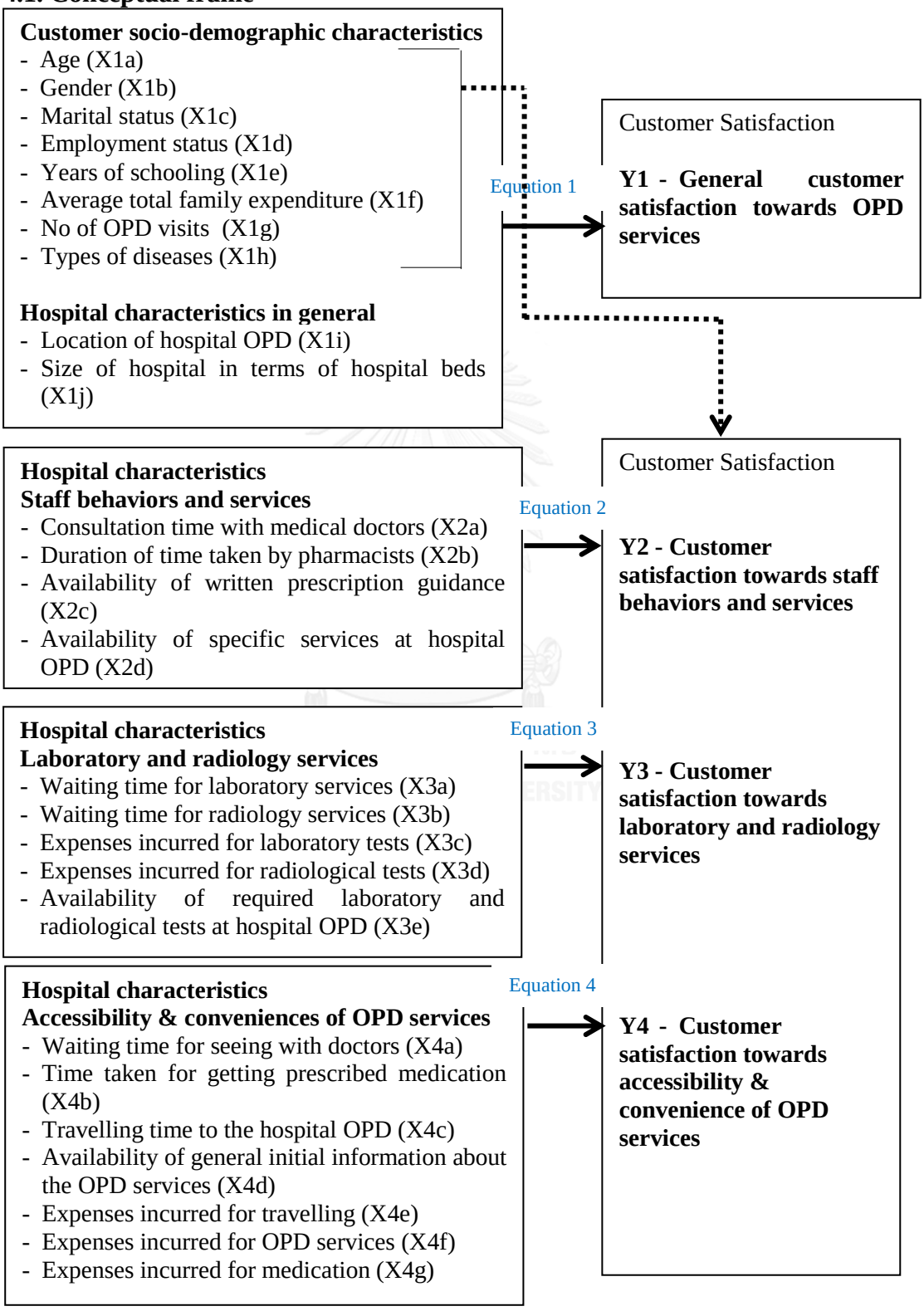
Health problems may occur at anytime, anywhere. Thus from the customer subjective point of view, health facilities or health providers should available everywhere at any time in order to meet the demand with no delay. Availability of the 24 hour health care services at minimal travelling distance would most probably incur the particular amount of extra charge to the patient if the private hospital is providing the services but might not probably if public hospital is therein. The particular amount of extra charge is incurred for convenience with no long travelling distance and lack of travelling expenditure. Patient satisfaction towards health care services is partly determined by cost of traveling and the distance to be travelled in order to get health care services. (Mandokhail et al., 2007)

The easy accessibility to the hospital is related with high customer satisfaction whereas the difficulties in the accessibility would provide opposite result of customer satisfaction level. Customer satisfaction has statistically significant association (p-value < 0.001) with accessibility to the health facilities. (Hasan, 2007)

CHAPTER IV

RESEARCH METHODOLOGY

4.1. Conceptual frame



The framework reveals following concept of the study research;

Equation 1

The two sets of independent variables **'Customer socio-demographic characteristics'** including as age (X1a), gender (X1b), marital status (X1c), employment status (X1d), years of schooling (X1e), average total monthly family expenditure (X1f), numbers of OPD visits (X1g), types of diseases (X1h) and **'Hospitals characteristics – in general'** namely location of hospital OPD (X1i), size of hospital in terms of numbers of hospital beds (X1j) determine the dependent variable 'General customer satisfaction towards OPD services (Y1)'.

Equation 1 can be stated with utility function as follow;

$$U\,(Y1) = f\,(X1a, X1b, X1c, X1d, X1e, X1f, X1g, X1h, X1i, X1j)$$

Dependent variable

Y1 = General customer satisfaction towards out-patient department services

The 'Likert four point' scale was applied.

1 point for responses showing 'very unsatisfied', 2 point for 'unsatisfied', 3 point for 'satisfied' and 4 point for 'very satisfied'.

Independent variables: 'Customer socio-demographic characteristics' and 'Hospitals characteristics in general'

X1a: Age (year)

Numeric

The ages of the customers would determine the general satisfaction of the customers because the general satisfaction (perception) of the old, middle and young-aged people towards the service provision would not be the same. For instance, old people might satisfy the numerous regular out-patient department appointments whilst the youths might not satisfy it.

X1b: Gender

Categorical

The gender of respondents was grouped as (categorical) variables male/female.

Male = 1

Female = 0

The gender of the customers would determine the general satisfaction of the customers because the general satisfaction (perception) of the people with different gender towards the service provision would not be the same. For instance, males might not satisfy the presence of female nurse at physical examination rooms whilst the females might satisfy it.

X1c: Marital status

Categorical

The marital status of respondents was grouped as (categorical) variables.

Single = 1

Otherwise = 0

The marital status of the customers would determine the general satisfaction of the customers because the general satisfaction (perception) of the people with different marital status towards the service provision would not be the same. For instance, singles might not satisfy the out-patient department services at evening time whilst the marrieds might satisfy it.

X1d: Employment status

Categorical

Employed (own business, government staffs, company/NGO staffs etc) = 1

Unemployed (monks, nuns, students, youths, retired etc) = 0

The employment status of the customers would determine general the satisfaction of the customers because the general satisfaction (perception) of the people with different types of employment status towards the service provision would not be the same. For instance, employed customers might satisfy the costing out-patient department services whilst the unemployed might not satisfy it.

X1e: Years of schooling

Numeric

The years of schooling of the customers would determine the general satisfaction of the customers because the general satisfaction (perception) of the people with different years of schooling towards the service provision would not be the same. For instance, customers with 2 years of schooling might not satisfy the comprehensive disease investigation procedures of out-patient department service whilst the customers with 15 years of schooling might satisfy it.

X1f: Average total immediate family expenditure per month (US Dollar)

Numeric

The family expenditure of the customers would determine the general satisfaction of the customers because the general satisfaction (perception) of the people with different family expenditure towards the service provision would not be the same. For instance, patients with high family expenditure might not satisfy the crowded out-patient department service that need to wait long queuing whilst the patients with low family expense might satisfy it.

X1g: Numbers of out-patient department visit (including the current visit)

Numeric

The number of out-patient department visit of the customers would determine the general satisfaction of the customers because the general satisfaction (perception) of the people with different number of out-patient department visit towards the service provision would not be the same. For instance, patients who have been many times to the out-patient department might satisfy the treatment provided by the out-patient department service whilst the patients with first out-patient department visit might not satisfy it.

X1h: Type of diseases

Categorical

The type of disease of respondents was grouped as (categorical) variables.

Acute = 1

Chronic = 0

The types of disease of the customers would determine the general satisfaction of the customers because the general satisfaction (perception) of the people with different types of disease towards the service provision would not be the same. For instance, acute patients might satisfy the treatment approach provided by the out-patient department service whilst the chronic patients might not satisfy it.

X1i: Location of hospital out-patient department

Categorical

Downtown area = 1

Peripheral area = 0

The location of the hospital would determine the general satisfaction of the customers because the general satisfaction (perception) of the patients towards the service provided by the hospitals which are located in different area would not be the same. For instance, hospital out-patient department located in downtown area might be satisfied by the patients whilst hospital out-patient department located in peripheral area might not be satisfied.

X1j: Size of hospital in terms of numbers of hospital beds

Numeric

The numbers of hospital beds would determine the general satisfaction of the customers because the general satisfaction (perception) of the patients towards the service provided by the hospital with different numbers of hospital beds would not be the same. For instance, hospital out-patient department with higher numbers of hospital beds might be satisfied by the patients whilst hospital out-patient department with lesser numbers of hospital beds might not be satisfied.

Regression model

General customer satisfaction towards OPD services (Y) = B0 + B1 Age (X1a) - B2 Gender (X1b) + B3 Marital status (X1c) - B4 Employment status (X1d) + B5 Years of schooling (X1e) – B6 Average total immediate family expenditure (X1f) + B7 No of OPD visit (X1g) - B8 Type of disease (X1h) + B9 Location of the hospital (X1i) - B10 Size of hospital in terms of numbers of hospital bed (X1j) + € (Error term)

Equation 2

The two sets of independent variables **'Customer socio-demographic characteristics'** and **'Hospitals characteristics – related to staff behaviors and services'** namely consultation time with medical doctors (X2a), duration of time taken by the pharmacists in explaining the prescription of medication (X2b), availability of written prescription and guidance (X2c), availability of specialty services at hospital OPD (X2d) determine the dependent variable 'Customer satisfaction towards OPD staff behaviors and services (Y2)'.

Equation 2 can be stated with utility function as follow;

$$U\,(Y2) = f\,(X1a, X1b, X1c, X1d, X1e, X1f, X1g, X1h) * f\,(X2a, X2b, X2c. X2d)$$

Dependent variables

Y2 = Customer satisfaction towards staff behaviors and services

The 'Likert four point' scale was applied.

1 point for responses showing 'very unsatisfied', 2 point for 'unsatisfied', 3 point for 'satisfied' and 4 point for 'very satisfied'.

