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博 士 （医 学） 学 位 論 文

Factors that influence Health Service Utilization among the local residents of Ulaanbaatar city, Mongolia

(モンゴル国ウランバートル地域住民の
ヘルスサービス利用に関連する要因)

２０１３

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CHAPTER 1: INTRODUCTION

1.1 Background

Utilization of health care service is an important public health issues in many countries and utilization of health care services for most vulnerable population has been recommended by the World Health Organization as a main primary health care concept (WHO, 1978). However, increased use of health services is a major target in many developing countries, the utilization level of health care services is not satisfactory and systematic researches on health services are limited, especially in post socialist countries in Central Asia (Balabanova et al. 2004). With the change of political and socio-economic system in post socialist countries in the 1990s, welfare, health status and quality of life of their population were worsening. Many problems were soared after the socialist regime, such as unemployment and the poverty, followed morbidity and mortality. The social system's support for all community is eroded and social safety net is finished. Health facilities and health service also had deteriorated. As a result of these changes, social inequalities increased in many countries, especially determents of socio-psychological and socio economic (Dimiter & Jurgan, 2003). In addition, there is an increasing evidence of rising levels of inequality in health service utilization in post-socialist countries of Central Asia (Fan & Habibov, 2009).

As a post-communist country, Mongolian society also had faced the same problems and Mongolia started its reforms in the early 1990s for restructuring of the entire social and economic system. Although, the health system reform focused more on improving primary health care and disease prevention, there is still an urban, sub urban and rural disparity in access.

In general, poverty is more pronounced in sub urban and rural areas, inequality particularly in access to various services is higher in urban and suburban areas. Lack of access to health services for remote sub urban and rural communities is likely to put certain vulnerable groups such as pregnant women, the infants and the elderly members at greater risk (UNDP, 2011). There is also variation between different areas in access to services, such as health services reflected for example on the variation in number of persons per physician.

In addition, the quality of health services need to be improved, especially deficiencies in case management, inaccurate diagnoses, inappropriate treatments and availability of equipment to treat. Moreover, the excessive orientation toward curative medicine, the lack of health prevention and promotion activities and the lack of community participation have resulted in the people continuing to believe in traditional therapeutic patterns and self-care. Many people perceive the health system exclusively in curative terms and not with regard to health preservation and disease prevention (Ricardo, 1995). In Mongolia, many people do not fully understand the health care system, including health insurance scheme.

Against this backdrop, this study was conducted to investigate the determinants of health service utilization among the local residents of Ulaanbaatar city, Mongolia.

A modified version of the Andersen's behavioral Model of health service utilization is used to conceptualize the determinants of health service utilization in Ulaanbaatar city, Mongolia.

1.2 Study Rationale

Although the Mongolian Constitution (1992) provides citizens the right to live in a safe and healthy environment and free access to primary health care, Mongolians,

especially rural and sub urban residents, cannot access health services equally. Provision of services favors urban areas, but rural and sub urban areas suffer from a shortage of health workers. Lack of qualified doctors and difficulties in accessing services mean that not everyone receives health services and its benefits. Health services is challenging due to insufficient findings for Family Group Practices. Moreover, equity is influenced by geographic distance, harsh winter conditions, unregistered populations, and low income groups (WHO & MOH, 2012).

In Mongolia, primary health care aims to provide access to everyone, and vulnerable groups (mothers, children under 5 years old, elderly and adolescents) are exempt from co-payments, but there are no reports as to how adequately the government funded services are provided for free, or on impacts to access and equity for those who are exempt (WHO & MOH, 2012). Moreover, the factors that influence local residents' decision to seek professional care are relatively unknown.

In addition, there are many studies available regarding to health service utilization in other countries, some differences in health service utilization may exist between societies having different cultures. Today Mongolian society composed two different cultures, nomadic and urban. Even the animal husbandry is still strong in its economy, the migration stream to Ulaanbaatar city has been very high. Formerly nomadic households that settled around urban centers also experience inequalities in health.

Furthermore, Mongolia's socialist background has a strong influence on their policies for equity and social access. Even democracy in the 1990s, led to not only to a change of political and economic system, but also intellectual change and life styles, communist mentality of imitation is still kept in the mind of the mass, especially among the elderly and vulnerable group of the community. There were little

problems among the community, even if the community had problems, the government solved or tried to solve it on behalf of community during these socialist era. Moreover, people were compulsorily examined and this idea of mandatory examinations was rather authoritarian and paternalistic (Rosen, 1974).

It is for these reasons that utilization patterns among the local residents should be of interest to both researchers and health care providers alike.

This study provided important information regarding health service utilization among the local residents of Ulaanbaatar city, Mongolia. In addition, the study findings will help health and development sector personnel to understand factors influencing the use of health service in urban areas of Mongolia.

1.3 Purpose of the study

The overall purpose of this study was to understand and explore health service utilization patterns of local residents in Ulaanbaatar, the capital city of Mongolia.

1.4 The aims of quantitative and qualitative studies, study hypothesis, study questions.

Aim of the quantitative study: To examine what predisposing factors, enabling factors, need factors and health behaviors are associated with health service utilization.

Quantitative study hypotheses

Literature review has showed that factors positively related to health service utilization include being elderly, female, married and bigger family size (Leaf et al. 1987; Fitsum et al. 2011). Moreover, some studies in developing countries have found that household size has an inverse relationship with the utilization of health services (Awoyemi et al. 2011). A study in Philippine, have found that women from large families underutilize various health care services (Wong et al. 1987).

Some studies, conducted in Mongolia were reported that 58 percent of family group practice customers are poor and senior people (MOH. 2009).

Traditionally poor have utilized services less than individuals with higher income level. In many developing countries, including some socialist countries, increased income was the most important reason for not seeking care (Balabanova et al. 2004; Babar & Juanita, 2004). But, income differences in health and health care utilization may be different, because there is no possibility for the poor to get more health services except primary health care.

The third hypothesis was also generated based on the literature reviews and many studies reported that poor health status, type of sickness, including poor self-assessed health influence the utilization of health service (Lim et al. 2006; Kim et al. 2003). Several studies also revealed that persons with poor mental health were shown to be high users of health services (Rickert et al. 1996; Rohrer et al. 1999; Rohrer et al. 2000; Rohrer, 2004).

Association with self medication and poor health service utilization were also tested during the quantitative study. Some studies suggest that self medication influence health service utilization, especially among the societies with histories of traditional healing (Fosu, 1989; James et al. 2006). After the establishment of market based economy in 1990s, the number of private pharmacies increased in Mongolia and it has influenced the use of medicine by the population. However, a ministerial decree announced measures to stop over-the-counter sales of non-prescribed drugs, the pharmacies still sell non-prescribed drugs (Lkhavgadorj, 2004).

For these reasons, the following hypotheses were stipulated and the hypothesis is based on the proposed conceptual model and will test the factors associated with

health service utilization.

Hypothesis 1: In regard to predisposing determinants, the elderly, female, married and people having bigger family size are more likely to seek out health services.

Hypothesis 2: In regard to enabling factors, poor residents are less likely to use health services than the residents who live in urban areas and who are affluent.

Hypothesis 3: In regard to need factors, lower self-assessed health is associated with higher likelihood of health service utilization.

Hypothesis 4: In regard to health behavior factors, poor health behaviors, especially using medication is associated with poor health service utilization.

Aim of the qualitative study: To improve understanding of the barriers of health service utilization among the sub-urban residents of Ulaanbaatar city, Mongolia.

This study is intended to contribute understandings of family health practioners and the local communities and describe the patterns of health service utilization among local residents. Therefore, instead of stipulating hypothesis, study questions are created based on the following issues.

Moreover, the parents who had medicated themselves with antibiotics were more likely to give antibiotics to their children without a prescription (Ganchimeg, 2010). In Mongolia, the cohesive family-oriented social milieu is still strong and it has a strong effect on individual health behavior. However, social networks, including family members, colleagues and friends' network, it may be that family members and colleagues' poor health behaviors affected with others to use health services.

In addition the study also interests trust in health care system and family group practitioners. Trust plays important role in all medical relationship and lack of trust is associated is associated with less doctor-client interaction, poor clinical relationships

that exhibit less continuity, reduced adherence to recommendations, worse self reported health, and reduced utilization of health care services (Thom, 2004; O' Melley, 2004). In Mongolia, there is growing dissatisfaction with and distrust of existing health care services. Dissatisfaction and distrust with services is demonstrated by the increase in the number of Mongolians seeking health services abroad. In other hand poor quality primary health services have resulted in a lack of public trust in Family Group Practices (WHO, 2007).

Question 1: Does the poor health service utilization is affected with others, such as family members and colleagues' poor health behavior?

Questions 2: Distrust in health care system and family group practioners is associated with poor utilization of health service or not?

1.5 Ethic issues

This study was conducted with the approval of the Ethics Committee of Graduate School of Comprehensive Human Sciences, University of Tsukuba (21-133).

All the selected respondents were agreed to be involved in quantitative study. For about the qualitative study, focus group interview method was used and each interviewee was contacted before the interviews. The details of the study were explained, and verbal assent to participate was requested. Participants who attended in interviews were informed that by agreeing to be interviewed, they were providing verbal informed consent. Also a confidentiality statement was provided among the participants. Participation in focus group interview was voluntary, and data protection procedures were observed throughout the study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This section begins with brief information about Mongolia and Mongolian health system, followed by more detailed literature review regarding the specific conceptual framework, which is guiding the present study.

2.2 Mongolia in brief

Demographic and health situation

Mongolia is a landlocked country, bordered by Russia and China with a total area of 1.5 million square kilometers (Figure 2.1).

Figure2.1.Source: ***https://commons.wikimedia.org/wiki/File:Mongolia_in_its_region.svg***

Mongolia is one of the sparsely populated countries in the world and the total population of Mongolia is 2.7 million and from those 49.5 per cent is male and 50.5 per cent is females. In the capital city Ulaanbaatar, there are more than 1.1 million residents live (NSO, 2010).

The national statistic survey of 2010 reported that circulatory system diseases, neoplasm, respiratory system diseases, as well as injury and poisoning were most leading causes of morbidity and mortality (NSO, 2010b).

Table 2.1 Key development indicators in Mongolia

Key development indicators	Measure	Year
Human development index	0.653	2011
Total health expenditure	4.7 % GDP	2009
GDP per capita	PPP $ 3,522	2009
Multidimensional poverty index	0.065	2005
Life expectancy at birth	68.5	2011
Infant mortality rate	19.4 per 1,000 live births	2010
Maternal mortality rate	45.5 per 10,000 live births	2010
Literacy rate	95.40%	2000

Source: UNDP 2011, WHO CHIPS 2011

Smoking, alcohol consumption, unbalanced diet, physical inactivity were the major risk factors of morbidity and mortality and are still prevalent among the population (WHO, 2011c).

Expenditures in health services are paid from general taxation revenues, social insurance contributions and out-of-pocket payments. The poor, pensioners, disabled persons, children and pregnant women are exempt from co-payments and some official charges. But private sector services are paid for on a fee-for-service basis. The health Insurance scheme is introduced in 1994 in Mongolia. The uninsured will pay fully for secondary and tertiary care, although they are allowed the insurance premiums when they need care. Primary health care is paid for by the government and the Health Insurance Fund subsidized secondary and tertiary level health care through a reimbursement to the service providers, The patients are required to pay co-payments of 10% for secondary services and 15 % for tertiary services (WHO & MOH, 2012). Prices for drugs on the Essential Drug List are controlled through price limits and if drugs are prescribed by family health centers, pharmacies are reimbursed for 50-80 %

of the prices for 132 essential drugs by the Health Insurance Fund.

For about the human resources, Mongolia has a large number of health workers, but is a shortage of nurses with a high doctor to nurse ratio. In addition, doctors are concentrated in urban areas and the ratio of doctors per 10 000 people in Ulaanbaatar city is 1.5 times more than in rural areas.

At the end of 2010, the nationwide medical service consisted of 16 specialized hospitals, 4 regional diagnostic and treatment centers, 17 province general hospitals, 12 district general hospitals, 6 rural general hospitals, 37 inter-town hospitals, 274 town hospitals, 218 family group practices and 1113 private clinics. For about the human resources for health, there were 2.7 physicians, 3.3 nurses, and 0.4 pharmacists per 1000 populations (WHO, 2011c).

While the number of human recourses for health is quite high as a proportion to population in Mongolia, there is a shortage of health professionals in rural and suburban areas. In sub-urban and rural areas, the issues of human resources or decreased level of stable employment is facing for Family Group Practice, because of low salary and welfare (MOH, 2009).

Training institutes have developed based on the Soviet model, hence it still do not produce some types of health professionals such as, occupational therapists, psychotherapists, optometrists or speech therapists (WHO, 2013).

Today in Mongolia, one state-owned university and five private colleges train health professionals, through the diploma, bachelor's, master's and doctoral level trainings. The required study-term to get bachelor degree is 6 years for medical doctor and 4 years for nurse. Medical school graduates are granted with a two-year provisional license that permits them to practice in a primary health care setting. To get highest

specialization that enables medical doctors to work tertiary-level specialized centers or general hospitals, it takes about 13-14 years (WHO, 2013).

For about the traditional medicine, there are more than 5 universities and colleges offer a 6 year training courses and short term courses on traditional medicine. Since 1990s, the number of traditional medicine doctors has increased dramatically and traditional medicine doctors now make up between 10-15 % of medical graduates (WHO & MOH, 2012). But, training of human resources is not still linked to policies and planning in the health sector (WHO & MOH, 2012) .

History of health care in Mongolia

Mongolian health care system was based on the Soviet Union's Semashko model, in which the state was responsible for both financing and delivery of health care. The socialist regime was entirely responsible for the country's health budget and directly provided public health services. The primary health care system in urban areas was based on polyclinics, which separately existed for children, adult men, and women. Each polyclinic had physicians responsible for health and preventive care within a defined geographic area (ADB, 2008).

During the socialist period, the system had several benefits such as maintaining the health of Mongolians by reducing the number of biological catastrophes and rapid gains in life expectancy observed (from 49 to 66 years) (Rossabi, 2000).

Although, the Mongolian health system during Communism fostered dramatic improvements, the advancement of western medicine decline of the practice of traditional medicine.

Since discontinuation of aid from the former Soviet Union in the 1990s, the health care system started to face stagnation and therefore, the country was needed to explore

new paths of health sector development. In the mid 1990s, health sector reform focused on improving primary health care and disease prevention, along with economic development, contributed to improvements in health status and epidemiological transition over the last two decides (WHO & MOH, 2012). Since the transition from centrally planned economy to a free market, Mongolia has moved away from Semashko model by introducing social health insurance scheme modeled after Bishmarkian in 1994 (WB, 2006).

Service delivery model

Health care system is characterized by three levels of care with the principle of delivering equitable, accessible and quality health care services for every person (Figure2.2).

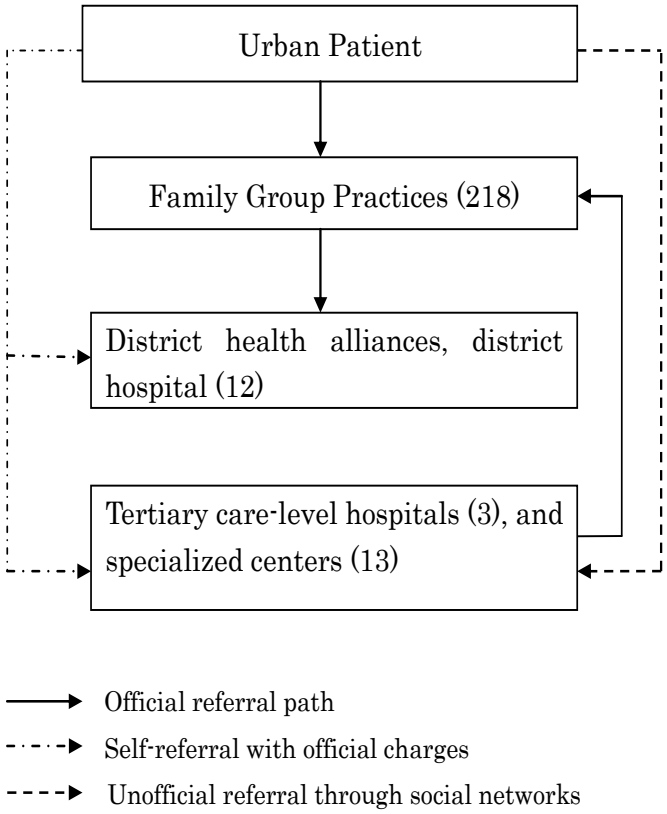
- Primary health care is mainly provided by family group practices (FGPs) in the capital city and provinces.
- Secondary health care is provided by district general hospital in Ulaanbaatar city and province general hospitals in provinces.
- Tertiary health care is provided by major hospitals and specialized centers in Ulaanbaatar city.

While the government is main provider of modern health services, the private sector is also providing a moderate level of modern health services. Besides the modern health care delivery system, traditional treatments, including bone setters, herbal remedies, Buddhist and Shaman rituals still exist. Traditional medicine services are available mainly through district and provincial secondary care hospitals and private hospitals and clinics. In addition, non-governmental organizations (NGOs) have been active in Mongolia for many years and implementing various health related

projects, including nutrition, child care and maternal health, immunization, prevention, behavior change, poverty reduction and capacity development.

Although family group practices are intended to act as gate-keeper (Figure2.2), in urban areas, many patients and local residents bypass family group practices, preferring secondary hospitals, believing that secondary and tertiary level hospitals are better equipped and health professionals have greater skills (WHO & MOH, 2012).

Figure2.2 Patient pathways in Ulaanbaatar city



Source: Health Service Delivery profile. Mongolia 2012. WHO&MOH

2.3 Definition and Theoretical models

Utilization is the way and manner in which people use or utilize a particular thing (s), product (s), or service (s) because of the belief that it is important or serves very vital functional and significant role in their well being (Gazali et al. 2012). Accordance with

this the utilization of health service is defined as 'the process of seeking professional health care and submitting oneself to the application of regular health services, with the purpose to prevent or treat health problem s' (Scheppers et al. 2006). In some studies health service utilization is defined as the consumption of health services or the extent to which health services are used and measures of health service utilization include utilization of health care services (number of health care visits by persons in a given population in a given year/ size of the population) (Fitsum et al. 2011; Oye et. 2006).

There are several models of behavior that could be applied to health care utilization and the models of health care utilization provide guidance for defining, specifying the relationships between variables, and evaluating programs and policies concerned with access to and utilization of health care services. The major types of utilization models are: (a) models of patient decision making, grounded in sociological theory and research; (b) the health belief model, based in psychological theory; (c) economic models of the demand for medical care; and (d) the behavioral model of health services utilization that has guided much health services research on access to and utilization of health care services. (David, 2009) For example, according to the health belief model of Rosenstock, the individual's actions to treat and prevent disease via consideration of four central variables: a) the individual's perceived susceptibility to disease, An individual will seek preventive health services if he or she believes they are susceptible to disease; b) The individual's perception of illness severity. If a person does not perceive the illness as serious, they will not seek treatment or prevention; c) the individual rational perception of benefits versus costs. A person will not take action unless the treatment or prevention is perceived as having greater benefits than costs; d)

the individual's cues to action. Media, friends, family members, or well known person can provide an impetus for prevention. The absence of cues to action will reduce the likelihood of prevention (Wolinsky, 1988).