Independent variables: 'Hospital characteristics related to staff behaviors and services'

X2a: Consultation time with medical doctors

Numeric

The consultation time with medical doctors would determine the customer satisfaction towards staff behaviours and services because the satisfaction (perception) of the patients towards staff behaviours and services would not be the same depending on the duration of consultation time with medical doctors. For instance, hospital out-patient department with longer duration of doctors' consultation time might be satisfied by the patients whilst hospital out-patient department with shorter consultation time might not be satisfied.

X2b: Duration of time taken by the pharmacists in explaining the prescription of medication

Numeric

The duration of time taken by the pharmacists in explaining the prescription of medication would determine the customer satisfaction towards staff behaviours and services because the satisfaction (perception) of the patients towards staff behaviours and services would not be the same depending on the duration of time taken by the pharmacists in explaining the prescription/dosage of medication. For instance, hospital out-patient department with longer duration of time taken by the pharmacists in explaining the prescription/dosage of medication might be satisfied by the patients whilst hospital out-patient department with shorter duration of time taken by the pharmacists might not be satisfied.

X2c: Availability of written prescription and guidance for the patient

Categorical

Yes = 1

No = 0

The availability of written prescription and guidance about the prescription/dosage of medication, dos/don'ts for the patient would determine the customer satisfaction towards staff behaviours and services because the satisfaction (perception) of the patients towards staff behaviours and services would not be the same depending on the availability of written prescription and guidance for the patient. For instance, hospital out-patient department with available written prescription and guidance might be satisfied by the patients whilst hospital out-patient department without availability of written guidance might not be satisfied.

X2d: Availability of specific OPD services (eye, ear and dental care) at hospital out-patient department

Categorical

Yes = 1

No = 0

The availability of specific services (eye, ear and dental) at hospital out-patient department would determine the customer satisfaction towards staff behaviours and services because the satisfaction (perception) of the patients towards staff behaviours and services would not be the same depending on the availability of specific out-patient department services (eye, ear and dental care). For instance, hospital out-patient department with availability of specific services (eye, ear and dental) might be satisfied by the patients whilst hospital out-patient department without availability of specific services might not be satisfied.

Regression model

Customer satisfaction towards staff behaviors and services (Y) = B0 + B1 Consultation time with medical doctors (X2a) + B2 Duration of time taken by the pharmacists in explaining the prescription/dosage of medication (X2b) + B3 Availability of written prescription and guidance for the patient (X2c) + B4 Availability of specific services (eye, ear and dental) at hospital OPD (X2d) + € (Error term)

Equation 3

The two sets of independent variables **'Customer socio-demographic characteristics'** and **'Hospitals characteristics – related to laboratory and radiological services'** namely waiting time for laboratory services (X3a), waiting time for radiology services (X3b), expenses incurred for laboratory tests (X3c), expenses incurred for radiological services (X3d), availability of required laboratory and radiological tests (CT, MRI) at hospital OPD (X3e) determine the dependent variable 'Customer satisfaction towards laboratory and radiological services of OPD (Y3)'

Equation 3 can be stated with utility function as follow;

$$U(Y3) = f(X1a, X1b, X1c, X1d, X1e, X1f, X1g, X1h) * f(X3a, X3b, X3c. X3d, X3e)$$

Dependent variables

Y3 = Customer satisfaction towards laboratory and radiological services

The 'Likert four point' scale was applied.

1 point for responses showing 'very unsatisfied', 2 point for 'unsatisfied', 3 point for 'satisfied' and 4 point for 'very satisfied'.

Independent variables: 'Hospital characteristics related to laboratory and radiological services'

X3a: Waiting time for getting laboratory services

Numeric

The waiting time for getting laboratory services would determine the customer satisfaction towards laboratory and radiological services because the satisfaction (perception) of the patients towards laboratory and radiological services would not be the same depending on the waiting time for getting laboratory services. For instance, hospital out-patient department with longer waiting time for getting laboratory services might not be satisfied by the patients whilst hospital out-patient department with shorter waiting time for getting laboratory services might be satisfied.

X3b: Waiting time for getting radiology services

Numeric

The waiting time for getting radiology services would determine the customer satisfaction towards laboratory and radiological services because the satisfaction (perception) of the patients towards laboratory and radiological services would not be the same depending on the waiting time for getting radiology services. For instance, hospital out-patient department with longer waiting time for getting radiology services might not be satisfied by the patients whilst hospital out-patient department with shorter waiting time for getting radiology services might be satisfied.

X3c: Expenses incurred for laboratory tests

Numeric

The expenses incurred for laboratory tests would determine the customer satisfaction towards laboratory and radiological services because the satisfaction (perception) of the patients towards laboratory and radiological services would not be the same depending on the expenses incurred for laboratory tests. For instance, hospital out-patient department with higher expenses for laboratory tests might not be satisfied by the patients whilst hospital out-patient department with lesser expenses for laboratory tests might be satisfied.

X3d: Expenses incurred for radiological services

Numeric

The expenses incurred for radiological tests would determine the customer satisfaction towards laboratory and radiological services because the satisfaction (perception) of the patients towards laboratory and radiological services would not be the same depending on the expenses incurred for radiological tests. For instance, hospital out-patient department with higher expenses for radiological tests might not be satisfied by the patients whilst hospital out-patient department with lesser expenses for radiological tests might be satisfied.

X3e: Availability of required laboratory and radiological tests (CP, CT, MRI) at hospital out-patient department

Categorical

Yes = 1

No = 0

The availability of required laboratory and radiological tests at hospital out-patient department would determine the customer satisfaction towards laboratory and radiological services because the satisfaction (perception) of the patients towards laboratory and radiological services would not be the same depending on the availability of required laboratory and radiological tests. For instance, hospital out-patient department with availability of required laboratory and radiological tests might be satisfied by the patients whilst hospital out-patient department without availability of required laboratory and radiological tests might not be satisfied.

Regression model

Customer satisfaction towards laboratory and radiology services (Y) = B0 - B1 Waiting time for getting laboratory services (X3a) - B2 Waiting time for getting radiology services (X3b) + B3 Expenses incurred for laboratory tests (X3c) - B4 Expenses incurred for radiological services (X3d) + B5 Availability of required laboratory and radiological tests at hospital OPD (X3e) + € (Error term)

Equation 4

The two sets of independent variables **'Customer socio-demographic characteristics'** and **'Hospitals characteristics – related to accessibility and conveniences of OPD services'** namely waiting time for seeing with doctors (X4a), time taken for getting prescribed medication (X4b), travelling time to the hospital OPD (X4c), availability of general initial information about the OPD services (X4d), expenses incurred for travelling (X4e), expenses incurred for OPD services (X4f), expenses incurred for medication (X4g) determine the dependent variable 'Customer satisfaction towards accessibility and conveniences of OPD services (Y4)'

Equation 4 can be stated with utility function as follow;

$$U(Y4) = f(X1a, X1b, X1c, X1d, X1e, X1f, X1g, X1h) * f(X4a, X4b, X4c. X4d, X4e, X4f, X4g)$$

Dependent variables

Y4 = Customer satisfaction towards accessibility and convenience

The 'Likert four point' scale was applied.

1 point for responses showing ‘very unsatisfied’, 2 point for ‘unsatisfied’, 3 point for ‘satisfied’ and 4 point for ‘very satisfied’.

Independent variables: Hospital characteristics related to accessibility & convenience of out-patient department services

X4a: Waiting time for seeing with doctors

Numeric

The waiting time for seeing with doctors would determine the customer satisfaction towards accessibility and convenience of out-patient department services because the satisfaction (perception) of the patients towards accessibility and convenience would not be the same depending on the waiting time for seeing with doctors. For instance, hospital out-patient department with longer duration of waiting time for seeing with doctors might not be satisfied by the patients whilst hospital out-patient department with lesser waiting time might be satisfied.

X4b: Time taken for getting prescribed medication

Numeric

The time taken for getting prescribed medication would determine the customer satisfaction towards accessibility and convenience of out-patient department services because the satisfaction (perception) of the patients towards accessibility and convenience would not be the same depending on the time taken for getting prescribed medication. For instance, hospital out-patient department with longer duration of time taken for getting prescribed medication might not be satisfied by the patients whilst hospital out-patient department with lesser time taken might be satisfied.

X4c: Travelling time to the hospital out-patient department

Numeric

The travelling time to the hospital out-patient department would determine the customer satisfaction towards accessibility and convenience of out-patient department services because the satisfaction (perception) of the patients towards accessibility and convenience would not be the same depending on the travelling time to the hospital out-patient department. For instance, hospital out-patient department with longer

duration of travelling time might not be satisfied by the patients whilst hospital out-patient department with lesser travelling time might be satisfied.

X4d: Availability of general initial information about the out-patient department services

Categorical

Yes = 1

No = 0

The availability of general initial information about the out-patient department services would determine the customer satisfaction towards accessibility and convenience of out-patient department services because the satisfaction (perception) of the patients towards accessibility and convenience would not be the same depending on the availability of general initial information about the out-patient department services. For instance, hospital out-patient department with available general initial information about the out-patient department services might be satisfied by the patients whilst hospital out-patient department without available general initial information might not be satisfied.

X4e: Expenses incurred for travelling

Numeric

The expenses incurred for travelling would determine the customer satisfaction towards accessibility and convenience of out-patient department services because the satisfaction (perception) of the patients towards accessibility and convenience would not be the same depending on the expenses incurred for travelling. For instance, hospital out-patient department with higher expenses incurred for travelling might not be satisfied by the patients whilst hospital out-patient department with lesser expenses incurred for travelling might be satisfied.

X4f: Expenses incurred for out-patient department services

Numeric

The expenses incurred for out-patient department services would determine the customer satisfaction towards accessibility and convenience of out-patient department services because the satisfaction (perception) of the patients towards accessibility and convenience would not be the same depending on the expenses incurred for out-patient department service. For instance, hospital out-patient department with higher

expenses incurred for out-patient department service might not be satisfied by the patients whilst hospital out-patient department with lesser expenses incurred for out-patient department service might be satisfied.

X4g: Expenses incurred for medication

Numeric

The expenses incurred for medication at hospital out-patient department would determine the customer satisfaction towards accessibility and convenience of out-patient department services because the satisfaction (perception) of the patients towards accessibility and convenience would not be the same depending on the expenses incurred for medication. For instance, hospital out-patient department with higher expenses incurred for medication at hospital out-patient department might not be satisfied by the patients whilst hospital out-patient department with lesser expenses incurred for medication might be satisfied.

Regression model

Customer satisfaction towards accessibility & convenience of OPD services (Y) = B0 - B1 Waiting time for seeing with doctors (X4a) - B2 Time taken for getting prescribed medication (X4b) + B3 Travelling time to the hospital OPD (X4c) + B4 Availability of general initial information about the OPD services (X4d) - B5 Expenses incurred for travelling (X4e) - B6 Expenses incurred for OPD services (X4f) - B7 Expenses incurred for medication (X4g) + € (Error term)

4.2 Ordered logistic model

Recently, in credit or utility scoring applications, logistic regression is used to model the probability that a subject is credit or utilize worthy. For example, the predicators such as the size of the bill, annual income, occupation, percentage of bill paid on time in the past and others factors of individual's credit history may be used as predictors for the probability that a subject pays a bill on time. A company that relies on catalog sales may determine whether to send a catalog to a potential customer by modeling the probability of a sale as a function of indices of past buying behavior.

A regression model using for an ordinal response variable is called ordered logistic model. The cumulative probabilities of the response variable base the model,

specifically, a linear function of the covariates with regression coefficient constant across response categories assumes to be the logit of each cumulative probability.

Life assessment question relating to satisfaction, utility and expectations are ordinal in nature. For instance, answer to the question on personal satisfaction towards service provision can be from 1 to 10 where 1 stands as very dissatisfied and 10 for perfectly satisfied. It assumes equal distance among categories trying to analyze ordered outcome with linear regression model. If the outcomes variable is ordinal, particular model namely, ordered logistic model is recommended to use.

Assume Yi is an ordinal response variable with C categories for i-th subject, together with covariates xi vector. A relationship among the covariates and set of probabilities of the categories is established by a regression model pci = Pr(Yi =yc| **x**i), c=1,…,C. Normally, ordered logistic regression model are not showed as probabilities of the categories, instead they refer convenient one to one transformation namely, cumulative probabilities gci=Pr(Yi ≤ yc| **x**i), c=1,…,C. here remember, the last cumulative probabilities must be 1 hence C-1 cumulative probabilities is only specified in the model.

An ordered logistic model for an ordinal response Yi with C categories is defined by a set of C - 1 equations where the cumulative probabilities gci = Pr(Yi ≤yc| xi) are related to a linear predictor β'xi = β0 + β1x1i + β2x2i + …through the logit function:

logit(gci) = log(gci γ1- gci)) = αc – β’xi , c = 1,2,…,C-1 …….... (1)

The parameters αc, called thresholds or cut points, are in increasing order (α1< α2 < α3 < …… < αc-1). It is not possible to simultaneously estimate the overall intercept βo and all the C-1 thresholds: in fact, adding an arbitrary constant to the overall intercept βo can be counteracted by adding the same constant to each threshold αc. This identification problem is usually solved by either omitting the overall constant from the linear predictor (i.e. βo = 0) or fixing the first threshold to zero (i.e. α1= 0).

The vector of the slopes β is not indexed by the category index c, thus the effects of the covariates are constant across response categories. This feature is called the parallel regression assumption: indeed, plotting logit (gci) against a covariate

yields C - 1 parallel lines (or parallel curves in case of a non-linear specification, e.g. polynomial regression). In model (1) the minus before β implies that increasing a covariate with a positive slope is associated with a shift towards the right-end of the response scale, namely a rise of the probabilities of the higher categories. Some authors write the model with a plus before β: in that case the interpretation of the effects of the covariates is reversed.

From equation (1), the cumulative probability for category c is

$$gci = \exp(\alpha c - \beta' xi)/ (1 + \exp(\alpha c - \beta' xi)) = 1/ (1+ \exp(- \alpha c + \beta' xi)).....(2)$$

Coefficient interpretation

Ordered logistics model differ by scale factor thus interpretation the magnitude of coefficient cannot be done. As shown in below example; suppose three categories of health status (Y) - from fair to good to excellent is considered against age (X1), income (X2) and numbers of diseases (X3), the interpretation can be only done as health status is better with lower age, higher income and lower numbers of diseases. Alternatively; interpretation can be done as; higher income more likely to be in higher categories of health status, older age more likely to be in lower categories of health status and higher numbers of disease more likely to be in lower categories of health status. The intercept parameters are significantly differ from each other, thus three categories of health status should not be combined into one.

Example: ordered choice model coefficient

Health status (Y)	Ordered logit coefficient
Age (X1)	-0.03*
Income (X2)	0.28*
Number of disease (X3)	-0.05*
Intercept cut1	-1.39
Intercept cut2	0.95

Marginal effect interpretation

From the below example; ordered logit marginal effect can be interpret as one unit increase in income is associated with being 2% less likely to be in fair health status, 5% less likely to be in good health status,7 more likely to be in excellent health status.

The summation up of marginal effect for all the categories in one particular determinant would be zero.

Example: ordered logit model marginal effect

Health status (Y)	Ordered logit marginal effect for fair health status	Ordered logit marginal effect for good health status	Ordered logit marginal effect for excellent health status
Age (X1)	0.002*	0.005*	-0.007*
Income (X2)	-0.002*	-0.005*	0.007*

4.3. Study design

A cross-sectional, quantitative study design was used for descriptive study.

4.4. Study area

The study was conducted at (3) private hospitals located in Yangon, the Republic of the Union of Myanmar

Each of the studied hospitals located in different districts of all four particular districts of entire Yangon.

4.5. Scope of the study

- (440) cross sectional observations were collected in May 2015
- All (4) districts of the entire Yangon
- (1,760) out of (4,141) total private hospital beds (42.50%) of entire nation

4.6. Study (data collection) period

The data collection period was May 2015.

4.7. Study population

The customers (patients) of the out-patient department of the studied hospital were requested to complete the pre-designed and pre-tested self-administered structured questionnaires at the end of their outpatient visit.

Following inclusion criteria were applied.

- Agreed volunteer participation and clear understanding of the nature of the questionnaires in the research study
- Available time; around 15-20 minutes without any consequent negative impact to him/her for being participated in the study

Exclusion criteria;

- Under the age of 18 years
- Respondents with psychological disorder (psychosis, dementia, mental retardation)
- Respondents with communication defects like hearing/speech/vision impairments
- Respondents who cannot read and write, Myanmar (local) language
- Respondents working in the representative (studied) hospitals

Withdrawal situation: Respondents who want to withdraw from the study, with or without any reasons; could withdraw from the study at any time with no consequent negative impact on him/her. In case of that situation, researcher re-started the data collection procedure with another respondent to replace him/her.

4.8. Sample size calculation

The **Yamane equation** was used to calculate appropriate sample size. 95% confidence level was assumed. (Yamane, 1967: 886)

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

n = sample size

N = study population residing in target area i.e. Yangon

N = 7,355,075 (Source: Myanmar Central Statistical Organization Website)

e^2 = maximum acceptable sampling error = 5% i.e. 0.05

$$n = \frac{(7{,}355{,}075)}{1 + (7{,}355{,}075)\,(0.05)^2}$$

$$= 399.98 \approx 400$$

Sample size = additional 10 % of (non-response rate) respondents was added-up to avoid any missing value or to prevent drop out.

Hence;

n = 400 + 40 = 440

4.9. Sampling design/technique

Multistage sampling design including quota sampling, simple random sampling and systematic sampling methods were used to identify respondents for the research study.

Quota Sampling

- According to the administrative set up, Yangon was geographically divided into 4 districts i.e. Eastern district, Western district, Southern district and Northern district.
- There were altogether 19 private hospitals (1,760 hospital beds) in entire Yangon.
- Eastern Yangon possessed 6 out of 19 private hospitals, Western Yangon possessed 12 out of 19 and only 1 private hospital was located in Northern Yangon with no private hospital in Southern district of Yangon.
- In terms of hospital beds; Eastern Yangon had (540), Western Yangon had (1,120) and Northern Yangon had (100).
- Quota sampling guided by the percentage distribution of hospital beds at every district of the Yangon was applied.
- The calculated total sample size of the study was 440 as stated in aforementioned sample size calculation section.
- According to quota sampling method guided by the percentage (proportionate) distribution of hospital beds, the numbers of sample that should collect from each district of Yangon were calculated as follow.

Administrative division of Yangon	Distribution of hospitals	Distribution of hospital beds	Percent distribution of hospital beds (%)	Quota sampling of 440 total sample
Eastern	6	540	30.68	134.99
Western	12	1,120	63.64	280.02
Northern	1	100	5.7	25.08
Total	19	1,760	100	440

- Presence of 540 hospital beds out of 1,760 total hospital beds in Eastern Yangon reflected Eastern Yangon had 30.68% of total hospital beds; hence 30.68% of total samples was collected from Eastern Yangon i.e. 135 samples.
- Presence of 1,120 hospital beds out of 1,760 total hospital beds in Western Yangon reflected Western Yangon has 63.64% of total hospital beds; thus 63.64% of total samples was collected from Western Yangon i.e. 281 samples.
- Presence of 100 hospital beds out of 1,760 total hospital beds in Northern Yangon reflected Northern Yangon has 5.7% of total hospital beds; thus 5.7% of total samples was collected from Northern Yangon i.e. 26 samples.

Simple Random Sampling

- Numbers were assigned for every private hospitals in Eastern district of Yangon; randomly picked up 1 hospital by using lottery method or random numbered table in order to get the representative hospital.
- Similar procedure was applied in order to get the representative hospital of Western and Northern district of Yangon.

Systematic Sampling

- Systematic sampling technique was applied by asking every third customer of the hospital out-patient department to complete the questionnaire at the end of their outpatient visit in order to identify respondents at the representative hospital.

4.10. Measurement tool

The data was collected through pre-designed, pre-tested, self-administered structured questionnaires.

The questionnaires were based on PSQ 18 developed by Grant N. Marshall and Ron D. Hay. (Marshall & Hays, 1994) The researcher himself modified the PSQ 18 questionnaires in order to be and appropriate tool for the research study. The PSQ 18 questionnaire set was published by RAND research organization as a service to its professional staffs. The PSQ-18 was a shortened version of Patient Satisfaction Questionnaire III (PSQ-III) which included 50 question items. The short form PSQ-18 consisted of 18 question items. The PSQ-18 touched all the seven dimensions of the customer satisfaction regards health care service delivery initially measured in PSQ-

III. The seven dimensions of the customer satisfaction that had been measured in PSQ-18 included generalized satisfaction, technical quality, manner of interpersonal relation, communication, financial point of view, availability of time with physicians, accessibility and convenience. The internal consistency reliability of the PSQ-18 was generally acceptable to apply in accessing customer satisfaction of health service delivery.

Aside from PSQ 18, the additional questions were added by sourcing out and modified from the research (Win & Panzal, 2009). In that study, the Cronbach's alpha coefficient for reliability test of questionnaire was also adequate to apply in accessing customer satisfaction of health service delivery.

In addition to the modification of PSQ 18 questionnaires and question items from research study of (Win & Panzal, 2009), the researcher himself developed additional appropriate questions in order to be able explore the underlying factors of customer satisfaction.

The drafted questionnaires were pilot tested before actual data collection. 10% of total calculated sample size with similar socio-demographic background was included in pilot testing.

4.11. Data collection

Data were collected through pre-designed, pre-tested self-administered structured questionnaire by requesting the customers (respondents) of out-patients department to complete at the end of their outpatient visit.

Customers who completed their outpatient visit were requested to fill the questionnaire in order to get the cross section of the views of the customers by employing convenient sampling method.

The data were checked, rectified the errors before the data entry process. The collected data were entered in a statistics software package and statistical tests were applied to analyze the data.

The entire set of questionnaire was developed in English; clearly and exactly translated to local (Myanmar) language.