While these models of health service utilization have identified many variables as important and significant, no single factor has been shown to be more essential than another.

The conceptual framework of this study is based on Andersen's behavioral model of health service utilization, which has been used almost exclusively in the literature to conceptually organize the factors that influence the health service utilization. In addition, according to this model, the factors which influence health service utilization include societal, health system, health outcome, health behavior and individual characteristics.

2.4 Andersen's Behavioral Model of Health Service Utilization

The behavioral Model of Health Service Utilization was first developed in the 1960s to understand why a family uses health service and predict and explain use of health services (Andersen, 1995).

Since the first model established, it has been modified several times. The second phase of the model was developed in 1970s in collaboration with Aday and others. The second phase includes health care system, including health policy, resources and organization. Consumer satisfaction was added in this phase as an outcome of interest (Aday & Andersen, 1974).

During the 1980's to 1990's, Andersen's model was again revised and the third phase includes both perceived health status and evaluated health status as outcomes of health services. According to this phase three components with a linear relationship were

formed: 1) primary determinants; 2) health behaviors; and 3) health outcomes (Andersen, 1995; David, 2008). The primary determinants are indicated as the direct cause of health behaviors and these determinants include socio-demographic information, health care system and political, physical and economical influences. Health behavior factors include personal health behaviors, life style factors, social motivation and use of health services. The model explains that health behavior determine health outcomes and health behaviors are the direct cause of health outcomes. Perceived health status, health service satisfaction and evaluated health status were included in health outcome factors (Andersen, 1995).

The latest phase of the model focuses on the individual as the unit of analysis and goes beyond the health care utilization. The emphasis of the model is the dynamic and recursive natural of a health services' use model, which includes health outcomes. This model describes the multiple influences on health services' use and subsequently on health status. The difference from its predecessors is by using a feedback loop to illustrate health outcomes (Figure 2.3). The feedback loops show that outcome, in turn, affects subsequent predisposing factors, enabling factors and perceived need for services as well as health behavior (Andersen, 1995).

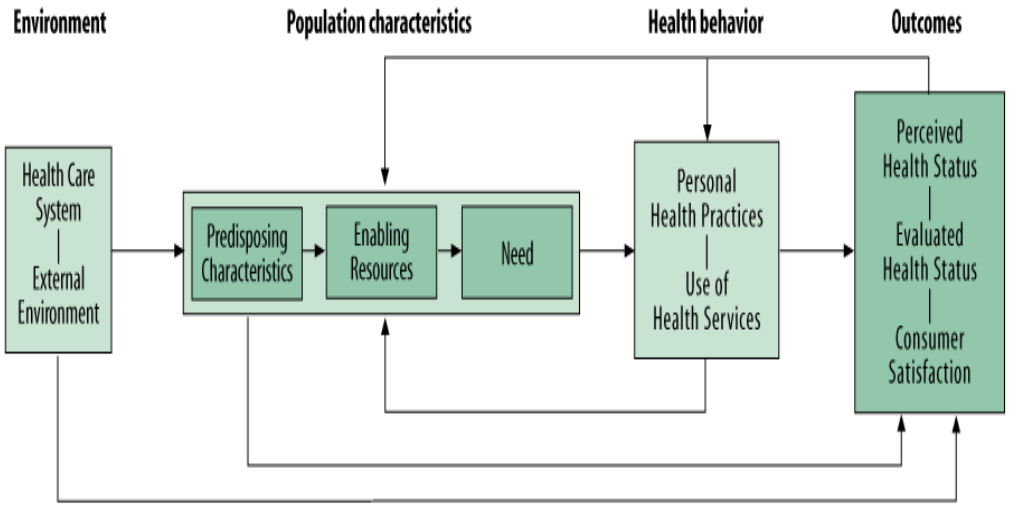
Although the model was modified several times, the basic hypothesis of the behavioral model was unchanged. An individual's access to and use of health services is posits to be function of three factors: predisposing, enabling and need factors (Anderson, 1995). These factors related to individual determinants have received the most research attention.

The predisposing factors include the socio-demographic characteristics (e.g. age, gender, marital status), social structural characteristics (e.g. education, employment

status, social interactions and culture), and health beliefs (e.g. attitudes, values and knowledge of health and health services). These predisposing factors are thought to influence person's propensity to use services. Enabling factors are family or community level characteristics which refer to resources or means that enable or impede individuals to access health service. Examples of enabling factors include income level, health insurance, availability, accessibility and affordability of services. The need factor is the most immediate predictor of health service use. Perceived and evaluated health statuses are included in this factor and these factors are the most important factors in determining whether an individual seeks help (Andersen, 1995).

The Andersen's behavioral model of health service utilization was evaluated as the most frequently used and widely applied frameworks for studying health service utilization (Aday & Andersen, 1998).

Figure 2.3 Andersen's Behavioral Model of Health Service Utilization



Source: Andersen 1995. Journal of Health and Social Behavior.

2.5 Overview of research literature

There are extensive list of factors, such as, age, gender, social and economic roles, knowledge, health service trust, and culture, which influencing both the decision to seek health care and assessment to utilize for prevention and treatment of illness. With better understanding of why people use or do not use health services, the health care organizations can seek to improve the quality of human life. Identifying the factors which prevent the use of health service also will help health care organizations to create effective programs for improving health services and medical contact. In addition, policy makers need to pay attention to the patterns of health seeking behaviors and health service utilization to provide equity of health care service (Aliasghar et al. 2011).

Today, many countries seek to increase the utilization of health services and promote equitable access to health care, both the developing and developed countries. (Babar et al. 2004; Saad, 2004; Andersen & Newman, 2005). In the developed world, there are many studies available regarding the evaluation of health service utilization (Blackwell et al. 2009; Andersen & Newman, 2005). Many studies are conducted to determine and design the most influential factors and models to identify the key variables in connection with health service utilization (Andersen, 1995; David et al.. 2008; LaVela, 2004).

According to the Andersen's Model of health behavior the factors, which influencing health service utilization can be classified as predisposing, enabling and need factors and each group of factors is considered separately. In this dissertation the adapted Andersen's model adds health behavior variables as a factor besides predisposing enabling and need factors, and therefore literature review on the health behavior factor

were also presented in this section.

2.5.1 Predisposing factors

This category is defined as predetermined characteristics of person that influence their decision to seek health services, such as socio-demographic, social structural characteristics and health beliefs.

Gender and age are the most studied determinants of health service utilization. Compared to men, women tend to have more visits to general practitioners (Leaf et al. 1987; Bland et al. 1990). But some studies have shown that women have less direct access to health and social care services and older women are particularly disadvantaged (Raine et al. 2003; Bird, 2002). There are several social-cultural theories explain the gender differences in health service use. For example one of the possible hypothesis is that women are more comfortable than men when talking about their emotion, or better able than men to recognize emotional problems, and thus more likely to seek health services (Kessler et al. 1981). The another hypothesis is that women have more flexibility or less time constrains in their schedules than man, and are therefore more likely to use health services (Marcus & Siegal, 1982). Some studies from developing countries suggest that health service utilization may depend on status of women and gender discrimination. Babar et al., in a study of health seeking behavior and health service utilization in Pakistan suggests that women's autonomy has affected the health service utilization and men decide when and where woman should seek health care in this society (2004).

For about the age, there is also conflicting evidence exists for age as a predictor for health service use. Some studies revealed that the middle-aged people using health services more than those who are younger or older (Leaf, 1987). But other study

shows no relation between age and utilization (Rhodes et al. 2002; Lefebvre et al. 1998).

Besides gender and age, marital status, family size, education status and occupation also associated with health seeking behavior and health service utilization.

In a study undertaken in Ethiopia, married respondents were more likely to utilize the health services than unmarried ones. Also this study revealed that the low and medium socioeconomic groups were 2.6 and 3.5 times more likely to visit health institutions than the high socioeconomic group (Fitsum et al. 2011). But a research conducted in Brazil, has shown that the lowest uneducated people are less likely to use health services (Mendoza-Sassi et al. 2003).

Some studies conducted in post-socialist countries, suggests education has significant relation with health service utilization. For instance, a study in Russia revealed that university education was associated with use of wider range of outpatient medical services (Dubikaytis et al. 2010). A study in Tajikistan, confirms education influence the use of health care utilization (Mieke & Lisa, 2012).

Some studies in developing countries found that the household size has an inverse relationship with the utilization of hospitals, this implies that the larger household size, the less the likelihood of utilization of hospitals (Awoyemi et al. 2011). A study in Philippines, have found that women from large families underutilize various health care services, because of too many demands on their time. They also suggest that larger families cause resource constrains, which have a negative effect on health care utilization (Wong et al. 1987).

2.5.2 Enabling factors

The enabling factors include those that support an individual's decision to seek health

services, such as occupation, income, quality of life and geographic region.

It is well known that increased income has a positive effect on the utilization of modern health care services (Elo, 1992; Fosu, 1994). For instance, a study undertaken in the former Soviet Union indicated that the lack of money was the most important reason for not seeking care (Balabanova et al. 2004). A study of income related inequalities in health service utilization in 19 OECD countries found that rates of doctor visits vary by income level and in most countries for the same level of need, high income people are more likely to visit a doctor than low-income people (Devaux & M de Looper, 2012).

But in Mongolia, use of family health centers and provincial centers has reached 71-82 %, mainly among low-income and rural individuals. Bypassing family health centers is still common among the affluent (WHO & MOH, 2012).

Some studies viewing occupation as proxy to income, which enables acquisition of more and better health care (Fielder, 1981). A study in Canada found that people who were unable to work were more likely to use outpatient health services than those who did not work for pay (Rhodes et al. 2002).

Mechanic and Aiken relieved the effects of various kinds of insurance on the use of services. The found that the better the insurance plan in covering cost of care, the more the recipients used care. They also noted that lack of insurance adversely affected the health of minorities and the urban poor uninsured (1989). Freeman and associates also presented that health insurance had substantial effects on the use of physician services, preventive services, self-reported health status, and mortality condition on injury and disease (Freeman et al. 2008). A study in Argentina found that a lack of health insurance coverage may serve as a large barrier to utilization (Jahangir, 2012).

Residence location is also known to affect the decision to seek care, especially in the developing world. For instance, a study in Tajikistan suggests that region of residence also plays a role. According to this study, living in the more socially conservative regions has a consistent negative impact on using care (Mieke & Lisa, 2012). In a study in Bangladesh found that geographical distance is one of the most important determinants of health care service utilization in rural areas (Rahaman et al. 1982).

In addition, some studies found that the duration of residence associated with the access to health services, especially among the immigrants and refugees (Jeffery, 1998). LeClere et al.. confirmed that increased use of health services with increased duration of residence (1994). But, there are conflicting results also exists and Van der Stuyft et al. showed no association between duration of residence and use of outpatient service (Van der Stuyft, 1982).

Furthermore, in many developing countries, physical accessibility, infrastructure including hospital location, transport availability influence health service utilization (Babar & Juanita, 2004; Awoyemi et al. 2011).

2.5.3 Need factors

According to Andersen, the need factor include perceived and evaluated health statuses and numerous studies reported that poor health status, type of sickness, including poor self-assessed health influence the utilization of health service (Lim et al. 2006; Kim et al. 2003).

Several studies demonstrated a relationship between poor mental health and number of medical visits (Rickert et al. 1996; Rohrer et al. 1999; Rohrer et al. 2000). All of these studies revealed that persons with poor mental health were shown to be high users of health services. Also a study conducted in West Texas, United States revealed

that poor self-assessed mental health to be associated with higher utilization of health care (Rohrer, 2004).

Furthermore some researchers have shown that dissatisfaction with health service leads to a decrease in the utilization of health services (Klaus et al. 1979). The unavailability of doctors and nurses, as well as their negative attitudes and behaviors, are major hindrances to the utilization of public hospitals. The situation is further compounded by lack of drugs, and long travel and waiting times (HEU 2003). It has also been shown that dissatisfaction can have serious ramifications. For example, patients are unlikely to follow treatment regimen, may fail to show up for follow-up care and, in extreme cases, may resort to negative word-of-mouth that can dissuade others from seeking health care services from the system or persuade them to seek it elsewhere, often abroad (Saad, 2007; Nyer, 1999).

In Saudi Arabia, the majority of the interviewees (79.0%) were satisfied with the primary health center services and they preferred always to use the health services provided by the center (Mahfouz et al. 2004).

2.5.4 Health behavior factors

Utilization of health services was found to be affected significantly by life styles and health factors, such as self care, self medication, limited physical activity, and drinking habits (Tim et al. 2004; Quesenberry et al. 1998). For instance, health service usage is much higher among overweight-obese people and/or physically in active people due to the reasons that physically inactivity can lead to cardiovascular diseases, diabetes and higher premature mortality rate (Qusesenberry et al. 1998).

Moreover, a study in Argentina, demonstrated that certain behavioral factors are associated with health service utilization. The most consistent findings were that heavy

drinkers were less likely to have their blood pressure checked, while individuals who consumed fruits or vegetables regularly had their blood pressure measured more frequently. These associations, while complex and multifactorial, may be due to the value system and beliefs placed on participant's individual health as opposed to an issue of access (Jahangir et al. 2012).

Some studies suggest that self medication influence health service utilization, especially among the societies with histories of traditional healing (Fosu, 1989; James et al. 2006). For example, the literature on health seeking behavior and health care utilization in Vietnam conclude that the level of health service utilization is decreases because of at poor quality, limited availability of the public sector and increasing use of private providers and self-medication (Cameron et al. 2009).

Furthermore, another study in Kenya, found that although the services may be accessible and available, the local health service may not be always used due to lack of information (Benter, 2001).

Although lifestyles have been related to health service utilization (Østbye et al., 2001), we have found very few studies linking life styles and health behavior, such as smoking and alcohol consumption, physical and social activity, and health prevention, especially among the citizens of the post-socialist countries.

2.6 Summary

Health status and health service utilization varies depending upon social, economical, cultural, demographic and geographic situations (Balabanova et al. 2004). It is therefore possible that the results may be different to countries with different socio-cultural characteristics or organization of their health services. In addition to my knowledge, no study has examined the factors related to health service utilization

among the local residents in Mongolia.

In order to increase the levels of health service utilization and improve services offered by the health professionals, it is imperative that the professionals have knowledge of the factors that influence the local residents to seek the services. Therefore, the objective of the study is to develop a statistical model which best predicts the utilization of health services among the local residents of Ulaanbaatar city, Mongolia. In addition, the literature review suggests that the predisposing, enabling and need factors, as well as the health behavior factors are certainly worth examining in the present study. Also, the relationship between the factors and health service use may differ for different groups in society.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The data used for this study were collected by qualitative and quantitative studies. Prior to outlining the specifics of the study a brief overview of the survey development, data collection, data entering and cleaning, study variables, data analysis and the way of integrating quantitative and qualitative data are presented.

3.2 Study Model

In order to explore the patterns of health service utilization among the urban and suburban residents, the quantitative and qualitative studies are based on Andersen's Model of health service utilization. In order to take health behavior factors into account, the study modifies the Andersen's model by adding variables related to health behavior as a factor besides predisposing, enabling and need factors.

The predisposing factors include socio demographic factors, such as age, gender, marital status, education and household size. The enabling factors include quality of life, employment, health insurance, residence location and duration status. The need factors include self assessed health and items about satisfaction.

The health behavior factors include mainly about life style factors, such as physical activity, smoking and drinking habits, medication, information accessibility, periodical health exams and motivation to participate community action. The conceptual model proposed in this dissertation is graphically presented in figure 3.1

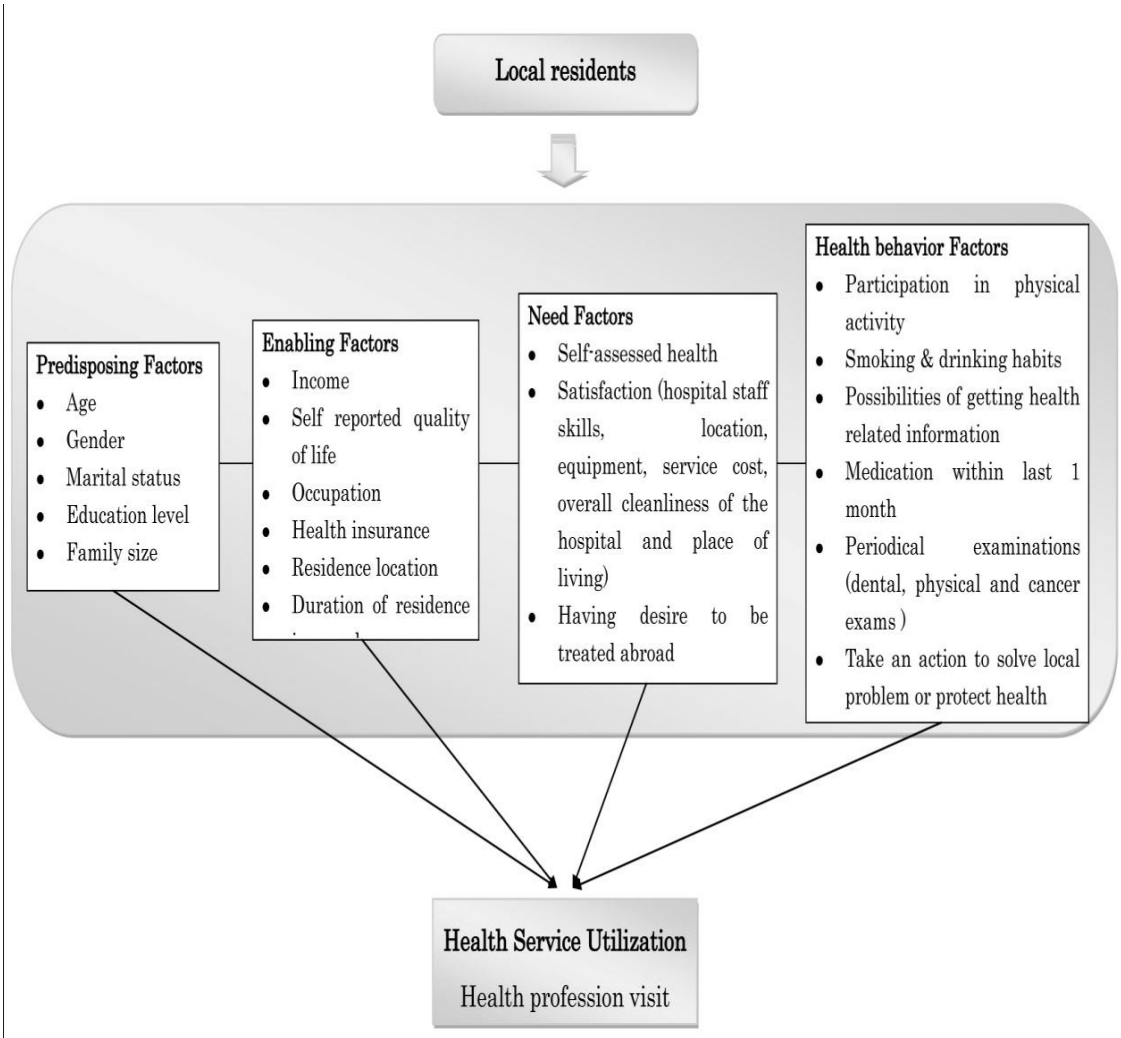
3.3 Quantitative Methods

3.3.1 Study area and study sampling

A community based cross-sectional study was conducted among the urban and sub-urban residents in Ulaanbaatar, the capital city of Mongolia. According to the

statistics of 2012, there are 1,206, 610 people, 45.8% of all resident population of the country, live in the city and 571,192 of them are male while 635,418 of them are female. 67.2 % of the total population of the city is aged at 16 - 59 year old and only 6.2 % are at age of 60 year old and over. For about the residence location, 60 % of Ulaanbaatar's total population live in *ger* district (sub-urban area) and reaming 40 % of them live in residential areas with apartment blocks connected with centralized sub-structure. As of 2012, 40.4 % of Mongolian total families live in Ulaanbaatar city and average number of members of each family is 3.9 (Bayanchimeg et al. 2012).