6 data collectors were recruited to collect the data. The researcher himself trained those data collectors for 1-2 days about the study criterions, ways of

approaching technique to respondents in data collection procedure. Role play pilot exercises were secured before the actual data collection process.

Once data collection procedure was finished, the data collectors checked completeness of the questionnaire with respective answer. Then the researcher re-checked entire set of questionnaire and respective answers.

4.12. Data analysis (Statistics)

Recorded data from the respondents were handed to the researcher at the end of each day. If there was any omission or error in data collection, the entire set of questionnaire was discarded. After examining the questionnaire sets and cleaning the data, all the questionnaires were re-coded before data entry and then analyzed by using STATA 12.0 version statistic software.

The descriptive statistic was used to describe the mean, maximum, minimum and standard deviation of the studied variables.

The regression model with ordered logistic regression method was used in order to explain relationship among the variables of the study.

4.13. Ethical consideration

In regard of ethical consideration, to secure confidentiality of data and information, only serial numbers were used in questionnaire sheets instead of respondents' name.

Introductory information was provided to all the respondents before the start of data collection step. That introductory information guaranteed that -

- The objectives of the study and the approximated time that will be required to complete the self-administered questionnaire.
- The anonymity of the respondent's identification.
- The researcher is not the part of the hospital management or treatment team.
- Freedom for provision of the responses that the respondents are believes in.
- Respondents' clear understanding about the nature of questionnaire and research study.
- Voluntary agreement of participation; informal verbal consent from the respondents will always be requested before the start of collecting the data to ensure voluntary participation.

- Opportunities to ask any questions before verbal consent has been given and even after providing verbal consent, the respondents can ask any questions, anytime or if he/she would like to obtain more information, the researcher will be reached at all time.
- The right of respondent to withdrawal from the study at all the time without giving any reasons, with no negative consequences upon the respondents.
- The procedure acted upon respondents will be exactly same with the information provided prior to the start of research study.
- If researcher has new information regarding benefits of the study, the respondents will be informed as soon as possible.

CHAPTER V
RESULTS AND DISCUSSION

The research was cross-sectional study concerning factors influencing customer satisfaction towards outpatient department services of private hospitals in Yangon, the Republic of the Union of Myanmar.

This chapter presents findings of the research data. The findings of the study were divided into following as below.

5.1 Descriptive statistics

5.2 Regression model with ordered logistic regression method

5.1. Descriptive findings

5.1.1. Socio-demographic variables of the study population

A total number of 440 respondents were interviewed with self-administered structured questionnaires.

Table 5.1: Descriptive statistics of socio-demographic variables of the study population

Variables	Mean	Maximum	Minimum	Std.Dev
Age	38.90	85	19	12.12
Gender Male = 1 Female = 0	0.46	1	0	0.49
Marital status Single = 1 otherwise = 0	0.68	1	0	0.46
Employment status Employed = 1 Unemployed = 0	0.74	1	0	0.43
Years of schooling	9.47	16	2	3.32
Average total family expenditure/month (USD)	761.36	2000	100	316.09
No of out-patient department visits	5.83	30	1	3.66

Types of diseases Acute = 1 Chronic = 0	0.57	1	0	0.49

As presented in table 5.1; the mean (average) age of out-patient department respondents (patients) was 38.90 years. In the developing country like studied nation, the nature of disease trend is moving from communicable to non-communicable typed of diseases i.e., heart diseases, hypertension and the most vulnerable group of people to be suffered those non-communicable diseases are the middle aged group of people. Therefore, the finding regards mean age of out-patient department respondents reflected recent shifting of disease trend happening in the studied nation. The maximum age of respondents participated in the study was 85 years old and minimum was 19 years old.

The proportion of total respondents by gender ratio in the study was 205 respondents (46.59%) for male and 235 respondents (53.41%) for female. The proportion of population by gender ratio in Yangon was 47.8% for male and 52.2% for female So, the study finding was stand in line with the background demographic data of the studied area.

The study revealed that 302 respondents (68.64%) were single and 138 (31.36%) were other.

The employment to population ratio (15+ and total %) of Myanmar in 2013 was 76%. Therefore, the finding of the study showing 326 (74.09%) employed respondents and 114 (25.91%) unemployed respondents was in line with the employment ratio of the studied nation.

The mean respondents' years of schooling were 9.48 years with maximum 16 years and minimum 2 years. The average total years of schooling for Myanmar are 2.8 in year 2000. In this case, the justification could be given that 2.8 average total years of schooling was the total figure for the whole country including far-flung and rural area whereas the finding in the study was the figure for solely population of Yangon, which is capital city and possess educated residences than the rural area. Furthermore, most of the patients who came to the high-priced private out-patient department

centers would have higher-average or high socio-economic status and believed to possess higher education status than the general population.

The mean total immediate family expenditure per month in terms of US dollar was 761.36 with maximum expenditure up to 2000 US dollar and minimum expenditure 200 US dollar. The mean total family expenditure per month 761 US dollar was moderate. The fact of urban population and the medium socio-economic status of private out-patient department customers justified the moderate level mean total family expenditure and maximum expenditure of 2000 US dollar.

Regarding numbers of out-patient department visits of the respondents, the mean was 5.84 times with maximum 30 and minimum 1 times.

Regarding the type (general) of disease of the respondents needed to receive the OPD services, 253 respondents (57.50%) were suffered acute disease and 187 (42.50%) were suffered chronic type of disease.

5.1.2 Out-patient department staff behaviors and services

Table 5.2: Descriptive statistics of variables related with out-patient department staff behaviors and services

Variables	Mean	Maximum	Minimum	Std.Dev
Availability of specific services (eye, dental) at hospital out-patient department	0.63	1	0	0.48
Availability of written notes of prescription for the patients	0.77	1	0	0.41
Consultation time with medical doctors (minutes)	12.57	60	2	7.75
Duration of time taken by the pharmacists in explaining the prescription (minutes)	5.94	30	2	3.35

As shown in table 5.2, the mean consultation time of medical doctors was 12.58 minutes with maximum 60 minutes and minimum 2 minutes.

The mean duration of time taken by the pharmacists in explaining the prescription was 5.94 minutes. The maximum duration was 30 minutes while the minimum was 2 minutes.

5.1.3. Laboratory and radiological services of out-patient department

Table 5.3: Descriptive statistics of variables concern with laboratory and radiological services of out-patient department

Variables	Mean	Maximum	Minimum	Std.Dev
Expenses incurred for laboratory tests (Myanmar kyat)	15553.63	105000	2000	16454.11
Waiting time for laboratory services (minutes)	17.10	120	3	13.97
Expenses for radiological services (Myanmar kyat)	16168.32	80000	3000	13586.66
Waiting time for getting radiology services (minutes)	20.14	60	3	10.78
Availability of required Lab & radiology tests at OPD	0.69	1	0	0.46

Table 5.3 reveals the mean expenses incurred for laboratory test was 15553.63 Myanmar kyats with maximum 105000 Myanmar kyats and minimum 2000 Myanmar kyats.

The mean waiting time to get laboratory services was 17.1073 minutes with maximum 120 minutes and minimum 3.

The mean expenses incurred for radiological test was 16,168.32 Myanmar kyats with maximum 80,000 Myanmar kyats and minimum 3,000 Myanmar kyats.

The mean waiting time to get radiological services was 20.1452 minutes with maximum 60 minutes and minimum 3.

5.1.4. Accessibility and convenience of out-patient department services

Table 5.4: Descriptive statistics of variables concern with accessibility and convenience of out-patient department services

Variables	Mean	Maximum	Minimum	Std.Dev
Waiting time for seeing with Doctors (minutes)	55.75	180	5	35.68
Time taken for getting prescribed medication (minutes)	11.41	105	2	9.09
Travelling time to hospital OPD (minutes)	61.26	2160	10	124.08
Expenses incurred for medication (Myanmar kyat)	21764.77	100000	2000	17062.09
Expenses incurred for OPD services (Myanmar kyat)	6392.04	15000	2000	2723.65
Expenses incurred for travelling (Myanmar kyat)	8184.81	80000	1000	8841.73
Availability of general initial information about the OPD services	0.54	1	0	0.49

Table 5.4 shows the mean waiting time for seeing with medical doctors which was 55.75 minutes with maximum 180 and minimum 5 minutes. 7 patients responded they had to wait roughly 180 minutes which was maximum duration of waiting time to see with doctor.

The maximum waiting time for seeing with doctors 180 minutes was very long and it implied that the huge number of patients had to wait long for getting chance to consult with doctors.

The mean time taken for getting prescribed medication was 11.41 minutes with maximum 105 minutes and minimum 2 minutes.

The mean travelling time to reach the hospital out-patient department was 61.26 minutes with maximum 2160 minutes and minimum 10.

The mean expenses incurred for medication was 21,767.77 Myanmar kyats with maximum 100,000 Myanmar kyats and minimum 2,000 Myanmar kyats.

The mean expenses incurred for out-patient department service was 6,392.05 Myanmar kyats with maximum 15,000 Myanmar kyats and minimum 2000 Myanmar kyats.

The mean expenses incurred for travelling was 8,184.81 Myanmar kyats with maximum 80,000 Myanmar kyats and minimum 1,000 Myanmar kyats.

5.2. Regression model with ordered logistic regression method

5.2.1. Marginal effects of socio-demographic variables on categories of dependent variables namely general customer satisfaction towards out-patient department services (Y1), customer satisfaction towards staff behaviors and services (Y2), customer satisfaction towards laboratory and radiological services (Y3), customer satisfaction towards accessibility and convenience of the out-patient department services (Y4)

Table 5.5: Marginal effects of socio-demographic variables on categories of dependent variables namely general customer satisfaction towards out-patient department services (Y1), customer satisfaction towards staff behaviors and services (Y2), customer satisfaction towards laboratory and radiological services (Y3), customer satisfaction towards accessibility and convenience of the OPD services (Y4)

	Marginal effect on degrees of dependent variables			
Independent variables	Very unsatisfied	Unsatisfied	Satisfied	Very satisfied
Age				
Y1	- 0.000059	- 0.000887	0.000524	0.000422
Y2	N/A	0.000292	- 0.000171	- 0.000122
Y3	N/A	- 0.000057	0.000044	0.000013
Y4	N/A	0.000126	0.000203	- 0.000329
Gender				
Y1	0.000547	0.008277	- 0.004909	- 0.003915

Y2	N/A	- 0.005783	0.003359	0.002424
Y3	N/A	0.000729	- 0.000563	- 0.000166
Y4	N/A	- 0.010018	- 0.016712	0.026730
Marital status				
Y1	- 0.001177	- 0.017685	0.010942	0.007920
Y2	N/A	0.003028	- 0.001745	- 0.001282
Y3	N/A	- 0.005282	0.004100	0.001182
Y4	N/A	0.009039	0.019173	- 0.028212
No of OPD visits				
Y1	- 0.001651	- 0.025021	0.014775	0.011897
Y2	N/A	0.005082	- 0.002964	- 0.002118
Y3	N/A	- 0.005184	0.004001	0.001183
Y4	N/A	- 0.001144	- 0.001849	0.002993
Employment status				
Y1	0.002522	0.038921	- 0.018923	- 0.022519
Y2	N/A	- 0.020459	0.012960	0.007498
Y3	N/A	- 0.005040	0.003914	0.001126
Y4	N/A	0.002754	0.004935	- 0.007689
Types of disease				
Y1	0.000680	0.010316	- 0.006017	- 0.004979
Y2	N/A	0.003417	- 0.001983	- 0.001435
Y3	N/A	- 0.018916	0.014686	0.004230
Y4	N/A	0.000197	0.000319	- 0.000516
Years of schooling				
Y1	- 0.000198	- 0.003001	0.001772	0.001427
Y2	N/A	0.003122	- 0.001820	- 0.001301

Y3	N/A	- 0.001094	0.000844	0.000250
Y4	N/A	- 0.001087	- 0.001757	0.002844
Average total immediate family expense/month				
Y1	0.004879	0.073932	- 0.043659	- 0.035152
Y2	N/A	0.028823	- 0.016809	- 0.012014
Y3	N/A	- 0.059698	0.046075	0.013623
Y4	N/A	- 0.001192	- 0.001927	0.003120
Location of hospital OPD				
Y1	- 0.251902	- 0.607398	0.541960	0.317340
No of hospital beds				
Y1	0.000046	0.000698	- 0.000412	- 0.000332

NA = not applicable, no response for that category

Note: "Y1" has four categories whereas the rest of "Y2", "Y3"and "Y4" have only three categories because patients responded four categories for "Y1" whereas only three categories had been responded for the rest of "Y2", "Y3", "Y4".

The study revealed three independent variables; location of hospital out-patient department, respondents' numbers of out-patient department visits and average total family expenditure per month showed statistically significant relationship at 99% level of confidence (Z statistics P-value = <0.01) with dependent variable (Y1) which was general customer satisfaction towards out-patient department services. (Ref: Appendix E, Table A-1)

Another independent variable; employment status was also statistically significant relationship but at 90% level of confidence (Z statistics P-value = <0.1) with similar dependent variable (Y1). (Ref: Appendix E, Table A-1)

Moreover, two independent variables; gender and marital status showed statistically significant relationship at 90% level of confidence (Z statistics P-value = <0.1) with dependent variable (Y4) which was customer satisfaction towards accessibility and convenience of out-patient department services. (Ref: Appendix E, Table A-4)

Associated marginal effect of statistically significant variables were stated and discussed below.

The location of out-patient department centers had been analyzed to determine the hospital out-patient department being located at downtown area and the hospital out-patient department being situated at peripheral region likelihood to be associated with different categories (i.e. very unsatisfied to very satisfy) of general customer satisfaction towards OPD services. The finding of marginal effect revealed that the out-patient department being located at downtown area was associated with a respondent 25.19% less likely to be in very unsatisfied category of general satisfaction, 60.73% less likely to be in unsatisfied category, 54.19% more likely to be in satisfied category and 31.73% more likely to be in very satisfied category.

The finding could be regarded as the respondents were more likely to show higher satisfactory level towards the hospital out-patient department being located at downtown area and the reasons might be due to the following associated benefits – (1) downtown area can be accessed more easily from every location of the city rather than peripheral (2) in case of emergency, if the patient needs to receive advanced radiology, laboratory or medical services that was not available at current out-patient department, downtown area had many other medical centers nearby to get the required services whereas the peripheral region was isolated and far from other medical institutions.

The significant finding between the location of the out-patient department and general customer satisfaction towards out-patient department services might have been related with current transportation circumstance of the studied area. Due to the government reduction of taxation on automobile import in year 2010 and inconveniences of public transport system (lack of broad-coverage decent train system, very crowded bus-line), many residences of Yangon city used the private automobiles and taxi services for their travelling hence the number of automobiles increased dramatically in those years and consequently the traffic became significantly worse day by day. Thus, duration of travelling time became the concern in transportation aspects and to a greater extent, it might become one of the key factors of consideration when patients had to go to private out-patient department most probably at evening hours with awful traffic (most specialists came to private

out-patient department after office working hours). Therefore, patients desire to have short duration of travelling period seems to lead the finding of significant relation between the location of the out-patient department and general customer satisfaction towards out-patient department services.

The cost and benefits of utilization concept could apply in this point. Once the cost in terms of time taken in order to access to the hospital out-patient department was high (because of bad traffic), the patients might think that the benefit in terms of getting out-patient department medical services was comparatively low and utilization or satisfaction would be reduced.

The finding of marginal effect for the numbers of out-patient department visits by the respondents showed that one unit increase in number of out-patient department visits was associated with a respondent 0.16% less likely to be in very unsatisfied category, 2.50% less likely to be in unsatisfied category, 1.47% more likely to be in satisfied category and 1.18% more likely to be in very satisfied category.

The finding reflected that respondents with higher number of out-patient department visits were more likely to be in higher satisfactory category than the respondents with lesser number of visits. The reason for the finding could be concluded in an inverse way that once the respondents were satisfied with the provided services, they would come back to the same hospital out-patient department whenever they were sick and became regular customers with higher number of out-patient department visits. On the other side, respondents who were not satisfied with the service provision would not use the out-patient department services frequently and resulting lesser number of visits. Secondly, another possible reason that the respondents who had been many times to the out-patient department services were more likely to show higher satisfactory level might be due to the well-known treatment outcome success result that was not yet experienced by the respondents with first or fewer out-patient department visits. The third point of justification was there might be the difference in quality of care among the customer with more utilization of services and lesser ones.

The hospital management should publicize about the desirable treatment outcome success result that the hospital out-patient department was achieved by using finely developed advertising means and marketing strategies conveying the non-

medical understandable terms of information along with ethical adjustment. The quality of both medical and non-medical out-patient department services should be the same among all the patients, both chronic and acute, higher numbers of out-patient department visits or lesser ones, in order to reduce the likelihood of patients with lesser number of out-patient department visits to be in lower satisfactory category.

The finding of marginal effect for average total family expenditure of the respondents stated that one unit increase in average total family expenditure was associated with a respondent 0.48% more likely to be in very unsatisfied category of general satisfaction, 7.39% more likely to be in unsatisfied category, 4.36% less likely to be in satisfied category and 3.51% less likely to be in very satisfied category.

The finding indicated that respondents with higher average total family expenditure were more likely to have lower satisfaction while the patients with lower family expenditure were likely to be in higher satisfactory group. The finding could be justified in a way that respondents with higher family expenditure might be the rich respondents who would expect high (luxury) quality services and demand better services than the hospital out-patient department could offer hence the satisfaction level might be impaired when the quality of service provision could not meet with their expectations and demands for luxury. Vice versa, the respondents with lower family expenditure generally might be ordinary/average respondents and they would be the composed type of respondents who could satisfy with the provided ordinary services and belonged to the higher satisfactory group.

The finding is noteworthy for the hospital management to know that the patients with higher average total family expenditure might demand luxury quality services such as high-priced branded medications, special home-care nursing services, home-visit medical check-up services that the ordinary patients could not afford and the hospital should prepare to serve for that kind of luxury goods and services in order to raise the satisfactory level of patients with higher average total family expenditure.

5.2.2. Marginal effect of independent variables on customer satisfaction towards staff behaviors and services

In this equation, respondents' demographic factors and variables related to the customer satisfaction towards staff behaviors and services (Xs) were analyzed against customer satisfaction towards staff behaviors and services (Y2).

Table 5.6: Marginal effect of independent variables on customer satisfaction towards staff behaviors and services

	Marginal effect on degrees of dependent variable		
Independent variables	Unsatisfied	Satisfied	Very satisfied
Consultation time with medical doctors	- 0.026443	0.015421	0.011022
Consultation time with pharmacists	- 0.002491	0.001453	0.001038
Availability of written Guidance	- 0.440060	0.387025	0.053034
Availability of specialty services (eye, ear) at hospital OPD	- 0.126384	0.089181	0.037204

In this equation, three independent variables such as consultation time with medical doctors, availability of written prescription guidance and availability of specialty services at OPD stated statistically significant relationship at 99% level of confidence (Z statistics P-value = <0.01) with dependent variable (Y2) which was customer satisfaction towards staff behaviors and services. (Ref: Appendix E, Table A-2)

Associated marginal of statistically significant variables were stated and discussed below.

Duration of consultation time with medical doctors had been analyzed to determine the respondents who had longer consultation duration with medical doctors and the respondents with shorter consultation duration likelihood to be associated with different categories of customer satisfaction towards staff behaviors and services of the study population. The finding of marginal effect showed that one unit increase in duration of consultation time with medical doctors was associated with a respondent 2.64% less likely to be in unsatisfied category of customer satisfaction towards staff behaviors and services, 1.54% more likely to be in satisfied category and 1.10% more likely to be in very satisfied category.

The finding implied that respondents with longer consultation duration were more likely to be in higher satisfactory category than the respondents with lesser consultation duration. It was not surprise that respondents with longer duration of consultation time were more likely to be in higher satisfactory category because that was a usual that almost all the patients wanted to spend sufficient duration of consultation time with doctors in order to inform disease symptoms, receive thorough physical examination and get psychological release as well. On the other side, due to the limitation of clinic hours and large patient loads, some popular doctors with lots of patients might go straight forward to diagnose the diseases with the aids of detailed lab and radiology tests along with solely vital physical examinations instead of long conservations and in-depth examinations towards patients. Those two kinds of interests among patients and doctors were opposing each other and became conflict of interest between service providers and customers. That sort of conflict of interest used to happen when there was a shortage of medical doctors like study nation where huge number of patients went to the limited numbers of doctors who had to finish their tight clinic hours according to the rigid schedule. Alike demand and supply theory in economics, once the patient load (suppose as demand) was increased, the duration of consultation time given by the doctors might be decrease (suppose as supply). However, other influencing factors like doctors' ethical norms, professional preference towards detailed lab tests and in-depth physical examinations, available clinic hours might also have great influence on duration of consultation time given by the medical doctors.

Duration of consultation time with the patients taken by the medical practitioners is a technical and professional concern of medical professions and difficult to intervene. But on the other hand, the hospital out-patient department better have kind of standardized regulations on this regard because this is one of the important determinants of customer satisfaction towards staff behaviors. Along with the medical quality assurance regulations tuned by the experienced medical professionals and hospital ethical board (management team), duration of doctors' consultation time can be able to adjust in order to have reasonable satisfactory duration of consultation time for both patients and doctors sides as well.

If the doctors spend the sufficient duration of consultation time with the patients, the patients would consider that they received the appropriate cares and services what they paid for. Once the patients thought the costs and the benefits of the services are worth, the utilization in terms of satisfaction would be high.

Regarding the availability of written guidance and prescription notes which provided the detailed particular reminders towards the specific needs of patients' diseases and prescription of the medication, the finding of marginal effect stated that the respondent being provided the written guidance was associated with a respondent 44.00% less likely to be in unsatisfied category, 38.70 % more likely to be in satisfied category and 5.30 % more likely to be in very satisfied category of customer satisfaction towards staff behaviors dependent variable.