Figure 3.1 The Adapted Andersen's Model



Due to household social and economic survey conducted in 2011, around 23.5 % of population of the city live below the poverty line and the unemployment rate of the country is 15.3 % (NSO, 2012b). Among population aged 15 and above, 31.3 % are single (never married), 60.1% percent are married, and 8.6 % are divorced or widowed. Among population aged 10 and above, percentage of people with at least primary education (4 years education) is 92.5 % (NSO, 2010).

A multistage sampling technique was used to attempt to representative of the city population. Before choosing clusters, districts were divided into 3 categories based on the household number and density (Table 3.1): 1. Bayangol, Songinokhairhan and Bayanzurkh; 2. Khan-Uul, Chingeltei and Sukhbaatar; 3. Nalaikh, Baganuur and Bagakhangai. Then three districts (Songinokhairkhan, Khan-Uul and Nalaikh) were selected by lottery out of the categories respectively. Then, based on the geographical

Table 3.1 Household number and density in Ulaanbaatar city

	Household number	**Density/Km2**
Mongolia.	713.8	1.7
Ulaanbaatar city	234.8	246.8
Baganuur	6.5	25.9
Bagakhangai	0.9	3.7
Byangol	35.5	169.3
Bayanzurkh	51.9	235.2
Chingeltei*	29.3	140.0
Khan-Uul*	23.2	98.8
Nalaikh*	7.5	29.1
Songinikhairhan	50.0	232.3
Sukhbaatar	30.1	133.1

** selected study districts*

Source: NSO 2011,

areas and probability proportional, a total of 9 sub districts (3 from each of the selected districts) were included in the study. Next, a total of 9 *baghs* (the least administrative

division) were selected in the study randomly. At last, based on the list of households from the selected *baghs*, a total of 500 households were selected by lottery to make a final sample. Within the household Kish Grid, which provides equal probability, were used for selecting respondents (Renata, 2003). Kish Grid is a table of numbers, named after the statistician who invented it. The number of people in the household is discovered, and a random number is chosen to select an appropriate person. We used the following instructions for using the Kish Grid. First, after introducing his/herself, the interviewer should find out how many living in the household are eligible to be participated in the survey. Next, the family members are numbered in order of decreasing age. Then the interviewer consulted the selection table, because the table tells the number of adults to be interviewed (table 3.2). For example, there are six adults in the household 2 and the selection table tells to select adult number 2 (shown in bold type).

Table 3.2 Kish table

№	Өрхийн дугаар							
	1	2	3	4	5	6	7	8
1	1	1	1	1	1	1	1	1
2	1	2	1	2	1	2	1	2
3	1	2	3	1	2	3	1	2
4	1	2	3	4	1	2	3	4
5	1	2	3	4	5	3	4	5
6	1	**2**	3	4	5	6	3	6
7	1	2	3	4	5	6	7	4
8	1	2	3	4	5	6	7	8
9	1	2	3	4	5	6	7	8
10 ≦	1	2	3	4	5	6	7	8

The sampling households were visited by trained social work students from August 20 to September 10, 2009 and the sampling respondents reflect major Mongolian

cultural and social groups and the target population. The data collectors were responsible for selecting respondents and clarify misunderstandings. The previously pre-tested self administered paper based questionnaires (Appendix 1) were used and individuals aged 18 and over, who can make their own decisions concerning their health care, were drawn.

3.3.2 Sample size determination

Sample size of the study was determined by using the following statistical formula.

$$n = \frac{z^2\, p\,(1-p)}{d^2}$$

Where, n = minimum sample size required in study setting

z = standard normal deviation or z-score

p = proportion of samples

d = the acceptable error level

Where, z = 1.96 at 95 % confidence interval.

p = as there are no data presently available from the previous studies, it was assumed at 0.5

d = degree of accuracy desired setting at 6.5% (0.065).

Applying the formula, the sample size required as below:

$$n = \frac{1.96^2\,(0.5)\,(1-0.5)}{0.065^2} = 228$$

That's, the sample required at this study is 228. A design effect of 2 was taken making the sample size 456. When 10 % for missing was taken into consideration, the sample size required approximately 500 respondents.

3.3.3 Measures

Dependent variables

The dependent variable was based on the single question asking about the number of times within past 12 months, a participant had seen or talked with a medical doctor or health professional regarding their health issue. The participants were given a choice of two answer options: 1) number of visits, 2) had not seen medical professional. For the present analysis, a dichotomous outcome was used and coded as: 1) had used health services and 2) had not used health services.

The dependent variable was concerned with the use of services rather than the intensive of care, so the number of the visits to health services did not included in analyses. Moreover, the dependent variable did not include visits to dentist or psychotherapist, as well as the periodical physical or cancer exams.

Independent variables

Independent variables were selected based on the conceptual model of the study. In total 28 independent variables were considered and all the variables were dichotomized into two categories for analyses (Table 3.3).

Predisposing factors

The predisposing factors include age, gender, marital status, education, occupation, and family size. Age was operationalized with two categorical dichotomous variables, (18-50 years old and 51 years old and over), because of the participants' age range, life expectancy rate and the culture. Mongolia is considered a country with young population with a median age of 25.4 years (UN Data, 2011). The life expectancy at birth is 68 for both sexes (NSO, 2010b) and 50 is considered as older age among the Mongolians. Gender was represented as a dichotomous variable where male is one

and female is two. For about education, the variable was also operationalized in two categories with higher educated (10 and more years) as one and lower educated (1-9 years) as two. In Mongolia, the adult literacy rate is 97.3 percent and also the primary (88.7 %) and secondary school enrolment (82 %) is high (UNDP, 2011).

In addition, there were no differences between the groups of elementary and secondary education, then the variables were combined into a category of lower educated in the present study. Based on the average family size (3.6 persons by 2010), household size was operationalized with a dichotomous variables as following: 1) one to four family members 2) five and more family members. Household size may be an appropriate measure for social networks and the decision making, especially in developing countries, where families are m ore aggregated into extended families.

Enabling factors

The enabling factors include income, self assessed quality of life, health insurance, residence location and duration of residence in one area.

Participants' self reported income was also classified into two groups, with reference to the minimum subsistence level for Mongolian situation (NSO, 2012 a). The participants with income lower than the minimum subsistence level, which are approximately 90 USD per month, are considered as poor and coded as two in this study.

For about the quality of life, the variable was regrouped into two variables: good and poor. Occupation was also categorized into two groups. Pensioners and students were combined into unemployed group, because the salaried employees may have less personal time and have more network than the students, pensioners and the unemployed. Health insurance was categorized as insured or uninsured. Residence

location indicates where the persons live in, urban or suburban areas. Duration of the residence was regrouped as following: 1) one to three years and 2) four and more years.

Need factors

The need factors include self –assessed health status, satisfaction with hospital staff skills, health service cost, hospital location, hospital equipment, hospital cleanliness, satisfaction with place of living and desire to be treated abroad.

Self-assessed health status was measured through a single question that asks the respondents to rate his or her health as excellent, very good, fair or poor. For the analysis, the variable of self assessed health is regrouped as good or poor.

All the variables related to satisfaction were categorized as if the respondents was satisfied (with the hospital staff skills, hospital location, hospital equipment, health service, treatment cost, hospital overall cleanliness, and place of living) or not satisfied. In addition, the respondents were asked whether he or she prefer to get medical treatment abroad or not were used as a need factors.

Health behavior factors

The health behavior factors included smoking and drinking habits, participation in physical activity, motivation to take an action to solve local problems or protect their health, possibilities of getting health related information, medication within last 1 month, and periodical dental, physical, and cancer examinations.

For about smoking and drinking habits, both measures were coded as used or not used. Persons, who participated in physical activities within past 30 days were given a one value, and those had not participating any physical activities were given a two value. The same dichotomous logic was used for measuring whether the participants

take an action to improve local problems or protect their health.

Utilization can be also viewed as measures of the possibilities of getting health related information and medication. The participants who can get health related information were valued as one, the others who cannot get health information were valued as two. The respondents who use medication during past 30 days were coded as two and the other respondents as one. Periodical dental, physical and cancer exams also included in health behavior factors. Those who reported having periodical exams were valued as one, the other respondents as two.

Confounding factor

For stratified analysis, the variable of 'preferability to get medical treatment abroad or not' is used as our stratification variable and the study respondents were partitioned into two groups: (1) prefer to get medical treatment abroad and (2) not prefer to get medical treatment abroad.

Today many Mongolians go abroad for medical treatment for better quality of medical care. Patient dissatisfaction, misdiagnoses and late diagnoses, increased waiting hours leads to negative incentive and weaken the confidence of people in medical services (Enkhjargal B, 2006).

In addition, treatment in abroad usually depends upon living conditions and family income. In Mongolia, those who are affluent seek advanced care abroad, commonly in China and Korea (WHO, 2011b). Moreover, the outflow of resources to abroad affects negatively the economy as well as treats households living conditions and more often leads to their impoverishment (Enkhjargal B, 2006).

Therefore, the study analyses is used whether the respondents prefer to get medical treatment abroad or not for stratification to increase the study precision.

3.3.4 Data analysis

The statistical analyses were performed using by data analysis software, the Statistical Analysis System (SAS 9.1).

Multiple logistic regression analyses were used to determine the reasonable models for describing the relationship between health service use among the Ulaanbaatar city residents and the independent variables described and the data analyzing process is involved the following steps:

First, descriptive statistics of socio-demographic variable are produced. Next, the cut points for dependent and independent variables were defined (Table 3.3) and χ^2 statistics was used to test for differences between characteristics. Independent variable with p-values of < 0.05 was considered as significant. Moreover, Spearman correlations were used to compare and estimate correlations between variables.

Then, the multiple logistic regression analyses, stratified and unsratified, were conducted by simultaneously entering the independent variables, which met statistical significance in χ^2 test and Spearman's correlation coefficient. In addition, study hypotheses and variables measured in prior studies were taken into consideration, when selecting variables into multiple logistic regression.

The result of stratified multiple logistic regression analyses were the main effects of the quantitative study. Odds ratios and their 95% confidence intervals were calculated. Test of interactions and collinearity were also undertaken. The missing data is excluded from the analyses.

Table 3.3 Decsription of variables used in dissertation

Variables	Questionarie item	Answer categories	Dichotomoused scale
Dependent variable			
Health service use of participants	During the last 12 months, including all types of the visits, how many times did you see or talk to a medical doctor or a health professional	1. Number of visits 2. Did not see a medical doctor or health proffesion during past 12 months	1. Had used health service 2. Had not used health services
Confounding variables			
Prefer to get medical treatment abroad	Do you agree that it is much better to be treated abroad?	1. Yes 2. No	1. No (2) 2. Yes (1)
Independent variables			
Predisposing factors			
Age	What is yiour age?	Number of age	1. 18-50 years 2. Sixty years and more
Gender	What gender are you?	1. Male 2. Female	1. Male 2. Female
Marital status	Are you married	1 Married 2. Not married	1 Married 2. Not married
Education level	What is your Education?	1. Elementary 2. Secondary 3. High school education 4. Vocational education 5. High education 6. High education with degree	1. Higher educated (3,4,5,6) 2. Lower educated (1,2)
Occupation	Are you employed?	1. Employed 2. Unemplyed 3. Student 4.Pensioner	1. Employed (1) 2. Unemplyed (2,3,4)
Family zise	How many live in your household?	Number of persons in family	1. 1 -4 persons 2. 5 and more persons
Enabling factors			
Income	What is your monthly income?	Number of monthly income	1. Not poor 2. Poor (less than 90 USD per month)
Self-assessed quality of life	How would you rate your quality of life?	1. Very poor 2. Poor 3. Neither good nor poor 4. Good 5. Very good.	1. Good (4,5) 2. Poor (1,2,3)
Health insurance	Do you have health insurance?	1. Yes 2. No	1. Yes 2. No
Residnce location	Do you live in *ger* or appartment?	1.Urban 2. Sub urban	1.Urban 2. Sub urban
Duration of residence in one area	How long have you lived in this area?	Number of years living in the present location	1. 4 and more years 2. 1-3 years

Table 3.3 Decsription of variables used in dissertation (Cont)

Variables	Questionarie item	Answer categories	Dichotomoused scale
Independent variable			
Need factors			
Self-assessed health	How is your health in general?	1. Very good 2. Good 3. Fair 4. Bad 5. Very bad	1. Good (1,2) 2. Poor (3,4,5)
Satisfaction with hospital staff skiils	How satisfied are you with the skill and competency of the staff of the hospital?	1. Very satisfied 2. Somewhat satisfied 3. Neutral 4. Somewhat dissatisfied 5. Very dissatisfied 6. Not sure	1. Satisfied (1,2) 2. Not satisfied (3,4,5,6)
Satisfaction with hospital location	Convenience fo hospital or family practices to you?	1. Satisfied 2. Dissatisfied 3. Not sure	1. Satisfied (1) 2. Not satisfied (2,3)
Satisfaction with hospital equipment	Does the hospital or family practice have equipment for modern diagnoses and treatment?	1. Yes 2. No 3. Not sure	1. Satisfied (1) 2. Not satisfied (2,3)
Satisfaction with hospital cleanliness	How satisfies are you with the overall cleanliness of the hospital?	1. Very satisfied 2. Somewhat satisfied 3. Neutral 4. Somewhat dissatisfied 5. Very dissatisfied 6. Not sure	1. Satisfied (1,2) 2. Not satisfied (3,4,5,6)
Satisfaction with place of living	How satisfied are you with this area as a place to live?	1. Very satisfied 2. Somewhat satisfied 3. Neutral 4. Somewhat dissatisfied 5. Very dissatisfied	1. Satisfied (1,2) 2. Not satisfied (3,4,5)
Health service cost	Health service cost to you?	1. Very expensive 2. Expensive 3. It's OK 4. Cheap 5. Not sure 6. Do not pay, because of having health insurance	1. Expensive (1,2) 2. Not expensive (3,4,5,6)

Table 3.3 Decsription of variables used in dissertation (Cont)

Variables	Questionarie item	Answer categories	Dichotomoused scale
Independent variable			
Health behaviour factors			
Smoking habits	Do you smoke?	1. Yes 2. Had stopped smoking 3. No	1. Not smoke (2,3) 2. Smoke (1)
Drinking habits	How often do you drink?	1. Almost every day 2. Sometimes 3. No	1. Not drink (2,3) 2. Drink (1)
Participation in physical activity	Did you participate in any physical activities during the past 30 days?	1. Yes 2. No	1. Yes (1) 2. No (2)
Take an action to solve local problems in the past 12 months	Have you taken any action in an attempt to improve situations and solve local problem or protect your/others health?	1. Yes 2. No	1. Yes (1) 2. No (2)
Possibilities of getting health related information	Can you get the useful information about the health and health services?	1. Yes 2. No	1. Yes (1) 2. No (2)
Medication within last 1 month	Within the last 30 days, have you taken any medicine or pills?	1. Yes 2. No	1. No (2) 2. Yes (1)
Periodical dental examination	Do you have dental eaxmination periodically?	1. Yes 2. No	1. Yes (1) 2. No (2)
Periodical physical examination	Do you have physical eaxmination periodically?	1. Yes 2. No	1. Yes (1) 2. No (2)
Periodical cancer examination	Do you have cancer eaxmination periodically?	1. Yes 2. No	1. Yes (1) 2. No (2)

3.4 Qualitative Methods

3.4.1 Data collection

Focus group interview (FGI) was chosen as the tool for data collection. It aimed to explore the thoughts, attitudes and ideas of participants and improve understanding of the barriers of health service utilization among the sub-urban residents of Ulaanbaatar city, Mongolia. The participants were purposely selected based on the convenience sampling method to enrich the nature of information gathered.

A total of 11 family group practitioners and 15 local residents, who live in and work for sub urban *ger* districts, were participated in 4 focus group interviews. Each focus group interviews was conducted using the following structure: a) the focus group facilitator was introduced, b) the interviewees were told the purpose of the interviews and topics of the interviews, c) the participants were informed about the audio and video recorder and permission to be recorded was requested, d) the participants were requested the verbal assent to participate. The family group Interviews took place at the selected family group practice clinics and the nearest school. Mongolian was the language used in all sections the interviews and each focus group interview lasted approximately 95 minutes.

Through the semi-structured, open- ended questions (Appendix 2), the study was able to engage the interviewees into free discussion. The study questions were selected in relation to the research objectives and the contents of the interviews were presented in Table 3.4.

3.4.2 Study site and subjects

Ger districts of Ulaanbaatar city, Mongolia was chosen as the research site. An estimate suggests that out of 273 thousand household living in Ulaanbaatar in 2010,

the number of households living in *ger* districts is approximately 168 thousand households (UNDP, 2011). *Ger* is the traditional dwellings, well adapted to the nomadic life of Mongolian herders, and consists of wooden frame work and felt cover. Most *Gers* make a living area of $28m^2$. A large percentage of those who migrate to towns and cities settle in *Ger* districts. The *Ger* districts are long strips of fenced in, unserviced housing plots that surround the city (photo 3.1). There are wide disparities between residents of *gers* and apartment residents. *Ger* districts are lack modern infrastructure services, such as piped water, sanitation, proper roads, and public transportation. Also in *ger* district areas household incomes are 43% lower than those in urban households (Kamata etal. 2010).

Table 3.4

Focus groups	Contents of the interview
Community groups	• Living conditions, • Life styles and health behavior, • Health service satisfaction • Local and Cultural factors influencing health service use
Family group practioners	• Working conditions and local problems, • Health behavior of local communities, • Local and cultural factors influencing health service use

3.4.3 Data management and Analysis

The interviews were transcribed the same day as they had been conducted and the data was analyzed according to the methods of qualitative data analysis.

There are some approaches available to analyze qualitative data in researching human behaviors, feelings and attitudes. For instance, Draper (2004) has provided theoretical and philosophical bases for qualitative analyses. Fade (2004) has described interpretative phenomenology analysis as a method of analyzing qualitative data.

Photo 3.1 Ger districts in Ulaanbaatar city.

But, we found Krueger's framework analysis (Kruger and Casey, 2000) to be the appropriate to our analysis with the following advantages. One of the advantages of this approach is that it provides a clear series of stages, which could help to manage the large amount and complex nature of qualitative data much more easily (Rabiee, 2004). In addition the Kruger's approaches are easily accessible to both researchers and students, and that it is one of the most useful starting points for analyzing focus group interviews. Kruger and Casey point out that focus group analysis should be systematic, sequential, verifiable and continuous (Kruger &Casey, 2000). This provides a trail of evidence, as well as increasing the extent of dependability, consistency and conformability of the data (Lincoln & Guba, 1989). It also considered as an important issues for assessing the quality of qualitative data (Secker et al. 1995).

Moreover the Kruger and Casey advocate the use of either a long table or a computer based approach for analyses. It is possible to analyze (for cutting, pasting, sorting, arranging and rearranging data through comparing and contrasting relevant information) the transcript using word processing program such as Microsoft Word (Rabiee, 2004).

The process of data analysis begins during the data collection. All the interviews

were facilitated by myself and the audio taped FGIs were transcribed in full text.

The next step was the familiarization, which include the processes of listening to tapes, reading and re-reading of the transcripts and notes to extract important statements from the description. The next stage, the author had scrutinized the transcribed interviews line-by-line and labeled ideas of common concepts in the margins according to the contents of the interviews, as showed in Table 3.4. Next, the quotes were cut from the transcript and placed alongside the contents it represents. Then the quotes were analyzed and reviewed within the contents. Once this was completed, the derived themes from the data were summarized and for the final report, the themes were explained in the separate section.

At the last stage of the analysis, the response across the four focus group interviews were reviewed and combined, to enhance the trustworthiness and increase the credibility of the study.

3.5 The way of integrating quantitative and qualitative data

In order to seek to gain a more comprehensive understanding of health service utilization among the Ulaanbaatar city residents, both quantitative and qualitative methods were used. Quantitative approach were the main part of the study about health service utilization, and qualitative approaches are used to get deeper insights into local residents and family group practitioners' perceptions and attitudes in relation to the study objects. For integrating quantitative and qualitative data, the process of triangulation, where results from different methods are used to enhance the validity of the findings, was used (Denzin, 1978; Mayring, 2001). Triangulation was used to corroborate the findings across the methods. The findings from quantitative method were used to elaborate on the findings from qualitative method.

CHAPTER 4: QUANTITATIVE STUDY RESULTS AND DISCUSSIONS

The chapter begins with a demographic profile of study participants, followed by a summary of the study's main results and study discussions.

4.1 Results

4.1.1 Participant characteristics

The sample consists of 500 local residents in Ulaanbaatar city and from those 35 participants were excluded due to missing information, resulting in a final sample of 465 respondents (Table 4.1). The respondents were the adult respondents included 185 male (39.8%) and 280 female (60.2%). The respondents ranged in age of 18-83 and having a mean age of 37.0 years. 44.1 % of all respondents visited physicians for general health checkup during the past 12 months.

Findings related to health service utilization

The objective of the quantitative study was to examine what predisposing factors, enabling factors, need factors and health behaviors are associated with health service utilization. The objective was fulfilled using the chi-squire test and Multiple Logistic Regression analysis.

A total of 28 variables were initially defined as potential predictors of health service use (predisposing factor-6, Enabling factor-5, Need factor-8, and health behavior factor-9) and from those, 17 (predisposing factor -4, Enabling factor-3, Need factor- 6, and health behavior factor-4) met the specified criteria and were selected for the multiple analysis.

Table 4.1 Socio-demographic profile and health service use of participants

Variable	N (%)
Times in past 12 months seen/talked to health proffesional/medical doctor (dependent variable)	
1 or more times	205 (44.1)
0 times	260 (55.9)
Gender	
Male	185 (39.8)
Female	280 (60.2)
Age	
18-50 years	391 (84.1)
51 and more years	74 (15.9)
Marital status	
Married	319 (68.6)
Not married	146 (31.4)
Education	
Elementary	6 (1.3)
Secondary	49 (10.5)
High school education	209 (45.0)
Vocational education	36 (7.7)
High education	150 (32.3)
High education with degree	15 (3.2)
Occupation	
Employed	251 (54.0)
Unemployed	91 (19.6)
Student	67 (14.4)
Pensioner	56 (12.0)

4.1.2 Bivariate Analysis and Selection of variables for Multiple Analysis

According to the chi-square test, there were some significant relationships between predisposing factors and health service utilization, except education and employment (Table 4.2). It could be seen that male (p=0.027), younger participants (p=0.001), unmarried people (p=0.001) and individuals who have less than 5 family members (p=0.010) were less likely to use health services than their counterparts.

Table 4.2 Predisposing factors and health service use of participants (χ 2 test)

Predisposing factors	Used health services during the past 12 months			
	N	Users	Non-Users	p
Age				
18-50 years	391(84.1)	159(40.7)	232(59.3)	0.001
51 and more years	74(15.9)	46(62.2)	28(37.8)	
Gender				
Male	185(39.8)	70(37.8)	115(62.2)	0.027
Female	280(60.2)	135(48.2)	145(51.8)	
Marital status				
Married	319(68.6)	159(49.8)	160(50.2)	0.001
Not married	146(31.4)	46(31.5)	100(68.5)	
Education level				
Higher educated	410(88.2)	180(43.9)	230(56.1)	0.828
Lower educated	55(11.8)	25(45.5)	30(54.5)	
Occupation				
Employed	374(80.4)	159(42.5)	215(57.5)	0.166
Unemployed	91(19.6)	46(50.5)	45(49.5)	
Family zise				
1-4 members	277(59.6)	107(38.6)	170(61.4)	0.010
5 and more members	188(40.4)	98(52.1)	90(47.9)	

Note: Values as expressed as number (%)

For about the enabling factors (Table 4.3), individuals who are poor (p=0.034), having health insurance (p=0.034), and living in one place more than 4 years (p=0.034) were more likely to use health services than their counterparts. The variables of residents' location and self assessed quality of life were not statistically significant. Duration of residence was borderline statistically significant.

Table 4.3 Enabling factors and health service use of participants (χ 2 test)

Enabling factors	Used health services during the past 12 months			
	N	Users	Non-Users	p
Income				
Not poor	170(36.6)	64(37.6)	106(62.4)	0.034
Poor	295(63.4)	141(47.8)	154 (52.2)	
Self-assessed quality of life				
Good	404(86.9)	176(43.6)	228(56.4)	0.559
Poor	61(13.1)	29(47.5)	32(52.5)	
Health insurance				
Have	318(68.4)	156(49.1)	162(50.9)	0.002
Not have	147(31.6)	49(33.3)	98 (66.7)	
Residnce location				
Downtown	174(37.4)	79(45.4)	95(54.6)	0.658
Suburban	291(62.6)	126(43.3)	165 (56.7)	
Duration of residence in one area				
4 years and more	323(69.5)	152(47.1)	171 (52.9)	0.052
1-3 years	142(30.5)	53(37.3)	89(62.7)	

Note: Values as expressed as number (%)

Table 4.4 shows the relationship between need factors and health service utilization. In regard to need factors, satisfaction with the place of living and health service cost do not have direct effects on health service utilization. The reasons for seeking health service were related to health service satisfactions. The individuals, who satisfied with hospital equipment (p=<0.001), staff skills (p=0.002), hospital location (p=0.005) and hospital cleanliness (p=0.001) were more likely to use health services more than their counterparts. Also the respondents, who agreed that treating abroad is better than treating in domestic, were used more health services compared with their counterparts (p=0.004). In terms of self-assessed health, the respondents who assessed poor health status met physicians more than their counterparts (p=0.002).

Table 4.4 Need factors and health service use of participants (χ 2 test)

Need factors	Used health services during the past 12 months			
	N	Users	Non-Users	p
Self-assessed health				
Good	249(53.6)	93(37.4)	156(62.6)	0.002
Poor	216(46.4)	112(51.8)	104 (48.2)	
Satisfaction with hospital staff skills				
Satisfied	173(37.2)	92(53.2)	81(46.8)	0.002
Not satisfied	292(62.8)	113(38.7)	179 (61.3)	
Satisfaction with hospital location				
Satisfied	182(39.1)	95(52.2)	87(47.8)	0.005
Not satisfied	283(60.9)	110(38.9)	173 (61.1)	
Satisfaction with hospital equipment				
Satisfied	72(15.5)	47(65.3)	25(34.7)	<0.001
Not satisfied	393(84.5)	158(40.2)	235(59.8)	
Satisfaction with hospital cleanliness				
Satisfied	205(44.1)	108(52.7)	97(47.3)	0.001
Not satisfied	260(55.9)	97(37.3)	163(62.7)	
Satisfaction with place of living				
Satisfied	254(54.6)	121(47.6)	133(52.4)	0.090
Not satisfied	211(45.4)	84(39.8)	127(60.2)	
Health service cost				
Expensive	214(46.0)	95(44.4)	119(55.6)	0.902
Not expensive	251(54.0)	110(43.8)	141 (56.2)	
Prefer to be get medical treatment abroad				
No	165(35.5)	58(35.2)	107(64.8)	0.004
Yes	300(64.5)	147(49.0)	153(51.0)	

Note: Values as expressed as number (%)

With regard to health behavior factors (Table 4.5), use of hospital service is decreased among the smokers (p=0.009), people who use medication during last 1 month (p=<0.001) compared to non smokers and the people who not use medication during past 1 month. The health services were utilized more by the respondents who have periodical dental (p=<0.001) or physical examinations (p=<0.001) than their counterparts.

Table 4.5 Health behaviour factors and health service use of participants (χ 2 test)

Health behaviour factors	Used health services during the past 12 months			
	N	Users	Non-Users	p
Smoking habits				
Not smoking	327(70.3)	157(48.0)	170(52.0)	0.009
Smoking	138(29.7)	48(34.8)	90(65.2)	
Drinking habits				
Not drink	447(96.1)	199(44.5)	248(55.5)	0.349
Drink	18(3.9)	6(33.3)	12(66.7)	
Participation in physical activity past 30 days				
Participated	138(29.7)	63(45.6)	75(54.4)	0.659
Not participated	327(70.3)	142(43.4)	185(56.6)	
Take an action to solve local problems in the past 12 months				
Yes	185(39.8)	91(49.2)	94(50.8)	0.071
Not participated	280(60.2)	114(40.7)	166(59.3)	
Possibilities of getting health related information				
Can get informatiion	274(58.9)	126(46.0)	148(54.0)	0.323
Can not get information	191(41.1)	79(41.4)	112(58.6)	
Medication within last 1 month				
No	223(48.0)	134(60.1)	89(39.9)	<0.001
Yes	242(52.0)	71(29.3)	171(70.7)	
Periodical dental examination				
Yes	256(55.0)	125(48.8)	131(51.2)	0.023
No	209(45.0)	80(38.3)	129(61.7)	
Periodical physical examination				
Yes	255(54.8)	145(56.9)	110(43.1)	<0.001
No	210(45.2)	60(28.6)	150(71.4)	
Periodical cancer examination				
Yes	102(21.9)	51(50.0)	51(50.0)	0.173
No	363(78.1)	154(42.4)	209(57.6)	

Note: Values as expressed as number (%)

As shown in Table 4.6, in regard to health behavior factors, health service utilization was significantly associated with using medication (r= - 0.31), and having periodical physical examination (r= 0.28). The Spearman's correlation analysis also has shown

that there were correlations between the independent variables. For example, age is significantly correlated with employment (r= 0.40), having good self assessed health (r= 0.27) and non-marriage (r = -0.27) were significantly correlated with age. Moreover, the analysis has found that smoking (r= -0.43) were correlated with gender. Unemployment (r= -0.38), and having poor income (r= -0.29) were significantly correlated with education. There were weak correlation between good self assessed health and not using medication within last one month (r= 0.32).

In addition satisfaction with hospital equipment (r= 0.30), satisfaction with hospital cleanliness (r= 0.35) were correlated with satisfaction with hospital staff skills. There were some correlation between periodical examinations, such as periodical physical examination (r= 0.41), periodical cancer examination (r= 0.27) were correlated with periodical dental examination. There were also a weak correlation between periodical cancer examination (r= 0.37) and periodical physical examination.

4.1.3 Assessing Multicollinearity and Goodness of Fit

In order to access multicollinearity, the Variance Inflation Factor (VIF) and Tolerance levels were examined. VIF values were slightly above 1 and tolerance levels were slightly below 1, indicating that multicollinearity was not an issue in this model.

Hosmer-Lemeshow Goodness of Fit test were also indicated that the unstratified models fits with p-value of 0. 716 (χ^2 = 5.39. df = 8), and stratified models fits with p-value of 0. 504 (χ^2 = 7.31. df = 8) and p-value of 0. 669 (χ^2 = 5.81. df = 8) respectively.

Table 4.6 Correlation between variables (Spearman's correlation coefficient)

Items	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1 Health service use	1																												
2 Age	**-0.16**[b]	1																											
3 Gender	**-0.10**[a]	-0.04	1																										
4 Marital status	**0.17**[b]	**-0.27**[b+]	-0.04	1																									
5 Education level	-0.02	**-0.15**[b]	0.04	-0.05	1																								
6 Occupation	-0.06	**0.40**[b+]	-0.04	**0.18**[b]	**-0.38**[b+]	1																							
7 Family size	**-0.13**[a]	0.08	-0.01	-0.02	**-0.10**[a]	**0.10**[a]	1																						
8 Income	**-0.10**[a]	0.09	-0.02	**0.09**[a]	**-0.29**[b+]	**0.19**[b]	-0.04	1																					
9 Self-assessed quality of life	-0.03	**0.09**[a]	0.03	-0.06	-0.08	0.06	0.03	**0.12**[a]	1																				
10 Health insurance	**0.16**[b]	**-0.15**[b]	-0.04	**0.11**[a]	**-0.13**[a]	0.06	-0.02	0.06	0.05	1																			
11 Residence location	0.02	0.02	-0.01	0.02	**-0.24**[b]	-0.02	0.03	**0.16**[b]	0.05	**0.19**[b]	1																		
12 Duration of residence in one area	0.09	**-0.16**[b]	0.05	0.07	0.08	**-0.12**[a]	**-0.09**[a]	0.02	0.09	0.06	-0.07	1																	
13 Self-assessed health	**-0.15**[b]	**0.27**[b+]	**0.16**[b]	**-0.13**[a]	-0.07	**0.10**[a]	0.06	0.02	0.05	-0.02	0.05	**-0.15**[b]	1																
14 Satisfaction with hospital staff skills	**0.14**[a]	**-0.19**[b]	-0.02	**0.13**[a]	0.02	-0.03	-0.05	0.02	0.02	**0.15**[b]	0.04	-0.01	0.02	1															
15 Satisfaction with hospital location	**0.13**[a]	-0.07	-0.03	0.05	0.04	-0.03	**-0.09**[a]	0.04	**0.12**[a]	0.06	**-0.11**[a]	**0.19**[b]	-0.07	**0.11**[a]	1														
16 Satisfaction with hospital equipment	**0.18**[b]	**-0.11**[a]	-0.02	0.06	-0.08	-0.02	-0.08	0.05	0.08	0.08	0.06	0.03	**-0.09**[a]	**0.30**[b+]	**0.19**[b]	1													
17 Satisfaction with hospital cleanliness	**0.15**[b]	**-0.18**[b]	0.01	**0.12**[a]	0.02	**-0.10**[a]	**-0.11**[a]	0.04	0.01	0.09	-0.03	0.06	-0.07	**0.35**[b+]	**0.21**[b]	**0.24**[b]	1												
18 Satisfaction with place of living	0.08	**-0.11**[a]	**0.10**[a]	**0.12**[a]	0.05	-0.05	-0.02	0.01	0.06	0.06	0.03	**0.13**[a]	-0.05	0.08	**0.11**[a]	0.04	**0.10**[a]	1											
19 Health service cost	0.02	-0.01	-0.01	-0.02	0.03	**-0.13**[a]	-0.04	-0.01	0.06	**0.11**[a]	**0.11**[a]	0.01	**0.12**[a]	-0.01	0.06	0.02	0.02	0.01	1										
20 Having desire to be treated abroad	**-0.13**[a]	**-0.10**[a]	0.05	**0.14**[a]	0.03	0.02	-0.07	**-0.10**[a]	-0.06	0.07	**-0.11**[a]	-0.03	0.01	**0.09**[a]	**0.13**[a]	**0.15**[b]	**0.09**[a]	0.03	0.05	1									
21 Smoking habits	**0.12**[a]	0.01	**-0.43**[b+]	-0.01	-0.05	-0.08	-0.02	0.03	0.01	0.03	**0.10**[a]	**-0.10**[a]	**-0.10**[a]	-0.03	0.02	0.04	-0.03	-0.03	0.08	0.04	1								
22 Drinking habits	0.04	0.01	0.01	0.06	-0.01	0.03	-0.05	-0.02	0.05	-0.04	0.02	-0.01	0.01	-0.02	0.07	-0.02	0.02	0.07	-0.04	-0.04	0.02	1							
23 Participation in physical activity	0.02	**0.12**[a]	**0.15**[b]	**-0.21**[b]	**-0.13**[a]	-0.03	0.04	0.03	0.09	0.06	**0.09**[a]	0.08	**0.15**[b]	-0.02	-0.01	0.02	**-0.13**[a]	0.03	0.03	**-0.15**[b]	**-0.14**[a]	-0.02	1						
24 Take an action to solve local problems	0.07	**-0.16**[b]	-0.07	**0.18**[b]	-0.08	-0.02	0.05	0.01	-0.02	**0.17**[b]	0.07	0.04	**-0.14**[a]	0.06	0.02	0.04	0.02	0.09	-0.05	**0.11**[a]	0.06	0.01	0.07	1					
25 Getting health related information	0.05	0.02	-0.04	-0.02	-0.07	0.07	0.02	0.03	0.03	0.07	-0.07	-0.05	-0.02	0.07	-0.06	0.02	**0.10**[a]	0.02	-0.08	-0.07	0.01	-0.03	-0.04	-0.02	1				
26 Medication within last 1 month	**-0.31**[b+]	**0.18**[b]	**0.11**[a]	**-0.10**[a]	0.08	0.02	**0.11**[a]	-0.05	-0.02	**-0.11**[a]	-0.04	**-0.10**[a]	**0.32**[b+]	-0.02	-0.05	**-0.15**[b]	-0.04	0.02	**0.11**[a]	**0.11**[a]	-0.09	0.05	0.01	-0.05	-0.02	1			
27 Periodical dental examination	**0.11**[a]	0.08	-0.08	-0.02	-0.02	0.04	0.02	0.07	0.03	**0.14**[a]	**0.12**[a]	**-0.12**[a]	0.05	0.09	0.04	0.04	0.06	**0.09**[a]	0.07	-0.02	0.03	-0.02	0.06	**0.13**[a]	0.05	0.02	1		
28 Periodical physical examination	**0.28**[b+]	**-0.11**[a]	**-0.09**[a]	**0.17**[b]	0.01	-0.01	-0.04	0.03	-0.07	**0.21**[b]	**0.10**[a]	0.02	-0.07	**0.22**[b]	**0.09**[a]	**0.11**[a]	**0.14**[a]	**0.12**[a]	0.01	-0.02	0.03	0.02	0.02	**0.12**[a]	0.06	**-0.21**[b]	**0.41**[b+]	1	
29 Periodical cancer examination	0.06	-0.07	-0.06	**0.09**[a]	-0.02	0.01	0.01	0.03	-0.04	**0.16**[b]	0.06	0.05	-0.02	**0.18**[a]	-0.04	**0.10**[a]	**0.11**[a]	0.02	0.05	-0.06	-0.03	-0.01	0.02	**0.10**[a]	0.06	-0.08	**0.27**[b+]	**0.37**[b+]	1

Note: [a] 0.01≦p0.05; [b] p<0.001; * |r| ≧0.3;

4.1.4 Multiple Logistic Regression Analysis and Interpretation

Multiple logistic regression analysis indicated that there are some significant variables that predict whether the local residents use health service (Table 4.7). Several factors in Andersen' predisposing category were included in the model and from those two variables were statistically significant. Individuals, who are married, were 2.3 times as likely to have visited health professionals within the past 12 months, compared to the people who are not married. As well, individuals having five and more members within family 0.6 times were more likely to have used health services.