The finding suggested provision of written guidance was more likely to result higher satisfaction level and vice versa. The reason for that finding could be explained that patients preferred to have a written guidance for the use as a reference during their daily life rather than the verbal reminder that they might forget hence the availability of such a written note revealed higher satisfaction level. Additionally, patients who did not receive the written prescription were very likely to miss the course of medication which could lead to result treatment failure thus consequent decline in satisfaction level towards service provision.

Similar utilization concept could be considered as in duration of consultation time; once the patients had been provided written guidance that they value, the costs and benefits of utilization the out-patient department services are regarded as appropriate and consequently the satisfaction (utilization) would be increased.

Regarding he availability of specialty services i.e. ear, eye and dental at hospital out-patient department, the marginal effect stated that the hospital out-patient department with available specialty service was associated with a respondent 12.63% less likelihood for the respondents to be in unsatisfied category, 8.91% more likelihood for the respondents to be in satisfied category and 3.72 more likelihood for the respondents to be in very satisfied category of customer satisfaction towards staff behaviors dependent variable.

The findings reflected that availability of specialty services was more likely to result higher satisfaction level and inversely. The finding could be reasoned that if the

hospital out-patient department offers specialty services in addition to the usual offering of general medical services alone, it would have been regarded as complimentary benefits and services offered by the hospital thus more customer satisfaction level would be observed. Another justification - the specialty services such as eye, ear and naso-pharyngeal services were rarely offered as a one-stop service by the ordinary private hospital out-patient department in study nation, so if hospital out-patient department could offer that sorts of specialty services as one stop service, the patients appreciated it and resulted higher satisfaction level.

One of the reasons for rare provision of specialty medical services along with general medical services in private hospital out-patient departments might be due to the needs of specific technical equipment which require expensive investment and relatively low utilization rate by the customers than the general medical services. But on the other hand, if hospital out-patient department could provide specialty services, it would be the same as monopolization of market by taking possession of exclusive services among other competitors. Moreover, hospital out-patient department offering the exclusive specialty services could even attract the general medical patients more than the other hospital out-patient departments because the customers would like to receive kind of one-stop services and availability of exclusive specialty services would fulfill the patients' needs of packed services at one place.

Form the hospital management point of view, one of the attractive point of having specialty services was it could be able to attract the customers much more than the other hospital out-patient department without the specialty services hence the amount of patient would be higher which in turn generated higher revenue and consequently the profit as well.

5.2.3. Marginal effect on independent variables on customer satisfaction towards laboratory and radiological services

In this equation, respondents' demographic factors and variables related to the customer satisfaction of laboratory and radiological services (Xs) were analyzed against customer satisfaction towards laboratory and radiological services (Y3).

Table 5.7: Marginal effect of independent variables on customer satisfaction towards laboratory and radiological services

	Marginal effect on degrees of dependent variable		
Independent variables	Unsatisfied	Satisfied	Very satisfied
Waiting time to get lab services	0.017881	- 0.013800	- 0.004081
Waiting time for getting radiology services	0.004243	- 0.003275	- 0.000968
Expenses incurred for laboratory tests	- 0.028611	0.022082	0.006529
Expenses for radiological services	0.002465	- 0.001902	- 0.000556
Availability of required lab & radiology tests	- 0.093687	0.078761	0.014926

In this equation, duration of waiting time to get laboratory services at out-patient department stated statistically significant relationship at 99% level of confidence (Z statistics P-value = <0.01) while waiting time for getting radiology services at out-patient department showed statistically significant relationship at 95% level of confidence (Z statistics P-value = <0.05) with dependent variable (Y3) which was customer satisfaction towards laboratory and radiological services. (Ref: Appendix E, Table A-3)

Associated marginal of statistically significant variables were stated and discussed below.

The marginal effect of duration of waiting time to get laboratory services showed that one unit increase in duration of waiting time to get laboratory services was associated with a respondent 1.78% more likely to be in unsatisfied category of customer satisfaction towards laboratory and radiological services, 1.38% less likely to be in satisfied category and 0.40% less likely to be in very satisfied category.

The significant relationship among the duration of waiting time and customer satisfaction implied that the patient regarded the duration of waiting time as principle

factor when they determine their satisfaction. The finding of marginal effect – 'longer waiting time was more likely to be associated with lower category of satisfaction' might be due to the reason that it seems very inconvenience for the sick person to wait long in order to receive the service provision. In addition to the inconvenience matter, another possible reason was the patients perception that it was the waste of their time and not deserve for waiting long to receive the service provision because they came to the substantially expensive private out-patient department center and they should have been provided the prompt services with no extensive waiting time. Additionally, the mean (average) age of out-patient department respondents was 38.9 years which is working age group hence the patients want to have time for their work and leisure instead of waiting long duration at hospital out-patient department.

Duration of waiting time for radiological services had been analyzed in a same way. The marginal effect of waiting time for getting radiology services showed that one unit increase in duration of waiting time was associated with a respondent 0.42% more likely to be in unsatisfied category of customer satisfaction, 0.32% less likely to be in satisfied category and 0.09% less likely to be in very satisfied category.

Similarly as aforementioned laboratory service, waiting time for getting radiological services looks likes one of the key factor when the patient determine the satisfaction. The reasons for finding of marginal effect 'the longer the waiting time, the lower the category of satisfaction' seem almost identical as the reasons mentioned in laboratory services. The inconvenience of waiting, patient perception of their right to receive the speedy services in return for the costly price would most possibly influence this finding.

In compare with duration of waiting time for getting laboratory and radiological services, the variables of 'expenses incurred for those two services' did not show the statistically significant result (Z statistics P-value = >0.05) (Ref: Appendix E, Table A-3) implied that the main interest of the study population i.e. the customers of private hospital out-patient department was to obtain the speedy and convenient services provision, not the expense incurred for the services.

The longer the waiting time, the lesser the service utilization or patient satisfaction as the waiting time to receive the medical services would be perceived as cost of service utilization by the patients. Once the waiting time to receive the out-

patient department services is too long; in other words, if the cost of service utilization is too high, the medical services provision; in other words, benefits of service utilization would be regarded as lessen in comparison even the services is qualify enough in actual.

5.2.4. Marginal effect of independent variables on customer satisfaction towards accessibility and convenience of the out-patient department services

In this equation, respondents' demographic factors and relevant variables towards customer satisfaction of accessibility and convenience of the out-patient department services (Xs) were analyzed against accessibility and convenience of the out-patient department services (Y4).

Table 5.8: Marginal effect of independent variables on customer satisfaction towards accessibility and convenience of the out-patient department services

	Marginal effect on degrees of dependent variable		
Independent variables	Unsatisfied	Satisfied	Very satisfied
Waiting time for seeing with doctors	0.001421	0.002297	- 0.003719
Time taken for getting prescribed medication	0.000474	0.000767	- 0.001241
Travelling time to the hospital OPD	- 6.220000	- 0.000010	0.000016
Availability of general initial information about OPD	- 0.007536	- 0.011673	0.019209
Expenses incurred for travelling	0.005237	0.008465	- 0.013702
Expenses incurred for OPD service	0.001275	0.002062	- 0.003338
Expenses incurred for medication at OPD	0.012082	0.019528	- 0.031610

The study affirmed two independent variables; namely expense incurred for medication at out-patient department, duration of waiting time for seeing with medical doctors stated statistically significant relationship at 99% level of confidence (Z statistics P-value = <0.01) with dependent variable (Y4) which was customer satisfaction towards accessibility and convenience of out-patient department services. (Ref: Appendix E, Table A-4)

Associated marginal of statistically significant variables were stated and discussed below.

The marginal effect for expense incurred for medication at out-patient department showed that one unit increase in expense for medication was associated with a respondent 1.20 % more likely to be in unsatisfied category of customer satisfaction, 1.95% more likely to be in satisfied category and 3.16% less likely to be in very satisfied category.

The findings reflected that costly expenditure for medication at out-patient department would more likely to result lower satisfactory level. The reason might be due to the fact that most of the patients realized the price of medicines at hospital OPD were much more expensive than the price at other pharmacies though the trade brand were exactly same. So, the patient thought it was possible to buy same quality medicines with cheaper prices at other pharmacies nearby and it was not worth to spend much expenditure by buying expensive medication at out-patient department, hence the expenditure for medication at out-patient department showed inversely significant relationship with customer satisfaction.

If the patients could receive the similar kinds of medications at other pharmacies nearby, the higher medication cost at hospital out-patient department might impair the utilization of services or patient satisfaction. The patients would think that there is no appropriate reason to exchange the medications (perceived as benefits) at hospital out-patient department with comparatively higher price (perceived as costs) than any other pharmacies.

Here one interesting thing was though expenditure for medication at out-patient department showed statistically significant relationship in negative direction with customer satisfaction; the expenditure for out-patient department services and the expenditure for travelling did not showed significant relationship even the direction

was the same as negative. That finding could be justified in a way that the respondents perceived that the expenditure for the out-patient department services provision and transportation purposes was worth to spend because those two services were compulsory that the patients must purchase to receive the required medical services with no alternative selection hence if even with high expenditure those two factors did not affect significantly on the customer satisfaction level. For the case of 'expenditure for medication at out-patient department', the patients perceived the medicines were high-priced and they could have cheaper alternatives as well in other pharmacies thus high expenditure created significant effect on the customer satisfaction.

Another interesting variable in the equation was duration of waiting time for seeing with medical doctors. The marginal effect revealed that one unit increase in duration of waiting time for seeing with doctors was associated with a respondent 0.14% more likely to be in unsatisfied category of customer satisfaction, 0.22% more likely to be in satisfied category and 0.37% less likely to be in very satisfied category.

The finding which showed respondents with lesser duration of waiting time for seeing with doctors were more likely to be in higher satisfactory category than the respondents with longer duration of waiting time might be due to the following underlying reasons - 1) the patients were sick person and it was not convenient for them to wait long duration at the public out-patient department hall with no appropriate seats or beds for the patients to take rest. 2) In a case of elderly, pregnancies and neonatal babies, the degree of inconveniences was of greater extent 3) in additional to the inconvenience, there was a risk of disease transmission while waiting in the out-patient department hall if someone had airborne communicable diseases like kinds of respiratory tract infection 4) for the follow-up patients with no current illness, he would want to spare his time for other kinds of activities or leisure instead of waiting for seeing with doctors for a long time.

Discussion

The marginal effect values of "location of out-patient department" were largest amongst the other independent variables namely; "numbers of out-patient department visits of the customers" and "average total family expenditure" when tested for dependent variable "general satisfaction of the customers towards out-patient department services"; so we could conclude that the independent variable

“location of out-patient department services” was the most influential independent variable for the dependent variable “general satisfaction of the customers” amongst the studied independent variables.