Two variables in Andersen's need category were statistically significant in the model. Compared to the non poor respondents, the low income persons were more likely to have visited physicians (OR=0.38: CI: 0.23-0.61). Individuals, who had medical insurance, were 1. 6 times likely to have used health service than their counterparts. For about need factors, there were two variables independently related to the utilization of health services. Individuals who were satisfied with hospital equipment were 2.21 times likely to have used health services compared with their counterparts. In addition, the people who do not trust domestic health service were 0.30 times likely to use health service than their counterparts. Furthermore, some variables under health behavior factors were also significant. The non smokers were nearly 2 times likely to have used health services as compared to smokers. The health service usage is also related to medication usage. People who use medication were 0.38 times likely to have met physicians compared with their counterparts.

4.1.5 Stratified Multiple Logistic Regression Analysis and Interpretation

Two separate regression analysis were completed to identify predictors of mental health services. The analyses were stratified according to the preferability to get

Table 4.7 Multiple logistic regression analysis for related factors on utilization of health service

Variables	Health service use of participants during the past 12 months		
	Odds ratio	CIs (95%)	p
Age (aged 50 and over)	0.86	0.46-1.71	0.719
Gender (female)	1.01	0.61-1.66	0.885
Marital status (married)	2.30	1.38-3.84	0.002
Household size (5≦ members)	0.61	0.39-0.96	0.029
Self reported low income level	0.38	0.23-0.61	<.0001
Having medical insurance	1.62	1.02-2.56	0.058
Duration of residents in one place	1.25	0.77-2.05	0.444
Self-assessed poor health	0.98	0.61-1.57	0.900
Satisfied with hospital staff skills	1.26	0.77-2.09	0.432
Satisfied with hospital location	1.43	0.90-2.29	0.086
Satisfied with hospital equipment	2.21	1.15-4.26	0.020
Satisfied with overall cleanliness of the hospital	1.38	0.86-2.22	0.223
Having desire to be treated abroad	0.30	0.18-0.50	<.0001
Non smokers	1.99	1.16-3.41	0.010
Using medication during the past 12 months	0.38	0.24-0.60	<.0001
Having periodical dental examination	1.29	0.79-2.11	0.446
Having periodical physical examination	2.40	1.44-3.99	0.002

medical treatment abroad, those who prefer to get medical treatment abroad and those who do not prefer. It can be that individuals who likely to prefer to get medical treatment abroad also do not want health services often. In addition, prefer to get medical treatment abroad can associate with income level, and health service satisfaction. Based on this hypothesis chi square test were conducted to determine if there are associations between the exposure and the confounding variable (health service satisfaction, income level and preferability to get medical treatment abroad). The results show that income and health service satisfaction were statistically associated with the preferability of getting medical treatment abroad (Table 4.8).

Table 4.8 Need factors and health service use of participants (χ 2 test)

Variables	Prefer to get medical treatment abraod			
	N	Not prefer	Prefer	p
Income				
Not poor	170(36.6)	50 (30.3)	120(40.0)	0.038
Poor	295(63.4)	115(69.7)	180(60.0)	
Satisfaction with hospital staff skills				
Satisfied	173(37.2)	71(43.0)	102(34.0)	0.054
Not satisfied	292(62.8)	94(57.0)	198 (66.0)	
Satisfaction with hospital location				
Satisfied	182(39.1)	79(47.9)	103(34.3)	0.004
Not satisfied	283(60.9)	86(52.1)	197 (65.7)	
Satisfaction with hospital equipment				
Satisfied	72(15.5)	38(23.0)	34(11.3)	0.001
Not satisfied	393(84.5)	127(77.0)	266(88.7)	
Satisfaction with hospital cleanliness				
Satisfied	205(44.1)	83(50.3)	82(49.7)	0.045
Not satisfied	260(55.9)	122(40.37)	178(59.3)	

Note: Values as expressed as number (%)

Individuals' income was found to be significant and about 60 % of the respondents, who prefer to get medical treatment abroad, were poor. In addition, among the respondents, who not prefer to get medical treatment abroad, about 70 % of them were also poor.

Chi square test also show that variables related to health service satisfaction were significantly related to preferability to get medical treatment abroad. More than half of the respondents were not satisfied with hospital staff skills (66.0%), hospital location (65.7%), and hospital cleanliness (59.3%) among the respondents who prefer treatment abroad. For those respondents, preferring to get medical treatment abroad, many of the respondents are not satisfied with hospital equipment (88.7%).

Multiple logistic regression analysis stratified by one variable (prefer to treatment in abroad or not) indicated that there are several significant variables that predict whether

the local residents use health services.

Stratified multiple logistic regression analyses revealed that marital status was statistically significant in both models. It was found that being married was associated with health service utilization in both groups. Especially, within the group who do not prefer to get treatment in abroad had an almost 5 times higher (OR 4.96, CI 1.19-18.43), as compared to the people, who prefer to get medical treatment abroad (OR 2.06, CI 1.15-3.69). As well, the individuals who do not prefer treatment abroad and were living with five and more members within family had 0.33 times more likely to have health services than their counterparts (OR 0.33, CI 0.14-0.75). Furthermore, it was found that health service utilization is associated with hospital staff skills within this group, who do not prefer to get medical treatment abroad (OR 3.17, CI 1.23-8.17) (Table 4.9).

For about the group of people, who prefer treatment abroad self reported income were significantly associated with health service utilization. Low income individuals were likely to use health services (OR 0.30, CI 0.17-0.53). In addition, some variables under health behavior factors were significant within this group. The non- smokers were 2 times likely to have used health services as compared to smokers (OR 2.18, CI 1.1-4.26). For the individuals, who have periodical physical examinations have been more likely to use health services as compared with their counterparts (OR 2.79, CI 1.50-5.20). The stratified analysis also found that the health service usage is related to medication usage among the individuals who prefer to get medical treatment abroad. People who use medication within past 12 months were nearly 0.4 times likely to meet physicians compared with their counterparts (OR 0.39, CI 0.22-0.68) (Table 4.10).

Table 4.9 Multiple logistic regression analysis for related factors on utilization of health service (n=165)

Variables	Health service use of participants during the past 12 months		
	Odds ratio	CIs (95%)	p
Age (aged 50 and over)	1.49	0.49-4.57	0.482
Gender (female)	0.85	0.33-2.18	0.732
Marital status (married)	4.69	1.19-18.43	0.027
Household size (5≦ members)	0.33	0.14-0.75	0.008
Self reported low income level	0.55	0.21-1.40	0.207
Having medical insurance	1.89	0.72-4.96	0.197
Duration of residents in one place	2.05	0.80-5.27	0.135
Self-assessed poor health	0.56	0.21-1.49	0.242
Satisfied with hospital staff skills	3.17	1.23-8.17	0.017
Satisfied with hospital location	1.28	0.52-3.16	0.594
Satisfied with hospital equipment	2.99	0.99-9.01	0.051
Satisfied with overall cleanliness of the hospital	1.04	0.41-2.64	0.941
Non smokers	1.64	0.57-4.73	0.362
Using medication during the past 1 months	0.41	0.16-1.06	0.067
Having periodical dental examination	2.02	0.78-5.20	0.146
Having periodical physical examination	1.35	0.53-3.47	0.534

Note: Stratified by not having desire to be treated abroad

4.1.6 Summary of results for Stratified and Unstratified Analyses.

The study has revealed some differences between the stratified and unstratified analyses and the summary of the analyses were presented in Table 4.11. According to the results, marital status was the only significant factor in stratified and unstratified analyses. The effect size of the variable was the most strongest among the respondents, who do not prefer to get treatment abroad. In addition, there was only one variable, satisfaction with hospital staff skills, was not significant in unsrtratified analyses.

For about the stratified analyses, there were several differences among the groups, who prefer to get medical treatment abroad and who do not prefer to get medical treatment abroad.

Table 4.10 Multiple logistic regression analysis for related factors on utilization of health service (n= 300)

Variables	Health service use of participants during the past 12 months		
	Odds ratio	CIs (95%)	p
Age (aged 50 and over)	0.66	0.27-1.60	0.354
Gender (female)	1.13	0.60-2.14	0.700
Marital status (married)	2.06	1.15-3.69	0.016
Household size (5≦ members)	0.82	0.47-1.43	0.478
Self reported low income level	0.30	0.17-0.53	<.0001
Having medical insurance	1.58	0.90-2.77	0.110
Duration of residents in one place	0.99	0.55-1.80	0.981
Self-assessed poor health	1.16	0.66-2.05	0.611
Satisfied with hospital staff skills	0.79	0.42-1.48	0.463
Satisfied with hospital location	1.68	0.94-3.01	0.079
Satisfied with hospital equipment	1.75	0.72-4.26	0.221
Satisfied with overall cleanliness of the hospital	1.36	0.76-2.44	0.295
Non smokers	2.18	1.1-4.26	0.023
Using medication during the past 1 months	0.39	0.22-0.68	0.001
Having periodical dental examination	0.94	0.51-1.71	0.832
Having periodical physical examination	2.79	1.50-5.20	0.001

Note: Stratified by having desire to be treated abroad

Respondents who satisfied with the hospital staff skills and having more than 5 family members were likely to use health services in the group of people, who not prefer to get medical treatment abroad. But these results were not consistent for the respondents, who prefer treatment abroad, in stratified analyses. The model for those who prefer to get medical treatment abroad, it combining five significant variables, which indicated that these variables partially predict use of health services.

There were two variables, satisfied with hospital equipment and having health insurance, were not significant in the stratified analyses, however it was significant in the model of un-stratified analysis.

Table 4.11 Summary of stratified and unstratified analysis (Multiple logistic regression analysis)

Health service utilization	Stratified analysis		Unstratified analysis
Variables	Not prefer to get medical treatment abroad (n=165)	Prefer to get treatment abroad treatment (n=300)	
Marital status	OR: 4.69 (1,19-18.43)	OR: 2.06 (1.15-3.69)	OR:2.30 (1.38-3.84)
Household size (5≦)	OR: 0.33 (0.14-0.75)	Not significant	OR: 0.61 (0.39-0.96)
Satisfied with hospital staff skills	OR: 3.17 (1.23-8.17)	Not significant	Not significant
Self reported low income level	Not significant	OR: 0.30 (0.17-0.53)	OR:0.38 (0.23-0.61)
Non smokers	Not significant	OR: 2.18 (1.1-4.26)	OR:1.99 (1.16-3.41)
Using medication	Not significant	OR: 0.39 (0.22-0.68)	OR: 0.38 (0.24-0.60)
Having periodical examination	Not significant	OR: 2.79 (1.50-5.20)	OR: 2.40 (1.44-3.99)
Satisfied with hospital equipment	Not significant	Not significant	OR : 2.21 (1.15-4.26)
Having health insurance	Not significant	Not significant	OR: 1.62 (1.02-2.56)
Prefer to get medical treatment abroad			OR: 0.30 (0.18-0.50)

4.2 Discussions

There are many factors that influence health service utilization and health seeking behavior. Although many of these factors are similar across nations, it is often unique to a specific population in the context of environment and society they live in. Therefore, the current study, population based cross-sectional study, conducted to describe the patterns of health service utilization of adult residents in Ulaanbaatar city, Mongolia.

Participants of the study were surveyed based on paper based questionnaires for personal information and details regarding health service utilization. The findings of the study are summarized and considered in terms of study hypotheses, while the

general findings of the study were presented separately.

Review of results

The study revealed that 44.1 % of all respondents utilized health services within the past 12 months. The current funding was quite lower than the other post socialist countries. Quantitative cross-sectional survey in eight post socialist countries (Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia and Ukraine), revealed that in the preceding 12 months, in the sample as whole 57 % of respondents visited a medical professionals. When weighted for the different populations of the countries, the health service utilization percent were ranging from 65.7 % in Belarus to 24.4 percent in Georgia. (Balabanova et al.2004). According to them, some countries have managed to maintain access to some form of care for most people, in others the situation is near to collapsing. For example, in Belarus, the country has undergone very little economic reform and has remained many features of the soviet system, however in a situation of sustained economic decline (Karnitski , 1997; Balabanova et al.2004). Georgia, the population affected by civil war, where the government is not in control of some regions (Gamkredlidze et al. 2003).

For about Mongolia, although during the socialist period the health infrastructure has expanded thoroughly country and the population health status were dramatically improved, the system was inefficient (WHO, 2011b).

There were many changes happened, after the socialist regime. The socialist system's support for all community is eroded and social safety net is finished. Health facilities and health service also had deteriorated. These social problems have inevitably led to a rise in health and social problems of both urban and rural community. In addition, internal population movements are increasing in Mongolia after 1990s. However

migration has become an important livelihood strategy for many group across the world, especially in developing world (Anh 2003; Afsar 2003; Andersson 2002), rural to urban migration put strains on social and health services in Mongolia (EU 2011-2013).

With the respect to the confounding variable, preferring to get medical services abroad is associated with income and satisfaction with health services in this study. The interesting point is that the percentages of poor respondents from both groups were high, about 70 % of the respondents, who prefer to get medical treatment abroad, 60% of those who do not prefer. There are some possible explanations: first, however, the economic situation are important to medical treatment abroad, there are other factors in play. Not only the affluent, many of the poor prefer to get medical treatment abroad in Mongolia.

Second, provided health services are not meeting the needs of the local residents. It also higher quality of treatment and treatment outcome.

In addition, research about treatment abroad is still in its infancy and more studies are needed to conduct in Mongolia.

4.2.1 Predisposing factors and hypothesis 1.

The study demonstrates that marital status is an important predisposing factor for health service utilization in urban areas of Mongolia. More specifically, married person are associated with higher likelihood of using health services. This result was in line with other studies conducted in other developing countries (Fitsum et al. 2011). In addition, the study indicates that household size also has effects on health service utilization. The individuals having more than five family members were likely to use health services and this association persisted after conducting multiple logistic

regression analysis. These results might be explained by the fact that in Mongolia, married people, especially women assume the major role for their family members, including the health care of children, themselves, parents and parents-in law. Family ties, family duty including caring elderly and relatives are important in Mongolia and the Mongolian nomadic oriented culture may affect social interaction including health utilization of married and bigger families. Married people would be more likely to accompany their children and parents to hospitals, where they also can seek treatment for themselves. Moreover, a married woman could be likely to receive antenatal care than the unmarried one (Mekonnen et al, 2002).

In some developing countries, household size has inverse relationship with the utilization. Although, an increase in household size leads to decrease in health service utilization in some other countries (Awoyemi 2001; Wong et al, 1987), it should be stressed that residents in every nations have differences in culture, place of residence, economic and health status.

For about the age and gender, these variables are not independently related to the dependent variable, however bivariate analyses were found some differences among the age groups. As people age, their biological equilibrium and physical functions deteriorate. Thus, older people have more illness and more health care use. However, there is a complex interaction with factors other than age in the utilization process. Similar findings have also been described in other studies, such as Galvin and Fan found that age plus public insurance, disability caused increased utilization and need for health care (Galvin and Fan, 1975).

For about gender, sex differences in health care utilization in developing world may be different from the developed countries, because many developed countries are

comprised of traditional societies. This kind of societies can limit the empowerment of women and influence the health service use in particular.

4.2.2 Enabling factors and hypothesis 2

Many studies identify that economic status as the most significant factor of service use (David et al. 2008; Pillai et al, 2003). Low income has been found to be a barrier to use health services and health seeking, and a lack of finances can create an overwhelming financial burden (Gotsadze et al, 2005). But in some studies, it was found that although expense was an obstruction to people seeking health care, even the lowest income groups would use curative services significantly more (Soucat et al, 2005). A study in Sri Lanka, it was revealed that the poor were likely to bypass the free option and attend a low cost private facility, with the belief that the quality of service would be better (Akin et al, 1999).

In this study, we have found that the poor use more health services among these particular survey populations. According to the survey conducted by Asian Development Bank in 2007 is revealed the poor were comprising 58 % of all FGP clients and children and the elderly comprised nearly 70 % of FGP workloads in Mongolia (ADB, 2008). In addition, the state finding of primary health care provides generous services for vulnerable groups. The primary health service is free for mothers, children under 5 years, elderly and adolescents (WHO & MOH, 2012). While the poor are the majority of FGP clients, they may not receive secondary and territory health services.

Furthermore the poor people are more vulnerable to diseases and use more health services. Especially in developing countries, the poor often have lower status and can be reflected in the socioeconomic disparities that frequently cause the poor to suffer

poorer health (Vlassoff, 1994). The intensity of illness and illness episode can affect utilization of health services.

4.2.3 Need factors and hypothesis 3

The study was found that in regards to need factors, there was one independent factor is associated with health service utilization among the local community. According to the current study, satisfaction with hospital staff skills was significantly associated with health service utilization.

Earlier studies also noted that client satisfaction affects the decision to seek care (Binod et al. 2008). Some studies also showed that dissatisfaction with medical practitioners and high cost of medical consultations was associated to health service utilization and self medication (Grigoryan et al. 2008).

According to the Health service Delivery profile, Mongolia 2012, issues in infrastructure, such as outdated hospital buildings, utilities and equipment, lack of or limitations in equipment and supplies, water supply, telecommunications, electricity, sanitation system, lack of limitations of ambulance and FGP transportation and poor maintenance, were perceived as challenges as reducing health service utilization.

But for about the hypothesis under the enabling category, the hypothesis was not supported and self assessed health is not independently related to the dependent variable.

4.2.4 Health behavior factors and hypothesis 4

The results showed that there were three variables were independently associated with health service utilization: medication usage, smoking habits and periodical physical exams. As hypothesized, medication usage was associated with poor health service utilization. A possible reason could be that in Mongolia, one can buy medicine,

including antibiotics without prescription, even though antibiotics are not to be sold over the counter. Some studies revealed that an injection per person per year (13 injections) is very high among the Mongolians, compared to the post socialist countries (Lhamsuren et al, 2001). The another explanation can be that the people with regular income are employed would prefer self-medication, because they do not lose days from work (Nyamongo, 2002). Furthermore, it may be that quality of health services are not good and the local residents are not satisfied the services as well as the skills of the medical professionals.

Other studies confirmed that poverty leads to self care, and self medication, which affects the health service utilization (Paul, 2009; Claire et al. 2002).

Although, periodical physical examinations were seems to be unsatisfactory, the individuals who have periodical physical examinations were likely to use health service. Periodical health examination is important and periodical exams could motivate the persons to being healthy, as well as using health service effectively.

Smoking is also related to health service utilization in this study and individuals who do not smoke were likely to meet physicians. According to the World Health Organization, the smoking rate was 43 % among the men, 5.2% among the women aged 15 years and over in Mongolia (WHO, 2010). Among the population of Mongolia, smoking is a worsening problems and the diseases related to the tobacco are increasing. Therefore, more efforts are needed to promote smoking prevention and cessation programs as one approach to improving the health status of local community and use of health services.