Moreover, the independent variable “location of out-patient department services” revealed largest marginal effect value amongst all the studied independent variables when tested for dependent variables namely; “customer satisfaction towards staff behaviors and services of the out-patient department”, “customer satisfaction towards laboratory and radiological services of the out-patient department” and “customer satisfaction towards accessibility and convenience of the out-patient department services” thus conclusion could be done that the independent variable “location of out-patient department services” was the most influential variable for all the tested different perspectives of customer satisfaction.

The marginal effect values of independent variable “average total family expenditure” of the customers were larger than the marginal values of independent variable “numbers of out-patient department visits of the customers” when tested for the dependent variable “general satisfaction of the customers” hence “average total family expenditure” of the customers was the more influential independent variable than “number of out-patient department visits of the customers” for the dependent variable “general satisfaction of the customers”.

The marginal effect values of independent variable “availability of written guidance and prescription notes for the customers” were larger than other independent variables such as “duration of consultation time with medical doctors” and “availability of specialty services at hospital out-patient department” when tested for dependent variable “customer satisfaction towards staff behaviors and services” hence we could conclude that “availability of written guidance and prescription notes” was the most influential independent variable for the dependent variable “customer satisfaction towards staff behaviors and services” amongst the studied independent variables.

The marginal effect values of independent variable “availability of specialty services at hospital out- patient department” showed larger than the marginal effects of independent variable “duration of consultation time with medical doctors” when tested for the dependent variable “customer satisfaction towards staff behaviors and

services;" meaning that "availability of specialty services at hospital out-patient department" was the more influential independent variable than "duration of consultation time with medical doctors" for the dependent variable "customer satisfaction towards staff behaviors and services".

The marginal effect values of independent variable "duration of waiting time to get laboratory services" showed larger than marginal effects of other independent variables that are; "duration of waiting time for radiological services" and "duration of waiting time for seeing with medical doctors". We could conclude that "duration of waiting time to get laboratory services" was the most influential variables regarding the waiting time of the patients.

The marginal effect values of independent variable "duration of waiting time to get laboratory services" showed larger than the marginal effects of independent variable; "duration of waiting time for radiological services" when tested for dependent variable "customer satisfaction towards laboratory and radiological services". We could conclude that "duration of waiting time to get laboratory services" was more influential independent variables for "customer satisfaction towards laboratory and radiological services" than the other independent variable "duration of waiting time for radiological services".

The marginal effect values of independent variable "expense incurred for medication at OPD" showed larger than the marginal effects of independent variable; "duration of waiting time for seeing with medical doctors" when tested for dependent variable "customer satisfaction towards accessibility and conveniences of out-patient department services". Conclusion could be done that the independent variable "expense incurred for medication" was more influential variable for "customer satisfaction towards accessibility and conveniences of out-patient department" than the other independent variable "duration of waiting time for seeing with doctors".

Amongst all the studied significant independent variables, two variables to be specific; "duration of waiting time for seeing with doctors" and "duration of waiting time for radiological services" stated smallest marginal effect value therefore we could conclude that those two variables were the least influential independent variables for all the tested different perspectives of customer satisfaction.

CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1. Conclusion

In this study, the respondents' socio-demographic factors and relevant independent variables influencing on different perspectives of customer satisfaction towards outpatient department services of private hospitals in the researched area were studied to explore their significances and determine the relationship with attested satisfaction outcome. The objectives of the study are to explore the underlying factors which determine customer satisfaction towards outpatient department services of private hospitals in Yangon, the Republic of the Union of Myanmar and to determine the relationship between those underlying factors and customer satisfaction. The study was cross-sectional, quantitative, descriptive study. The Yamane equation with assumption of 95% confidence level was used to calculate appropriate sample size. The Multistage sampling design comprising quota sampling, simple random sampling and convenience sampling methods were used to identify respondents for the study. The self-administered structured questionnaire survey was applied to 440 respondents. Data analysis employed regression model with ordered logistic method, deploying level of significance (ALPHA) 0.05 and generate marginal effect of every independent variables on different degrees of satisfaction outcome.

Regarding respondents' socio-demographic background, it was noteworthy that the respondents' number of out-patient department visits showed positive statistical significant relationship and average total family expenditure per month revealed negative statistical significant relationship with general customer satisfaction towards out-patient department service.

Hospital OPD being located at downtown area with easy transportation means and complimentary medical and non-medical services nearby showed statistically significant relationship with general customer satisfaction towards out-patient department service and associated with a respondent 25.19% less likely to reveal very unsatisfactory response, 60.73% less likely to show unsatisfactory response, 54.19% more likely to show satisfactory response and 31.73% more likely to make very satisfactory result towards general customer satisfaction.

In regards to the customer satisfaction towards staff behaviors and out-patient department services dependent variable, very interesting variable namely - consultation time with medical doctors showed positive significant relationship with customer satisfaction towards staff behaviors and services of out-patient department. It was noteworthy for the medical practitioners and hospital management that one unit increase in consultation time with medical doctors was associated with a respondent 2.64% less likely to show unsatisfactory response towards customer satisfaction of staff behaviors. Second remarkable finding concern with medical practitioners was provision of written prescription and guidance notes for the patients was associated with a respondent 44.00% less likely to show unsatisfactory response and 38.70 % more likely to show satisfactory response towards customer satisfaction of staff behaviors.

The hospital investors and management would interest the finding showing that the presence of specialty services i.e., ear, eye and dental department at hospital out-patient department association with a respondent 12.63% less likely to show unsatisfactory response, 8.91% more likely to show satisfactory response and 3.72% more likely to show very satisfactory result towards customer satisfaction of services of out-patient department.

The last but not the least desirable fact for attention was any delay in out-patient department service provision would impair the customer satisfaction because the study revealed statistically significant negative relationship between the customer satisfaction and the independent factors such as duration of waiting time for getting laboratory tests, radiological services and seeing with medical doctors.

6.2. Recommendation

Based on the study findings, the following recommendations are suggested in order to improve the out-patient department services delivery in private hospitals of studied region and consequently raise the customer satisfaction.

1. Medical staffs (doctors, nurse, pharmacist) should take the sufficient duration of time to explain and provide the written guidance to the patients about the medication, prescription and any health/disease related matters because it is important for the patients to clearly understand the prescription, his health/disease concerns and what to do and what to avoid in daily life in order to cure the disease

or restore the healthy life. This could also help to improve the disease cure rate and consequent patient satisfaction.

2. Medical staffs, particular specialist doctors should take the sufficient duration of consultation time to listen to the patients' disease history, complaints and complications of diseases because patients value it. Even in the cases of patients with terminal diseases which could not be cured, the patient satisfaction could be secured by paying attention to the patients' words.
3. Waiting time for seeing with medical doctors particularly specialist doctors should not be too long. The hospital out-patient department s should think about this as priority issue which required to be improved soonest possible. One option is hire more specialist doctors and offer more specialist doctor services thus the patients do not need to wait long to get the specialist services.
4. Waiting time to undergo laboratory and radiological investigation should not be long. The hospitals should assign more staffs at those departments (e.g. blood bank) mainly at the tight working hours.
5. Medicines and medical appliances at out-patient department service should not be highly priced because the image of the hospital and patient satisfaction would impair if they realize the hospital out-patient department highly raise the price and there are many competitive pharmacies as well.
6. Hospital out-patient department should provide the specialty services (eye, ear, dental so far and so forth) as much as possible because those specialty services are rarely offered by other hospital out-patient department s and if one out-patient department could offer, it is almost identical as market monopolization. Furthermore the patients prefer the one-stop serviced hospital out-patient department which has other specialty services rather than the general medical service alone.
7. The hospital should prepare to offer the kind of luxury goods and services in order to raise the satisfactory level of patients with higher average monthly expenditure or patients looking for the luxury goods.
8. The quality of both medical and non-medical out-patient department services should be the same among all the patients, both chronic and acute, higher numbers of out-patient department visits or lesser ones.

6.3. Limitation of the study and recommendation for further research

The limitations of the study were as follow:

1. The research was conducted only in private hospitals located in Yangon, the republic of the Union of Myanmar hence the results cannot be generalized to apply at other types of hospital with different background and contextual settings including public hospitals of the studied nation.
2. The research did not have the nature of in-depth description which could have been achieved only with the application of qualitative study method.

The following recommendations are suggested for further relevant studies.

1. Integration of dimensions of customer satisfaction towards out-patient department services in both private and public hospitals is suggested.
2. In depth qualitative study is recommended to explore more determinants of customer satisfaction towards out-patient department services in details.

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APPENDIX

APPENDIX A

Form of

Participant/ Respondent Information Sheet

Title of research project: "FACTORS INFLUENCING CUSTOMER SATISFACTION TOWARDS OUT-PATIENT DEPARTMENT SERVICES OF PRIVATE HOSPITALS IN YANGON, THE REPUBLIC OF THE UNION OF MYANMAR"

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1. You are being invited to take part in a research project. Before you decide to participate it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and do not hesitate to ask if anything is unclear or if you would like more information.
2. This research project involves "the study of FACTORS INFLUENCING CUSTOMER SATISFACTION TOWARDS OUT-PATIENT DEPARTMENT SERVICES OF PRIVATE HOSPITALS IN YANGON, THE REPUBLIC OF THE UNION OF MYANMAR"
3. Objective (s) of the project.

   3.1 To explore the underlying factors that determines customer satisfaction towards Outpatient Department Services of Private Hospitals in Yangon, the Republic of the Union of Myanmar

3.2 To determine the relationship between the underlying factors and customer satisfaction towards Outpatient Department Services of Private Hospitals in Yangon, the Republic of the Union of Myanmar

4. Details of participant.

The customers (respondents) of the out-patient department of the studied hospital will be requested to complete the pre-designed and pre-tested self-administered structured questionnaire at the end of their outpatient visit.

Following **inclusion criteria** will be applied.

- Agreed volunteer participation and clear understanding of the nature of the questionnaire in the research study
- Available time; around 15-20 minutes (without any consequent negative impact to him/her) for being participated in the study

Exclusion criteria;

- Under the age of 18 years,
- Respondents with psychological disorder (psychosis, dementia, mental retarded),
- Respondents with communication defects like hearing/speech/vision impairments,
- Respondents who cannot read and write, Myanmar (local) language
- Respondents working in the representative (studied) hospitals

Withdrawal situation: Respondents who want to withdraw from the study, with or without any reasons; can withdraw from the study at any time with no consequent negative impact on him/her. In case of that situation, researcher will re-start the data collection procedure with another respondent to replace him/her. This study needs minimum 440 eligible participants.

5. Data collection

4-6 data collectors have been recruited to collect the data. The researcher himself has trained the data collectors for 1-2 days regards sampling techniques, the study criterions, ways of discussing issues and approaching technique to respondents. Role play piloting exercises have also been secured before actual data collection.

The researcher is a public health specialized medical doctor with rich experience in relief and development humanitarian affairs.

To approach potential respondents; first, researcher has met with the management of the studied hospital, explained about the nature of research and requested the permission. Once the permission is secured, the data collectors stay at outpatient department and request the potential respondents to complete the pre-designed and pre-tested self-administered structured questionnaire at the end of their outpatient visit. By applying convenient sampling technique, every third outpatient department customers are selected to participate in the research study.