Table 4.9 Summary of hypothesis result

		Health service use
Hypothesis 1: (Predisposing factors)	Supported	Married → more health service use .
	Partially supported	Having bigger household size → more health service use
	Not supported	Elderly, female × more health service use
Hypothesis 2: (Enabling factors)	Not supported	Poor residents × less health service use
Hypothesis 3: (Need factors)	Not supported	Lower self assessed health × more health service use
Hypothesis 4: (Health behavior factors)	Partially supported	Using medication → less health service use

4.3 Conclusion

The quantitative study has revealed that the local residents in Ulaanbaatar city were not considerably utilizing health services. The results from both bivariate and multiple analyses confirmed that marital status and household size were the significant predictor variable for health service utilization. Therefore, it needs to pay attention to not only for married and bigger household size families, also for the unmarried and the fewer member families to improve health service utilization.

For about enabling factors, health service utilization level needs to be improved among the affluent. Furthermore, minorities were being significantly more dissatisfied with health service and dissatisfaction leads to less utilization. In addition, more efforts should be given to the health behavior factors of the local residents, such as smoking habits, medication usage, and periodical health exams, to improve local health service and health service utilization.

Some limitation and strengths of the study deserve consideration. The quantitative study was not focused upon a specific health service and this may be a possible

limitation. The current study only controls for one potential confounder, but there may be other potential confounders for which the study did not control.

In addition, the reason for the difference could be that our study was conducted only in Ulaanbaatar city, with limited scope and participants. Furthermore, the next worth mentioning limitation is recall bias since evaluation of self reported information and behaviour patterns was retrospective. Thus, the respondents might forget some of their experiences and previous visits to health facilities.

Unfortunately, there is currently no comparison with this studies conducted in the country. Result from the study will only show whether or not a relationship exists between the variables in the model and the outcome and the relative strength of the relationship.

CHAPTER 5: QUALITATIVE STUDY RESULTS AND DISCUSSION

In order to increase understandings for the context, the chapter begins with a brief introduction of local situation, local community and initial health services. Demographic profile of study participants, study findings, information about contents of the interviews, study questions, and study conclusions are also presented in this part.

5.1 Introduction

The aim of the qualitative study was to understand more about the barriers that influence the seeking and utilization of health service among the suburban residents of Ulaanbaatar city Mongolia.

The following research questions were address in this qualitative study are:

1) Does the poor health service utilization is affected with others, such as family members and colleagues' poor health behavior?
2) Distrust in health care system and family group practioners is associated with poor utilization of health service or not?

Focus group interviews were being held at sub-urban (*ger* district) in Ulaanbaatar city during the month of August in 2011. The focus group interviews were the local family group practice staff and the local residents. Individuals participating in focus group interviews were both men and women and the target age group was set to 18 years and over. Some of the participants have nomadic background (i.e was a nomadic person, but now residing in the city), who lost their domestic animals to harsh winters, without other economic opportunities, they moved to the city in search of better lives and settled in *ger* areas. Three of them were migrated to the city due to social sector decline in rural areas, after the socialist system.

Since the transition to a market economy in the beginning of 1990s, there are many changes are happening, changes happened everywhere and at every level. During these years, Mongolia has undergone a rapid social and economic transition with migration to the urban areas of the national capital Ulaanbaatar. Many migrants are former herders who lost their domestic animals to harsh winters, without other economic opportunities, they moved to the city in search of better lives and settled in *ger* areas. Since October 2009, there has been heavy and continuous snowfall, blizzards and a sharp fall in daily temperatures dropping below minus 40 degrees Celsius in 19 out of Mongolia's 21 provinces. This disaster has already caused the loss of livestock and many more losses are expected, given the feeble condition of many animals. This situation may expand the *ger* districts and as the *ger* district expand, the families settled into steep hillsides, to areas at risk of flooding, and even into dump sites. Unplanned growth of *Ger* areas and unprecedented pace of urbanization brings many challenges, such as unemployment, social services, traffic congestion, air pollution and negative environmental impacts (Kamata et al., 2010).

The political, economic and demographic changes severely affected the health sector, which led to some worsening of health services. In sub-urban and rural remote locations, health services are not sufficiently accessed by the most socially and economically disadvantaged populations.

However the government of Mongolia is committing and implementing policies and programs to reduce the poverty and improve the quality of life and health status of its population, the health sector is still is facing problems related to the poor living conditions, internal migration, environmental health risks. In urban and rural areas primary health care (PHC) services are delivered by Family Group Practices (FGP)

and the family practitioners take major roles in health social services (MOH, 2008). They are the first point of contact to community members and refer emergency patients to the next level hospitals.

The FGPs model was introduced in 1998 and family doctors were reorganised into private group practices to provide primary health services free of charge to the population. Family doctors were reorganized in to private group practitioners, with guarantees of income through risk-adjusted capitation payments from the government (WB, 2006). The state funding of primary health care aims to provide access for everyone, and vulnerable groups are exempt from co-payments, there is still an urban and sub-urban disparity in access. However poverty is one of the reasons, why patients do not seek medical care, and bypassing family group practice is still common (WHO & MOH, 2012).

Photo 5.2. the exterior of the Family Group Practice in Ger districts.

5.2 Results

Barriers and facilitating factors that were identified are grouped according to the Andersen's health Behavior model. Furthermore, the results were also organized around derived themes of the interviews and presented in result section.

The results of all the focus group studies were broadly complementary. The results of the studies are therefore presented together.

5.2.1 Participants' characteristics

A total of 11staffs of family group practices and 15 local residents, who live in and work for sub urban *ger* districts, were participated in 4 focus group interviews (Table 5.1). The participants' age range was 23 – 68 years old and all the local residents have been residing in sub-urban areas more than 4 years. Among the local community group participants, five of them were former nomadic persons. Three of the participants were never married and all the other participants having at least one child.

For about the family group practioners, most of them have more than 5 years of working experiences in primary health services. There were only two participants have less than one year work experiences, one of the medical doctors and the health social worker, who have just finished their universities.

5.2.2 Predisposing factors and health service utilization.

When analyzing the predisposing factors, there were not conflicting ideas among the focus group interviews, including the family group practioners.

Younger participants, aged 23 to 39 years old, were less likely to seek information or services. Particularly young males do not seek health services and the family group practices are not the first choices in the treatment of themselves. The reasons for not using health services as illustrated by one of the younger men in the quote below:

> *'I had visited our family practioners for three years ago for severe cold. Since then, I have not visited any family practice, clinics or hospital. If I feel ill, I go to the pharmacy and purchase antibiotics. Of course, if the illness is very serious, I will go to family practice or private clinics'* (Community group 2)

Table 5.1 Characteristics of the participants

Focus groups	The total number of participants	Age range	Gender		Employment
			Male	Female	
Community group 1	8	45-68	3	5	Pensioners - 2 Unemployed - 3 Employed -3
Community group2	7	25-39	2	5	Unemployed - 4 Employed - 3
Family group practioners 1	6	23-57	1	5	Medical doctor - 2 Health social worker - 1 Nurses – 3
Family group practioners 2	5	38-55	-	5	Medical doctor - 3 Nurses -2

A younger woman expressed similar ideas about health seeking behavior:

'I think the younger people do not much take care of themselves. The younger people just think about how to breed their children and take care of their family members. As for me, I seldom go to our family practitioner, or in most cases I use drugs at home and relaxed well. I go to the family practice mainly for vaccination for my children.' (Community group 2)

The family group practioners agreed that bypassing family health centers were common among the young adults, especially the man and affluent. According to the family group practioners, the core customers of the family group practices were the low income individuals, mothers, pregnant women, infants, disabled people and the elderly.

The level of education and health literacy did not directly limit the use of health service. But it frequently reported that the health knowledge influence life styles and the potential benefit from use of health service.

'I have a little knowledge about being healthy. So I cannot show my children how

to be healthy' (Community group 2)

'The more educated people know that what to do, they are likely to follow physicians prescriptions' (FGP Group 2)

5.2.3 Enabling factors and health service utilization

Under this sub-theme, participants in all family group interviews brought up family income, and health insurance, as the main obstacle to seeking health services.

Although, family income and having health insurance are the reasons for not seeking a health care, there were some differences in health service utilization between income groups, health insurance members and non members.

The head of family group practice explains that:

'*The people who are poor or having normal living conditions come to the family group practice to have health checkup. The average persons and the rich rarely come to us'*(FGP Group 2)

She later adds that:

'On the other hand, extremely poor people are hesitated to come to see the family practitioners. Going to hospital and clinic is very difficult for some of the poor. For example many of them have not official documents. Also many of them are worried about their poor clothes'

Another group of practioners also worried about the poor residents:

'The poor only think about how to make money for food. They do not visit physicians or health professionals. If they come to us, we will happy to help them, even they have no health insurance card' (FGP Group 1)

According to the participants, income was influenced the health service utilization in two ways. First of all, even though care is often free of charge in primary level, the

opportunity cost of losing a day's work often makes the visit unaffordable. Second, demand for additional official and unofficial fees, especially in second and tertiary care level, presents a barrier to use of health service.

> *'If you have no money, it is hard to access services. Diagnoses and tests are too expensive for me'* (Community group 2)
>
> *'For the poor, the secondary and tertiary level health service is too expensive, although they have health insurance'* (FGP Group 2)

Health insurance is consistently discussed among all the participants. Many members reported that health insurance benefits are not available to them.

> *'Even we have health insurances, every services cost too much. The health insurance system is very bad. It goes wrong.'* (Community group 1)
>
> *'I think the health insurance system is not so good. Few days ago I went to the dental clinic. But I cannot use my health insurance, even I have been paid it for eight years and during this period I have not used it'* (Community group 2)
>
> *'I have been paying 3 % percent of my salary to health insurance for 20 years and during these years I went to the doctors for only few times. Recently I got sick and needed to be diagnosed at the hospital… I understood that the health insurance was not so important, because everything costs and service was expensive. Although I received about 50 % discount from my health insurance funding, it was real expensive for me. So I think there is no need to pay health insurances. Instead of paying for a long time, it is better to collect the money and use it, when you need health care. The health insurance scheme is not perfect and not useful'* (FGP Group 1)

Although, both inpatient and outpatient service at public facilities were covered in

health insurance policy, many of the participants reported that they cannot use their health insurance card, especially for both outpatient service due to in part to the limited benefits and poor services. Both the local residents and the family group practioners agreed that there is also a little benefit for inpatients:

> *'I have attending health insurance system for 15 years. And even having health insurance, I paid 50% for all my treatment cost during 10 days hospitalization. The treatment of the hospital was not efficiency for me. For example, after hospitalized, the physicians complained about the lack of medicines and I had to buy the medicines and injections by myself.'* (Community group 2)
>
> *'If the patients have not a health insurance card, they cannot be hospitalized. 'In addition, the patient can use the benefit of health insurance, if he or she has an operation. '* (FGP Group 1)

In addition, among the participants, all of them have less knowledge about the health insurance scheme.

> *'I do not know how much I pay for health insurance tax from my salary and how the health insurance system works'* (Community group 2)
>
> *'In my understanding, outpatients pay all the fees and the inpatients pay the co-payments. But I do not know that which percent of discount I could get by using my insurance card'* (Community group 1)

Among the participants, there was only a man, who has not a health insurance card. He explained his situation as following:

> *'I have settled the city about four years ago, but I have not officially registered yet. If I am sick I directly go to the pharmacy and explain my pains to the attendant, who choose medicine for me. If not getting better, I will meet my aunt,*

who is the medical doctor'

The other participants, who were former herders, reported that the first two years was quite difficult to them. They met number of barriers to use health services and get official documents, including health insurance card.

'After coming to Ulaanbaatar city, our residence address was not clear. We had moved within the city several times, in order to find proper place to live. So we could not get our IDs and the health insurance cards. At that time, when we, our family members and children felt ill, we went to the pharmacy to get medicines'

(Community group 1)

'My family could hit the hard times, now I make many friends here in the city, who can help each other, if we meet with difficulties and problems. Now I have a job and documents and health insurance card and I know our health practioners. But, I am still cannot often go to the family practices or hospitals when I have a common cold'(Community group 2)

5.2.4 Need factors and health service utilization

Under this sub-theme, we addressed the community satisfaction in family group practice service and quality of health care. The study revealed that satisfaction level with public health service is low in general among the respondents and service acceptability depended on the quality of health service and health service satisfaction.

There was a lack of trust in the health professionals' qualification particularly in local family group practices and the efficacy of the treatment given. Examples are illustrated in the quotas below:

'There is no need to believe the family practitioner. They just can suggest some medicines and also can "after using it you will be ok... When I met our family

practioners, I lost my confidence in her…'(Community group 2)

'The qualifications of the doctors are not good, especially the family practioners. They are pretty old and had only a few years until retirement, so there is not much engagement'(Community group 1).

The participants were not only argued about qualifications of family group practioners, they also dissatisfied the medical doctors and health professionals, who work at the second and third level of health services.

'Last year, my mother had an operation, which was recommended by the doctors. All the surgeons and doctors said that she will be getting better and there is no need to worry about the surgery… So she had an operation, but after a month, my mother was passed away…. I think it was for their business and my mother was one of their tests. If the operation was successful, she would be alive... Do the doctors have experience or education? (Community group 1)

An older woman expressed similar think about qualifications of the health workers:

'In my case I got 'Vitamin B 12 injection from the nearest pharmacy and the pharmacy worker did the injection for me. But from that evening, my arm got red and some red spots appeared and at least I could not move my alarm. It continued about 3 months. I met many physicians. All of them could not give me proper diagnoses. They just sent and recommended me another physician or clinics.

But the family group practioners had different perspectives. They reported that they have many problems which affect the quality of care service. The problems to the working conditions were ranked and according to the family group practioners, overworking, limited basic medical equipment, low budgets, salaries and benefits.

'We provide service for ten thousand and three hundred people. According to

health service standard, there have to be seven doctors and eight nurses at our practice. But now, there are three doctors and four nurses working at our practice. One doctor does two doctors' job. Also, we have not enough rooms'

(FGP group 1).

During another focus group interview, the same issues are again stated:

'There were 6 thousand residents in this khoroo when this family practice was opened with 5 family practitioners. 10 year is already passed since then and now the population of this khoroo is already reached to ten thousand. But the numbers of doctors are not increased and also the building of the practice is still not improved'(FGP group 2).

'To handle a community with more than ten thousand inhabitants, we are overworking… however, we always try to work hard' (FGP group 2)

These perceptions are confirmed by all the family group practioners and health workers. They described the current working situation as 'poor' and 'need to be upgraded'. They explained that *'in order to implement the work well, and improve the quality of health service, the facilities should be upgraded'*.

'*There are a lot of needs to diagnose the patients at the local family practice and the primary lab tests are not done here at our practice'* (FGP group 2)

'Working condition is not so good. In winter it is very cold and it is difficult to check the new born babies. It is very cold in winter times and it is so difficult to take off the clothes of the babies and check them. There is no special room and scale for the babies. We scale the babies with the clothes and guess the weight… I do not know when the situation is improved'(FGP group 1)

'Our salary is too low. For example, as for me, I have been working as family

practitioner for many years, but my salary is only about 350 USD, even working under pressure and hard' (FGP group 1)

'Comparing to other family clinics, the physicians do not want to work in this area, because the density and migration from the countryside is high, and many families live under poverty line' (FGP Group 2)

In addition family health practioners mentioned that:

'Many patients directly go to the pharmacies and get high doses of antibiotics to ease pain. But it is not the good way' (FGP Group 1)

'Physicians of private clinics and hospitals recommend to their clients antibiotics with high doses. After using the high doses of antibiotics, the symptoms clear very quickly. So the patients think that the doctor, who recommends antibiotics with high dozes, is very good and professional. And they pay a lot for the physicians and antibiotics. But at least, if the patients cannot be treated with the antibiotics the private hospital physicians recommend them to go to another clinics or family group practices. It is very difficult for treating that kind of patients, who have used all the high qualified medicines and antibiotics before coming to our clinic' (FGP Group 2)

'I think, one has to do the job, which he or she can do perfectly. But in some cases the private clinics want to treat all the diseases, even in fact they cannot treat all…' (FGP Group 1)

It was found that treatment in abroad was viewed with positivism among most of the local residents. The reasons behind the treatment in abroad relate to treatment efficiency, convenience and quality of service and physicians responsibility.

'Mongolian physicians are skilled, but they have no responsibility. For example,

when my brother had the operation, the main surgeon was drunk and the operation was no so good. After his first operation, my brother had operations for several times. If the doctors have responsibilities, there is no need to go to abroad.' (Community group 2)

'I think, if possible it is better to have an operation in abroad, especially in well developed countries' (Community group 2)

'I think some of the diseases cannot be treated well in Mongolia. For example, we cannot cure the allergy. Using European treatment is also not perfect, because we are Asians. So Asian or traditional medicine cat treat it'

(Community group 2)

'I think if people have money, most of them will be treated or diagnosed abroad. Many politicians and parliament members are treated abroad. They have money and authority, but why they are likely to be treated abroad. I think they also do not believe the quality of health service and its efficiency' (Community group 1)

5.2.5 Health behavior related barriers to health service utilization

The factors determining health behavior may be seen in various contexts, such as lifestyles, health seeking behavior, health prevention, social motivation and resources. Therefore the utilization of health service may depend on life styles and cultural beliefs.

Under this sub theme, a frequently discussed topic was that of medication. Generally most participants treated themselves before they went to see a medical doctor. Many participants reported that '*We went to the doctor if the illness is getting more serious*'. These actions were common among the *ger* district residents. The explanations were related to poor diagnostic skills, availabilities of getting medicine directly from the

pharmacy and poor network between health institutes, including family group practice, private clinics and pharmacies.

'The family practitioners recommend the same medicines, which we can buy directly from the pharmacy. When I meet the doctor, the doctor always says same diagnoses. I know that which medicine is perfect for my headache and for common cold. The doctor recommends the same medicine, which other people (my family members) can recommend. So there is no need to go to the family group practice, it wastes my time.' (Community group 2)

The family group practioners had explained the process of self medication in following ways:

'There are many pharmacies in Ulaanbaatar city, and many of them have not professional staffs. They just work for making money and selling medicine without physicians' prescriptions. In some cases they give wrong medicines to the patients, it happened in our sub-district. I think, it is better to reduce the number of the small pharmacies. During the socialist period, there were very few pharmacies and they sold the medicine only with prescriptions' (FGP Group 1)

'We cannot change this behavior. The people have less knowledge about medication. Especially, self medication with high doses of antibiotics is dangerous. Overuse of antibiotics and injections is popular among the community. Incorrect dosage of medicine will not cure, but will prolong recovery' (FGP Group 1)

'I am worried about the quality of medicines. Some of the small pharmacies sold fake drugs, which have no effect at all.' Also in our community, there is no good pharmacy' (FGP Group 2)

In addition the participants are argued about the drug related knowledge among the

rational use of medicines.

'Many patients fail to take medicine correctly. They use the treatments and medicines, until their first symptoms were disappeared. It is one of the bad habits of the local community. It influences badly for the patients and in this case their sick and illnesses become more serious.' (FGP Group 2)

'Some medicine is expensive and unaffordable. Many of us cannot purchase a full course of treatment or do not purchase the medicines at all. So the people stopped going to see a physician or seek alternative, such as traditional way of curing'. (Community group 2) '

The limited usage of health service is also may be explained by participants' poor attention for their health. Many participants reported that they cannot pay attention for their health, because of their workload.

'I work from 7 in the morning until six in the evening in winter times, and in the summer, I work until 8 in the evening. I work as a sales worker and sell thing all the day outside. I cannot have my lunch and the dinner at the particular time. Sometimes I cannot have my breakfast too. Working outside all the day is very difficult, especially in the winter time. We sacrifice our health just to earn for our daily life'(Community group 2)

'Besides of doing my household work, I do souvenirs at home to feed my children. Sometimes, I work all the night and until the morning, so I cannot pay attention for my health, also for my children'(Community group 1)

Although, workload was identified as a factor to deter health service utilization, some participants explained the potential reasons behind this perception as following:

'Paying attention to health is an individual effort, it depends the personal health

responsibility and health motivation.'(FGP group 1)

'The person who grew up during the socialist period or the poor one does not pay much attention for their health. They just wait somebody to come to help'

(FGP group 1)

People do not take prevention checks, the all respondents said that they will go to the doctor after they sick. The family group practioners also confirmed it and there are very few, almost no person comes to ask advices and prevention.

The study also revealed that social networks, including family members, friends do affect utilization behavior. One's behavior is affected by the behavior of others around him or her for being healthy and preventative service.

'Among the people, they get some info from their friends, coworkers or relatives. For example; my daughter has some allergies on her face, and many people suggested me medicines, oil or treatments for my daughter's allergy. I followed some of their advices, but many of them were not successful.'

(Community group 2)

'We cannot give advices to the patients, not better than their grandparents, mothers or neighbors. The patients and clients usually listen to their family member, especially the older. They do not listen to physicians advices much. Why our messages are less effective and how we can solve this situation is the also in query. We need to work with the person, who tell and advices them better than us. If we can teach and advice them they can teach others well' (FGP group 1)

According to many of the participants, individuals did not rush to medical care and likely to follow the older family member's advices the moment they felt unwell.

'Mongolians say that it is better to get advices from an experienced old woman

than an inexperienced physician. I think that if there is no physician or the physicians are not qualified, people will follow the advices of older and experienced one.' (Community group 2)

Knowing someone at the hospital or clinic is very useful in terms of accessing health care services, especially in second and tertiary level of health service.

'If I need to be hospitalized, it will be difficult for me, because there are lot of people are waiting to be hospitalized like me. And one who knows a familiar physician at the hospital can easily be hospitalized and also he or she will be treated well' (Community group 2)

'For example, before the serious operation or giving a birth, we look for familiar physician or the person who know that physician, to get better services. People give presents voluntarily, but in other hand the physicians like it. It is the kind of bribe. If you not pay bribes to the medics, you will get poorer service and nobody will pay extra attention to you.' (Community group 1)

Furthermore, we are interested how religion may influence the use of health services and what kind of service does the lamas or shamans offer. Although many of the local residents were likely to meet religious leaders, the influence of religious salience and denomination was not the factor on health service use.

'Most of the Mongolians meet Lamas or Shaman to protect their lives form bad fortunes. For example if my child is sick I go to the hospital first and then I will go to the temple for pray to his health. I think both going to the hospitals and the temples are better' (Community group 1)

5.3 Identified themes

The following themes were identified from the data and for avoiding redundant

information and making the study findings more beneficial, the themes were reported separately in this section.

Theme 1: Access and suitability of healthcare

Accessible and suitability of health care services is important and a key concern about health service utilization that participants expressed to us was the need for the local residents to be accessible. At the hospital or clinic, the patients find themselves faced with several challenges, such as long waiting time, and poor diagnostic skills and equipment.

The long waiting time at the clinic or hospital was stated by most of participants as one of the factors contributing to poor health service utilization. Some patients reported that they have to spend at least three hours at the clinic before seeing the family group practioners or specialized medical doctor.

Among the local participants, who are employed, health service acceptability depended on working time schedule for family group practice and other big hospitals. Many of them criticized that health institutes working time schedule is not convenient for them:

> *'The family practice and other big hospitals do not work after working hours, during the lunch time and weekends. So I cannot get care and services, when I have a time, because my work starts at 8, and finishes at 5 pm.'* (Community group 2)

Some of the patient had to do several trips to different clinic or hospital before they were fully diagnosed. One of the family members stated that:

> *'... more depressing is that when you get the clinic or hospital after meeting the family group practitioner, you are also recommended or forced to have another*

test done at other hospital. This is very difficult for me and it discourages me from seeking health care services…Spending the whole day at clinic is a problem for many people.' (Community group 1)

'Going to one place to another place is very difficult and it takes a time. And the hospitals are always being crowded. At the hospitals we wait a long time' (Community group 1)

The family group practioners reported that limited basic medical equipment and shortage not only limit the ability of delivering services effectively, it also led some patients to make trips to other clinics or hospitals. One of the family group practioners stated that:

'... not only family group practioners all the health care workers are faced with more patients they can see . Moreover, many of the family group practices limited basic medical equipment and it is one of the reasons why some of the patients were recommended to another clinic or hospital.' (FGP group 1)

Furthermore, the family group practioners argued that they cannot provide comprehensive services for local community and therefore, people go to the second or third level hospitals, including the private clinics and hospitals.

'There are a lot of needs to diagnose the patients here in the local family clinics. Now the primary lab tests are not analyzed here at our clinic, so we provide the limited primary health services for the community.' (FGP Group 2)

But some of the respondents have different point of views about the steps between health institutes. They linked the trips to different hospital or clinics with health workers' professional ethics and responsibilities. This was one of the sources of frustration for many participants.

'Now, all the health organizations are connected with informal network. For example, I took cancer test at the National Cancer hospital last year. I wanted more detailed diagnoses, but I could not been diagnosed properly at the hospital. The physician recommended me to go to another clinic. But the service cost of the recommended clinic was very high. Maybe by introducing the new patients, the medical doctors make some money' (Community group 2)

'The most famous and skilled physicians have their own clinics. Their private clinics cost expensive. The physicians recommend the pharmacies, laboratories, clinics, which they own or cooperate. It means there is a big and bad network between physician and laboratories and drug stores' (Community group 1)

'The physicians avoid taking responsibility and so they recommend another physician. Some of them cannot make a diagnose' (Community group 2)

Theme 2: Negative word-of-mouth about medics and lack of 'friendly' care services dissuade people from seeking healthcare

Negative word-of-mouth about medics is a theme that has emerged strongly from our data throughout the research. All the participants agree that concern over the utilization of health care services in Mongolia has led to dissatisfaction and loss faith in public and private hospitals. In fact, dissatisfaction can have serious ramifications, such us patients are unlikely to visit medical professionals, prefer abroad treatment and, moreover it usually resort negative word-of-mouth that dissuade local residents from seeking health care services, as described by one of the patients:

'You can easily found out poor qualification about health by worth-of-mouth. There are many medical doctors, who have poor knowledge, especially the family practitioners. So some of the people called the medical doctors as an animal

doctor (veterinarian)' (Community group 1)

Apart from the negative word-of-mouth, the lack of 'friendly' care services from the medical doctors was stated several times during the FGIs with community members. Many participants find it difficult to access health care services, because the services are not friendly to them. Apart from quality of health services, availability and accessibility of health care, poor attitude and behavior of some health care workers toward the patients were also acknowledged to contribute to the infrequent healthcare attendance of some local residents.

Low morale and lack of customer care among health workers are common problems and all these kind of problems affect on the patients decisions' whether or not go to clinic next time. Many participants reported that effective communication with health professionals is considered as important factor, as revealed one of the patients during a FGI:

> *'Most of the medical doctors push us away instead of drawing towards health services, because of their poor communication skills and low morale. Especially, we the mothers and females want to ask more questions, get more information, receive more counseling and preventive services, but we cannot I get it..'* (Community group 1)

Theme 3: Poor health promotion activities and less knowledge about health risks decrease health service utilization

Most of the participants stated that health promotion activities was weak and the participants identified lack of knowledge and awareness of the community and access to information on preventive and periodical health care issues as barriers to use health services.

The delivery of health promotion is seems to be haphazard in Mongolia and in general, the role of family group practioners and other medical doctors in promoting health is unknown. Although, family group practioners are on the front line of heath care delivery and they are responsible for health promotion activities, many of them cannot play in health promotion activities, as summed up one of the family group practioners:

> *'We already have too much to do. We face many patients than we can handle, and we have a lot of paper works too. It is better to let somebody, like school teachers and social workers, do health promotion activities'* (FGP group 1)

But the parents have different ideas about it and in congruence with evidence suggesting that most of the participants perceive health and health promotion as being economically independent:

> *'I think that the family group practioners, and the teachers should pay fruitful role in health promotion, we have less knowledge and skills, so we cannot influence others being healthy…'*(Community group 2)

Finally, a good suggestion about facilitating roles of professionals was stated by one of the family group practioners:

> *'We need to work together to deliver health promotion, all the family members, teachers and social workers. There is need for collaborate health promotion work'* (FGP group 1)

Although, collaboration among different people, professionals and organizations is promising, the health promotion activities will be ineffective unless the planning process and its outcomes are organized by and among different institutes and professionals, including the parents, as revealed one of the family group practioners:

'..in fact, the local organizations and professionals cannot collaborate. They just come and ask us to cooperate, without any pervious discussion. You know without perfect collaboration there is no creation' (FGP Group 2)

Theme 4: Apathetic and poor health-protective behaviors of the residents limit healthcare access

In the focus groups, both community and family group practioners groups, apathy (lack of concern) were commonly stated as a barrier to protective behavior and limit access to health service utilization. Many participants, especially the men, did not visit health professionals more than 12 months and they believed that they were no problem with them. As one of the male participants noted that

'*I always excuse myself, I do not get periodical exams and go to hospitals to meet a doctor , because I believe that I am fine, I do not need to worry for my health. Also, I don't have time to visit professionals '* (Community group 1)

The younger people and men were expressed much greater apathy than the elderly and the mothers.

'Sometimes we meet our friends and spend much time and money for fun and entertainment. In fact we can use some of the money for our health, but many of us do not do that. We prefer our fun than our health. We need to change our sense and attitudes' (FGP group 1)*'*

According to many of the participants, individuals, especially the youth and the men, did not rush to healthcare facility the moment they felt unwell.

Despite lack of concern about health, participants stated much about the poor health protective behaviors. Although, the participants commonly stated that eating healthful food, being physically active and prevention care were behaviors that could protect

their health, many of them cannot frequently engaged in.

'I know that proper diet, not smoking and drinking, being physically active and periodical health check would help protect my health. But in fact, I cannot follow all of these regimes, the health protective behaviors… because of my living condition, health related knowledge and lack of concern…'

(Community group 2)

Most of the participants have a higher prevalence of risky behaviors and are less likely to engage in protective behaviors. Not following treatment regimen, failing to pursue follow of care influence deter health service utilization among the local residents.

5.4 Discussion

The aim of the qualitative study was to understand more about the barriers that influence the utilization of health services among the sub-urban residents of Ulaanbaatar city. Based on the experiences of local residents and family group practioners we have been able to find several barriers, which deter the health service use among the local community.

Our result indicated among the local residents health service utilization level is quite low, especially among the youth, man, the employed and the poor. Therefore, age, gender, history of prolonged labor, and income source were the important predictors of health service utilization. This result was in line with other studies conducted in the country (MOH, 2009; WHO &MOH, 2012). Although, some studies has been shown that women have less direct access to health and social care services, especially the older women (Raine et al. 2003; Bird, 2002), fewer studies indicate that men have less access to some type of health services conducted in Asia (Cashin et al. 2002).

Furthermore, marital status and family size were also important factors to use health

services. In traditional Mongolian families, man is responsible to family income and women are responsible for household work and health status of family members. Therefore, women and all other family members do not need to ask permissions from someone to go to family practioners, clinics or hospitals. Socio-cultural, religion and traditional factors were not the factors that influence health service utilization among the sub-urban residents. However, lack of income was a barrier to vulnerable groups of the society, such as single mother, elderly and poor, they were keen to utilize primary health services which are provided free of charge. In addition, there are still disparities in accessing basic services among poor residents, especially who live in extremely precarious conditions. Many of them have not steady income, very poor residents cannot afford health insurance and cost of medication.

In addition, among the extremely poor, social standing or what people think of you was identified as one of the hindrances to utilizing health services.

A topic frequently discussed by the respondents in the interviews was the health service quality. There is as widespread of dissatisfaction reported with primary, secondary and tertiary care services. This dissatisfaction is related to accessibility of services, service quality, accessibility, health insurance scheme, and skills of the physicians. For example, the study found that the health insurance members were more likely to use their health insurances to utilize both inpatient and outpatient services, but the memberships had very limited impact on outpatient care utilization. This kind of dissatisfaction with health insurance scheme was observed in most of the developing countries, such as China and Vietnam. (Xiaoyun et al. 2012).

However, there were several perceptions that health service organizations offer low quality care, the study suggest that social resources, free primary health services,

clinics and hospital location and health motivation were perceived as important in overcoming some of the existing barriers.

5.4.1 Study questions

Two study questions were posed during the qualitative study. The first question was that does the poor health service utilization is affected with others, such as family members and colleagues' poor health behavior or not.

In order to understand the barriers of underutilization of health services by Mongolians, it is necessary to understand how they viewed the illness within the family and family roles and family networks. However, informal network still plays strong roles in all levels of the society in Mongolia, it puts the local residents at a disadvantage in seeking health services and being healthy. The parents are still over involved their children, parents' age-old lifestyle and poor health habits directly affect their children and family members to access health services.

Second, question was that whether distrust in health service and family group practitioners influence to poor health service utilization or not. Trust in health service had been considered a relationship between physicians and clients, as well as satisfaction with health services. Among the focus group participants, there were huge dissatisfaction and nobody mentioned about the effective relationship with health professionals. Poor experiences of health service and poor quality of services lead to distrust of health services and it would result in delayed utilization.

5.5 Conclusions

Although family group practices play a very important role in access to primary care services in Ulaanbaatar city, the user satisfaction is quite low. Many of the local residents are likely to bypass the family group practioners, especially the youth, men

and the local residents, who have normal life or affluent. As household income rises, the participants were more likely use to private clinics, and secondary level hospitals. Widespread of health service dissatisfaction is appeared among the respondents. This dissatisfaction is related to accessibility of services, service quality, health insurance scheme, and skills of the medics, as well as the responsibilities and ethics.

As for predisposing factors, age, gender and marital status were also considered as important predictors for health service utilization. The participants reported that income level and health insurance were also important for using health services for the local population. Need factors, such as dissatisfaction with quality of health services and skills of medics were found as deterring health service utilization. In addition, self medication and poor attention to health were also associated with low level of health service utilization. Furthermore, informal network was found as disabling factors for utilization of health services.

CHAPTER 6: SUMMARY

6.1 Summary of quantitative and qualitative studies

In this study, both quantitative and qualitative methods were deployed to facilitate better understanding of health service utilization among the Ulaanbaatar city residents, Mongolia.

From the quantitative survey, the study showed that 44.1 % of all respondents visited physicians for general health checkup during the past 12 months, which was lower than the other post socialist countries (Balabanova et al., 2004).

The both quantitative and qualitative studies illustrated main determinants that influence the health service utilization among the local residents of Ulaanbaatar city Mongolia.

The quantitative study revealed the importance of marital status and household size for utilizing health services. The qualitative study participants were also confirmed these perceptions. According to them, married, especially the mothers are likely to use health services, due to family roles and duties. The other reason could be that there is not strong male dominancy and religion and traditional issues were not the factors that influenced use of health services compared to some of the other countries (Magoma et al. 2010; Babar et al. 2004).

As for enabling factor, the income was the capital factor which directly influences the utilization of health services. The qualitative study also highlighted how income influenced the health service utilization. The primary health services are popular among the poor to normal residents. Although, the reason can be explained that free of charge of primary health services, there are some differences in accessing primary health services were indicated among the poor. The extremely poor people, who live in

precarious conditions, were less likely to use health services. The participants of focus group interviews identified that not having legal documents, including health insurance card, issues as barriers to use health services. In addition, many of them are dissatisfied with social health insurance scheme. Among the participants, including the family group practioners, the knowledge and understandings about health insurance is also not sufficient.

Furthermore, among the respondents, the overall satisfaction with health service was low. According to the quantitative study, dissatisfaction related to hospital staff skills is playing important roles in getting health services. But for about the family group practioners, the lack of equipment is the barriers of bypassing family group practices, as well as deterring use of health services, rather than the hospital staff skills. According to the respondents, many of them were likely to be treated abroad. The reasons of the perception are explained due to treatment efficiency, physicians' responsibility and skills.

Health behavior factors, such as medication usage, having healthy lifestyles and paying attention for health and health exams were the important predictors of service utilization among the local population.

However, self-medication was viewed as more affordable in terms of money and time. Other factors of hindering health service utilization included the easy accessibility of local pharmacies and the influences of friends and family members.

Furthermore, many of the focus group interview participants pointed out that health service utilization depends on personal health habits. This perception was also illustrated by the quantitative study and the study shows that the people who smoke and who do not have periodical physical exams were less likely to use health services.

During the quantitative research a total of four hypotheses were tested. The first hypotheses were partially supported. People who are married, have bigger family size use more medical services than their counterparts, even when controlling with for other variables. In addition it was also hypothesized that elderly and females would likely to have visits to health professionals. But the quantitative study result shows that although the elderly and females would like to use health service than their counterparts, these factors were not the most important elements in explaining local resident's health service utilization.

The second hypothesis was that the poor residents are less likely to use health services. But the hypothesis was not supported. The interesting thing is the poor more likely to visit physicians compared to the non poor. One possible explanation of this finding is that the primary health is free of charge for vulnerable group of the society, such as the poor, elderly, unemployed, children and the pregnant mothers.

Next, we have tested does the lower self assessed health is associated with higher likelihood of health service utilization. Although, the people who assessed their health as poor were likely to use health services than their counterparts, the stratified multiple logistic regression analysis was not supported this perception.

As hypothesized, medication usage was associated with poor health service utilization. In Mongolia, medicines including antibiotics can be bought without prescription, even though antibiotics are not to be sold over the counter. In addition payment is required for the majority of health services, even the 'free' government primary health services and universal health care coverage.

For about the qualitative study, the study posed two study questions. The qualitative

study confirmed that poor health behavior of family members and informal networks, such as friend and colleagues influence others for using health service. Although, family network and role of families and friends are still playing important roles in social activities, it influenced to deter health service utilization.

The second research question was about trust in health system and health medics.. Trust in health service had been considered a relationship between physicians and clients, as well as satisfaction with health services. Among the focus group participants, there were huge dissatisfaction and nobody mentioned about the effective relationship with health professionals. Therefore, distrust in health service and family group practitioners influence to poor health service utilization and without trust people do not want to access services at all.

6.2 Scope and limitations of the study

This study was carried out by combining both qualitative and quantitative methods and the study explores the factors related to health service utilization and in spite of its strengths, it is important to consider the findings in light of the following scope and limitations.

Theoretical Model

The conceptual framework of the study is based on Andersen's Behavioral Model of Health Service Utilization. In order to examine the health service utilization among the local urban residents in Mongolia, the study modified Andersen's Model by adding health behavior factors as the predictors of health services.