6. The data collectors will explain to you the purpose of study. Once you agree to participate in study you will be requested to complete the self-administered structured questionnaire including socio-demographic factors, perception towards quality of outpatient department services, accessibility to the outpatient department services, types of customer health problem based on diagnosis. The time taken for responding questionnaire will be around 15-20 minutes; can extend a little more.
7. Confidentiality of data/information will be secured by using code number instead of name in the questionnaire forms. Only results of the study will be reported as total picture and the rest of information will be kept confidential. Any information which could be able to identify respondent will not appear in the report.
8. The researcher or data collectors will provide verbal explanation to you regards all the details of project that is mentioned in this sheet that you can have one copy for you. If you agree voluntary participation, you will be requested to complete the self-administered structured questionnaire.
9. You will not harm in any accounts due to the participation of this study.
10. The participation in this study is voluntary and you have right to refuse or withdrawal it at any time with no reasons.
11. You might stop responding or filling the questions throughout any time if you feel uncomfortable to respond/answer.
12. There will be no remuneration or gift for respondents in study research.

13. Information related directly to respondents will be kept confidential. Results of study will be reported as overall statement.

14. In case you have any inquire or need more information, please contact researcher at all time. If the researcher has any information that may harm or benefit regarding the study, the researcher will inform you immediately so that research subject may review if they are still voluntary to participate in the research study.

Thanks a lot for your time!

APPENDIX B
QUESTIONNAIRES

Questionnaire on "FACTORS INFLUENCING CUSTOMER SATISFACTION TOWARDS OUT-PATIENT DEPARTMENT SERVICES OF PRIVATE HOSPITALS IN YANGON, THE REPUBLIC OF THE UNION OF MYANMAR"

By Dr. Aung Myo Min

Faculty of Economics, Chulalongkorn University, 2015

Date:

Data collector code No:

Respondent code No:

Instruction for respondent: Please answer following questions by making a tick in the provided box of your choice or write down your answer exactly in the provided blank space wherever necessary.

Section 1: General customer satisfaction

Statement	**very unsatisfied (1)**	**unsatisfied (2)**	**satisfied (3)**	**very satisfied (4)**
Section 1: General customer satisfaction				
Y – Dependent variable				
Y1. General customer satisfaction				

Xs – Independent variables

X1. Age: ---------- years

X2. Gender

☐ 0. Female

☐ 1. Male

X3. Marital status

☐ 0. Married

☐ 1. Single

X4. Employment status

☐ 0. Unemployed (monks, nuns, students, youths, retired etc)

☐ 1. Employed (own business, government staffs, company/NGO staffs etc)

X5. Years of schooling: ---------- years

X6. Estimated immediate family expenditure per month (US Dollar)
----------.

X7. No of OPD visit for recent health problem (including the current visit) --------
times

X8. The type of disease that makes you to receive OPD services is:

☐ 0. Chronic

☐ 1. Acute

X9. The location of the hospital is

☐ 0. Peripheral area

☐ 1. Downtown area

X10. Size of hospital in terms of no of hospital beds: ----------

Section 2: Customer satisfaction towards staff behaviors and services

Statement	very unsatisfied (1)	unsatisfied (2)	satisfied (3)	very satisfied (4)
Section 2: Customer satisfaction towards staff behaviors and services				
Y – Dependent variable				
Y2. Customer satisfaction towards staff behaviors and services				

Xs – Independent variables

X1. Consultation time with medical doctors: ---------- minutes

X2. Time taken by the pharmacist in order to explain the prescription/dosage of medication: ---------- minutes

X3. Availability of written prescription and guidance notes for the patient:

☐ 0. No

☐ 1. Yes

X4. Availability of specific services like eye, ear, and dental at hospital out-patient department:

☐ 0. No

☐ 1. Yes

Section 3: Customer satisfaction towards laboratory and radiological services

Statement	very unsatisfied (1)	unsatisfied (2)	satisfied (3)	very satisfied (4)
Section 3: Customer satisfaction towards laboratory and radiological services				
Y – Dependent variable				
Y3. Customer satisfaction towards laboratory and radiology services				

Xs – Independent variables

X1. Waiting time for getting laboratory services: ---------- minutes

X2. Waiting time for getting radiology services: ---------- minutes

X3. Expenses incurred for laboratory tests: ---------- Myanmar Kyat

X4. Expenses incurred for radiology services: ---------- Myanmar Kyat

X5. Availability of required laboratory and radiological services at out-patient department:

☐ 0. No

☐ 1. Yes

Section 4: Customer satisfaction towards accessibility and convenience

Statement	very unsatisfied (1)	unsatisfied (2)	satisfied (3)	very satisfied (4)
Section 4: Customer satisfaction towards accessibility and convenience				
Y – Dependent variable				
Y4. Customer satisfaction towards accessibility & convenience of out-patient department services				

Xs – Independent variables

X1. Waiting time for seeing with doctors: ---------- minutes

X2. Time taken for getting prescribed medication: ---------- minutes

X3. Travelling time to the hospital out-patient department: ---------- minutes

X4. Availability of general initial information about the out-patient department services:

☐ 0. No

☐ 1. Yes

X5. Expenses incurred for travelling: ---------- Myanmar Kyat

X6. Expenses incurred for out-patient department services: ---------- Myanmar Kyat

X7. Expenses incurred for medication: ---------- Myanmar Kyat

Thank you for your time!

APPENDIX C

BUDGET

No.	Activities	Unit	Price (Baht)	Unit (number)	Total budget (baht)
1.	**Photocopy for pilot testing**	Questionnaire set	10 baht/1 form	30 forms	300
				Subtotal	**300**
2.	**Data collection**				
	Photocopy for questionnaire sets	Questionnaire set	10 baht/1 form	500 forms	5,000
	Per diem for data collector	Person	400 baht × 6 persons/day	15 days	36,000
	Accommodation (researcher)	Person	600 baht/day	15 days	9,000
	Transportation fees to studied hospitals (research area) for data collectors (round trip per every day)	lump sum	200 baht × 6 persons/day	15 days	18,000
	Communication cost	Network/Tel	50 baht/ day	15 days	750
				Subtotal	**68,750**
3.	**Documentation**				
	Print out	Page	5 baht/page	1,050 pages	5,250
	Photocopy	Page	1 baht/page	2000 pages	2,000
	Stationary	Set	200 baht/set	3 set	600
	Binding paper	Set	200 baht/set	10	2,000
				Subtotal	**9,850**
				Grand total	**78,900**

APPENDIX D

TIME SCHEDULE

Procedure	Time frame (Months)						
	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15
1. Literature review							
2. Writing thesis proposal							
3. Submission for proposal exam							
4. Proposal exam							
5. Pilot testing							
6. Field preparation and data collection							
7. Data analysis							
8. Thesis writing							
9. Final thesis exam							
10. Presentation at Academic Conference							
11. Submission of thesis							

APPENDIX E

Detail results of ordered logistic regression

Table A-1: Relationship among **'Customer socio-demographic characteristics', 'Hospitals characteristics – in general'** namely location of hospital OPD, size of hospital in terms of numbers of hospital beds and general customer satisfaction towards OPD services (Y1)

Variables	Coefficient	Z-stat (P-value)
Age	0.009947	0.266
Gender	-0.092565	0.663
Location of hospital	6.345504	0.000 (***)
Marital status	0.192761	0.401
No of OPD visits	0.280542	0.000 (***)
No of hospital beds	-0.007825	0.104
Employment status	-0.475475	0.066 (*)
Types of disease	-0.116430	0.748
Years of schooling	0.033651	0.307
Average total immediate family expenditure/month	-0.828947	0.001 (***)
LR stat P-value – 0.0000 Pseudo R squared – 0.4189		

(*) significant at 10%, (**) significant at 5%, (***) significant at 1%

Table A-2: Relationship among **'Customer socio-demographic characteristics', 'Hospitals characteristics – related to staff behaviors and services'** and customer satisfaction towards staff behaviors and services (Y2)

Variables	Coefficient	Z-stat (P-value)
Age	-0.004544	0.693
Gender	0.090077	0.750
Marital status	-0.047401	0.872
No of OPD visits	-0.078964	0.186
Employment status	0.298268	0.363
Types of disease	- 0.053281	0.903
Years of schooling	-0.048504	0.259
Average total immediate family expenditure/month	-0.447874	0.176
Consultation time with medical doctors	0.410891	0.000 (***)
Consultation time with pharmacists	0.038708	0.405
Availability of written explanation	3.224549	0.000 (***)
Availability of specific services (eye, ear & dental) at hospital OPD	1.558425	0.000 (***)
LR stat P-value – 0.0000 Pseudo R squared – 0.5731		

(*) significant at 10%, (**) significant at 5%, (***) significant at 1%

Table A-3: Relationship among **'Customer socio-demographic characteristics', 'Hospitals characteristics – related to laboratory and radiological services'** and customer satisfaction towards laboratory and radiological services (Y3)

Variables	Coefficient	Z-stat (P-value)
Age	0.000654	0.969
Gender	-0.008420	0.983
Marital status	0.060475	0.886
No of OPD visits	0.059890	0.389
Employment status	0.057658	0.894
Types of disease	0.216254	0.697
Years of schooling	0.012637	0.831
Average total immediate family expenditure/month	0.689714	0.118
Waiting time to get laboratory services	-0.206585	0.000 (***)
Waiting time for getting radiology services	-0.049023	0.015 (**)
Expenses incurred for laboratory tests	0.330551	0.114
Expenses for radiological services	-0.028474	0.912
Availability of required lab & radiology tests at OPD	0.901942	0.113
LR stat P-value – 0.0000 Pseudo R squared – 0.3584		

(*) significant at 10%, (**) significant at 5%, (***) significant at 1%

Table A-4: Relationship among **'Customer socio-demographic characteristics', 'Hospitals characteristics – related to accessibility and conveniences of OPD services'** and customer satisfaction towards accessibility and convenience of OPD services (Y4)

Variables	Coefficient	Z-stat (P-value)
Age	-0.006905	0.564
Gender	0.548907	0.066 (*)
Marital status	-0.537534	0.091 (*)
No of OPD visits	0.062682	0.314
Employment status	-0.155913	0.642
Types of disease	-0.010804	0.981
Years of schooling	0.059566	0.215
Average total immediate family expenditure/month	0.065330	0.852
Waiting time for seeing with doctors	-0.077878	0.000 (***)
Time taken for getting prescribed medication	-0.025994	0.147
Travelling time to hospital OPD	0.000340	0.834
Availability of general initial information about OPD	0.405090	0.170
Expenses incurred for travelling	-0.286912	0.216
Expenses incurred for OPD services	-0.069893	0.830
Expenses incurred for medication	-0.661878	0.001 (***)
LR stat P-value – 0.0000 Pseudo R squared – 0.4483		

(*) significant at 10%, (**) significant at 5%, (***) significant at 1%

VITA

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Working experiences

May 2008 to Jun 2008: Medical Officer, Amara Health Care Foundation

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