Although, Andersen's model of health service utilization was evaluated as the most frequently used and widely applied frameworks for studying health service

utilization (Aday & Andersen, 1998), it has been criticized for not paying enough attention to social and psychological factors (Antonovsky, 1972; Gortmaker et al.1982). In addition the model explains only a little variance related to service use in large-scale multivariate studies (Aday et al. 1997). Moreover, Andersen's model only specifies three factors that predict health service utilization (predisposing, enabling and need factors). Also, the model is criticized for its lack of sensitivity to diverse cultural barriers, which play important roles among the Mongolians. In addition, the model does not provide any clear explanations that how the variables are related and interact with other factors.

However the study use the Andersen's model as a conceptual framework, criticism related to the model would be improved by including important variables, which capturing social beliefs and networks of local residents of Mongolia.

Data and measurement

In addition to the theoretical limitation, there also limitations related to scope, data and measurement. The scope of the research is urban and suburban areas of Ulaanbaatar city, Mongolia. The respondents of quantitative study were the urban and sub-urban residents of the city, who are 18 and over. A total of 11 family group practitioners and 15 local residents, who live in and work for sub urban *ger* districts, were participated in 4 focus group interviews.

The limitations of the study are the fact that research is focused on adult respondents and for the qualitative study only the sub-urban residents were participated, because of their poor living, social and environmental conditions. Furthermore, the study covered only two family group practices within the study area, few practioners and nurses. The sample size used in both quantitative and quantitative studies are small and

consequently, the data gathered through the two methods is reflecting the experience and attitudes of 500 respondents and 4 focus group interviews with a total of 26 respondents.

In the view of the above the findings of the study cannot be generalized beyond the groups for the study and the study areas. Furthermore, the quantitative study was a 'snapshot' survey and does not tell the trends in utilization of health care services. Therefore, we could only examine the association between dependent and independent variables. As for the study design, it does not allow for casual interpretation of the results. Furthermore, the source of data for this study was based on the self reported information of respondents and no validation of the provided information was done from other objective sources. The next worth mentioning limitation is recall bias since evaluation of self reported information and behavior patterns were retrospective. Thus, the respondents might forget some of their experiences and previous visits to health facilities.

6.3 Recommendation

The proposed recommendations are categorized into three key factors in health service development: the need to empower the local community; the need to improve capacity buildings of health professionals and policy makers; the need to improve public health and health service infrastructure. These factors are necessary and need to be addressed urgently in order to provide health services equally and sufficiently for citizens of Ulaanbaatar city.

The need to empower the local community:

In recent years, empowerment model and approach to health promotion has become the focus of the health professionals. Empowering local residents is the first step on

the ladder of empowering the whole community and empowered community members, such as individuals, all the family members, health professionals and health institutes may play a significant role in sustainable development of the country, improving community health status and local health services.

One way to improve the health system and increase health service utilization is to provide culturally sensitive activities among the local residents. In the current study it was found that family network is still strong and it affected with family members to use health services. In addition, hospital patients are often accompanied by many relatives. Therefore family based-approach of health promotion is could be worthwhile to empower local community.

In case of Mongolia, the health organization is need to do reform from the individualistic and medically oriented services to more empowering and wide reaching services, which involves providing health information, promoting self-esteem, encouraging decision making and changing health behavior of all the family members.

The need to improve capacity buildings of health professionals and policy makers:

Health professionals, including the policy makers and health planners need to recognize the determinants of health service utilization among the local residents.

More efforts should be given to improve health workforce capacity building. Roles and responsibilities of the medics, especially family health practioners need to be improved and redefined.

Although how the public view of Family Group Practioners is not the aim of this research, some empirical indicators suggest that exploring such issues is worthwhile. In Ulaanbaatar city, many urban residents luck trust of the health system and health

professionals. It is therefore, it needs to build trust between professionals and local communities and it can be increase utilization rates. It also needs to standardize the implementation of client-friendly service delivery, including client friendly standards, guidelines should be developed.

In addition, it is argued that the majority of hospital health professionals like family group practioners, nurses, as well as the social workers do not really associate health promotion in their practice. Health care providers devote more time for clinical duties than health promotion. Consequently, the government and other responsible bodies should make efforts to increase community based health education, awareness creation and improve better access to information for local communities regarding importance of prevention and periodical exams will be imperative. In addition, it needs to pay attention and organize awareness rising campaigns for solving demand-side challenges such as poor health habits, self medication, population mobility, unregistered and vulnerable populations, public perception, and awareness and understanding about social health insurance.

The need to improve public health and health service infrastructure

Issues in infrastructure, such as outdated hospital buildings, lack of or limitations in equipment and supplies, lack of medicines and pharmacies should be strengthened and improved. By providing treatment that the local resident can afford, the patients are more likely to use health services, as well as engaging more preventive care seeking behavior. Improving quality of equipment, and higher quality care may lead to greater access and increase preventive behavior among the Mongolians.

In addition, many participants pointed out that self medication is also a deterrent for seeking health services. The seriousness of the situation is that medicines including

antibiotics can be bought without prescription and medicines sold are probably of low quality. Therefore, regulation of drug information and promotion is also necessary and the government should exert control in order to ensure that drugs reaching client are safe, effective and good quality.

Suggestions for further research into health service utilization.

The quantitative study has conducted among the local residents of Ulaanbaatar city and qualitative study has focused only on two family group practices. Consequently, there is need to replicate the study in other hospitals or clinics or in rural areas to outline the similarities and differences in health service utilization.

It also needs to be carried out to explore more about the process of health service utilization among the very poor and mobile populations, as well as the affluent.

Finally, further research is needed to systematically examine the patterns of relationships between medical professional and client (patient) is worth examination. This might be better addressed by a longitudinal study.

6.4 Conclusions

To improve and develop local health services and health policy in Mongolia, we need to understand the community, their health seeking behaviors and the factors which encourage or deter the health service utilization. This study has described the predictors associated with the level of health service utilization in Mongolia, as a developing country. The rate of health service utilization was unsatisfactory in Mongolia. Helping local residents to improve their health related behaviors and empowering community will possibly result better utilization of health services. In addition, trust in medical care and satisfaction with health services may increase the use of health services. On other hand, it needs to be an improvement in local health

services and health promotion activities. Also comprehensive health care system has to focus on the elderly, women and poor families.

The study could be generally applicable to other areas of the city since the sub-districts are similar in health service delivery. The identified problems could be useful in developing and implementing effective interventions to improve the quality of health care services of clinics and hospitals, especially the primary and secondary health units.

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参　考　論　文

Paper 1

Amarsanaa Gan-Yadam, Ryoji Shinohara, Yuka Sugisawa, Emiko Tanaka, Taeko Watanabe, Maki Hirano, Etsuko Tomisaki, Kentaro Morita, Yoko Onda, Kentaro Tokutake, Yukiko Mochizuki, Misako Matsumoto, Chihiro Sugita, Tokie Anme. (2013). Factors Associated With Health Service Utilization in Ulaanbaatar, Mongolia: A Population-Based Survey. Journal of Epidemiology, 23 (5) 320-328.

Paper 2

Amarsanaa Gan-Yadam, Ryoji Shinohara, Yuka Sugisawa, Emiko Tanaka, Taeko Watanabe, Maki Hirano, Etsuko Tomisaki, Kentaro Morita, Yoko Onda, Yuri Kawashima, Kentaro Tokutake, Yukiko Mochizuki, Mayumi Nanba, Tokie Anme. (2012). Self-assessed health and its aspects in the case of Mongolia. Health. 4 (7) 415-422.

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Original Article

Factors Associated With Health Service Utilization in Ulaanbaatar, Mongolia: A Population-Based Survey

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ABSTRACT

Background: Understanding patterns of health service utilization can improve health care and increase use of health services. We examined patterns of health service utilization among residents of Ulaanbaatar, Mongolia.

Methods: A total of 500 adults were surveyed using paper-based questionnaires. The χ^2 test and multiple logistic regression were used to identify associations between factors.

Results: 44.1% of respondents had visited a physician during the previous 12 months. After controlling for determinants, the significant predictors of utilization of health service were attention to health examinations (OR = 3.6, CI: 1.93–6.76), being married (OR = 2.7, CI: 1.50–4.72), being satisfied with the overall cleanliness of the hospital (OR = 2.4, CI: 1.12–5.19), being a nonsmoker (OR = 2.2, CI: 1.21–3.98), having periodic physical examinations (OR = 2.2, CI: 1.25–3.71), not being a hospital patient during the previous 3 years (OR = 2.1, CI: 1.22–3.73), having proper documentation (OR = 1.9, CI: 1.10–3.43), having medical insurance (OR = 1.9, CI: 1.96–3.28), not wanting to receive information on food and nutrition (OR = 0.6, CI: 0.36–0.96), having more than 5 household members (OR = 0.5, CI: 0.50–0.85), low income (OR = 0.5, CI: 0.30–0.85), lack of concern for food and nutrition (OR = 0.5, CI: 0.28–0.84), self-medication during the past 12 months (OR = 0.4, CI: 0.24–0.69), and desire for treatment abroad (OR = 0.4, CI: 0.20–0.60).

Conclusions: A number of health-related behaviors and sociodemographic factors were important predictors of health service utilization.

Key words: health service utilization; equity; Mongolia

INTRODUCTION

Health status and health service utilization vary according to social, economic, cultural, demographic, and geographic conditions.[1] Many countries seek to increase utilization of health services and promote equitable access to health care, especially in the developing world.[2,3] To increase health service utilization and improve health status, one needs to understand the forces that encourage and inhibit health service utilization. Policymakers need to identify patterns of health-seeking behaviors and health service utilization, to ensure fair access to health care services.[4]

In the developed world, several studies evaluated health service utilization.[5,6] Many studies have attempted to identify important factors and design the best models to identify key variables in connection with health service utilization.[7–9] A variety of factors have been identified as determinants of utilization of health services, including socio-demographic status, cultural beliefs, economic conditions, health service satisfaction, health status, and health service issues.[2,10,11] According to Andersen's model of behavioral health service, utilization of health services involves 3 components: primary determinants, health behavior, and health outcome factors.[7,8] Primary determinants include socio-demographic information,

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the health care system, and political, physical, and economic influences. Health behavior factors include personal health behaviors, lifestyle factors, social motivation, and use of health services. Self-assessed health, health service satisfaction, and evaluated health status are health outcome factors.

Several studies have shown that low socio-economic status, older age, gender disparities, low education level, large family size, and limited physical and financial accessibility result in poor health service utilization. A study in the former Soviet Union found that lack of money was the most important reason for not seeking care.[1] Numerous studies reported that poor health status, type of illness, and poor self-assessed health influenced utilization of health services.[12,13] Furthermore, some research has shown that dissatisfaction with health services leads to less utilization of health services.[14] In many developing countries, physical accessibility, infrastructure (including hospital location), and availability of transportation influence health service utilization.[2,15] A smaller number of studies found that communication barriers, such as linguistic and cultural gaps, led to poor health utilization, self-medication, self-care, and home-based treatment.[16]

Health status and the Mongolian health care system

Mongolia is located in Central Asia and borders China and the Russian Federation. The total population in 2010 was 2.75 million people, and the population is spread thinly over a territory of 1 566 500 square kilometers.[17]

Mongolia is a post-communist state and had a socialist health care system until the collapse of the socialist regime, in 1990. Since its transition to democracy and a market economy, Mongolia has undergone a series of health care reforms. As a result of comprehensive government policies and programs, administered by its agencies and institutes, major health indicators have improved.[18] Although the government is the main provider of modern health services, the private sector also provides a moderate level of modern health services. In addition to the modern health care delivery system, traditional treatments such as bone setters, herbal remedies, and Buddhist and Shaman rituals still exist.

At the end of 2010, the nationwide medical service consisted of 16 specialized hospitals, 4 regional diagnosis and treatment centers, 17 provincial general hospitals, 12 district general hospitals, 6 rural general hospitals, 37 inter-town hospitals, 274 town hospitals, 218 family group practices, and 1113 private clinics.[19] Regarding human health resources, there were 2.7 physicians, 3.3 nurses, and 0.4 pharmacists per 1000 population.[19] While the number of human health resources is quite high as a proportion of the Mongolian population, there are few health professionals in rural and semirural areas. In addition to the health centers, nongovernmental organizations (NGOs) have been active for many years in Mongolia, implementing various health-related projects, including programs in nutrition, child care and maternal health, immunization, prevention, behavior change, poverty reduction, and capacity development. The national statistical survey of 2010 reported that diseases of the circulatory system, neoplasms, diseases of the respiratory system, and injury/poisoning were the leading causes of morbidity and mortality.[20] Smoking, alcohol consumption, unbalanced diet, and physical inactivity were reported to be the major risk factors for morbidity and mortality and remain prevalent among the population.[19]

To strengthen the health system, improve community health status, and promote equitable access to health care service, it is essential to understand the factors associated with health service utilization. We investigated the patterns of health service utilization among local residents of Ulaanbaatar, the capital city of Mongolia.

METHODS

Study participants and sampling

A community based cross-sectional study was conducted among urban and suburban residents of Ulaanbaatar, Mongolia. According to 2012 statistics, there were 1 206 610 residents, 45.8% of the residential population of the country, living in the city; 571 192 were male and 635 418 were female. Approximately 67.2% of the total population of the city was aged 16 to 59 years, and only 6.2% were aged 60 years or older. Regarding residence location, 60% of the population of Ulaanbaatar live in the *ger* districts (suburban areas); the remaining 40% live in residential areas and are housed in apartment blocks connected to a centralized substructure. As of 2012, 40.4% of all Mongolian families live in Ulaanbaatar, and the average number of persons per family is 3.9.[21] A household socioeconomic survey in 2011 showed that around 23.5% of the population of the city live below the poverty line and that the unemployment rate of the country is 15.3%.[22] Among the population aged 15 years or older, 31.3% are single (never married), 60.1% are married, and 8.6% are divorced or widowed. Among the population aged 10 years or older, 92.5% have at least a primary education (4 years of education).[17]

A multistage sampling technique was used to represent the city population. First, 3 districts were selected (Songinokhairkhan, Khan-Uul, and Nalaikh) by lottery. Then, on the basis of geographic area and probability proportion, 9 subdistricts (3 from each of the selected districts) were included in the study. Next, 9 *baghs* (the smallest administrative division) were randomly selected. Finally, using the list of households from the selected *baghs*, 500 households were selected by lottery to create the final sample. Sampled households were visited by trained social work students, and Kish tables (which ensure equal probability) were used to select respondents within the household. The data collectors were responsible for

selecting respondents and addressing misunderstandings. A pre-tested, self-administered, paper-based questionnaire was given to individuals aged 18 or older, as they were judged to be old enough to make their own decisions concerning health care. Questionnaires with missing data for any item were excluded. Ultimately, the final sample size was 465 respondents.

This study was approved by the Ethics Committee of the Graduate School of Comprehensive Human Sciences, University of Tsukuba.

Variables and analytic strategy

A visit to a physician during the past 12 months was used as an index of health service utilization. Andersen's model[7] of health utilization was used to predict health service utilization. We applied the model to the local community in Mongolia, after considering local context and cultural sensitivities.

The cut-points were determined before testing the statistics. For example, age was divided into 2 groups (18–59 vs ≥60 years) because of the age range, life expectancy rate, and culture of the participants. Mongolia has a young population, with a median age of 25.4 years.[23] Life expectancy at birth is 68 years for both sexes,[20] and 60 is considered old age among Mongolians. Participant income was also classified into 2 groups with reference to the minimum subsistence level in Mongolia.[24] Participants with an income lower than the minimum subsistence level (approximately 90 USD per month) were defined as poor in this study.

All statistical analyses were performed using the Statistical Analysis System (SAS 9.1). The χ^2 test was used to test for associations between variables. Factors found to be statistically significant on the χ^2 test were analyzed by multiple logistic regression analysis to identify significant predictors of health care utilization. Adjusted and unadjusted odds ratios (ORs) with 95% CIs were reported, and adjusted ORs were computed using variables that were statistically significant on the χ^2 test. Associations were evaluated using a significance level of p less than 0.05. Tests of interactions and collinearity (variance inflation factor <10) were also used.

RESULTS

The study respondents were 465 adults: 185 men (39.8%) and 280 women (60.2%). The respondents ranged in age from 18 to 83 years, and mean age was 37.0 years. Approximately 44.1% of respondents had visited a physician for a general health checkup during the past 12 months. The χ^2 test showed significant associations between health care utilization and all primary determinants except employment status, education, and residence location (Table 1). Men ($P = 0.027$), younger people ($P = 0.005$), unmarried people ($P = 0.001$), and individuals who were not poor ($P = 0.034$) were less likely to use health services. In contrast, individuals from families with more than 5 people ($P = 0.010$) and those who lived in 1 place for longer than 4 years were more likely to use health services. Table 2 shows the relationship between health behavior factors and health service utilization. Use of hospital services was lower among smokers ($P = 0.009$) and people who were unconcerned by their diet ($P = 0.050$) and weight ($P = 0.044$), as compared with nonsmokers and people who were concerned with their diet and weight for health reasons. However, individuals who paid attention to health examinations were more likely to use health services than those who were not ($P = 0.001$). In addition, health services were more often utilized by respondents who had periodic dental ($P = 0.023$) and physical examinations ($P < 0.001$). Moreover, there was a statistically significant positive association with use of media such as internet ($P = 0.033$) and radio ($P = 0.021$). However, respondents who desired information on food and nutrition ($P = 0.053$) or child health care ($P = 0.041$), were much less likely to have visited a physician than those who did not seek such information. Regarding social motivation, respondents who participated in group support activities were more likely to visit a physician ($P = 0.015$). In addition, those who volunteered to help others to improve local problems or health status during the previous 12 months were more likely to visit a physician ($P = 0.004$).

Respondents were also asked to give reasons for not seeking health services, and 26.2% reported that lacking proper documentation was a reason for not using health services ($P = 0.022$). Furthermore, health-seeking behavior was related to lack of medical insurance ($P = 0.001$), receiving health instruction from religious people ($P = 0.034$), and self-medication ($P < 0.001$). Interestingly, respondents who had visited a friend or loved one in hospital during the previous 12 months ($P = 0.010$) and those who had been hospitalized or had a family member in hospital during the previous 3 years were more likely to visit physicians ($P < 0.001$).

With regard to health outcome factors, the reasons for seeking health services were related to health service satisfaction, physician skills, trust in the local hospital service, and self-assessed health status (Table 3). Respondents with poor self-assessed health status ($P = 0.002$) and those with self-assessed long-standing illness ($P = 0.001$) were more likely to visit physicians. Respondents who had been hospitalized were asked to provide additional data, and there was a significant association with physician abilities and skills ($P = 0.006$). In addition, many respondents agreed that treatment abroad was better than treatment in Mongolia ($P = 0.011$). Satisfaction with hospital service was very low among respondents, and those who were satisfied with health services were more likely to visit a physician and use such services.

Logistic regression analysis showed (Table 4) that married people (OR = 2.66, CI: 1.50–4.72), those with a household size greater than 5 (OR = 0.53, CI: 0.50–0.85), and those with a low income (OR = 0.50, CI: 0.30–0.85) were more likely to visit a physician. Regarding health behavior, nonsmokers

Table 1. Primary determinants of health service utilization

Items	*n*	Visited physician during past 12 months?		*P*
		Yes	No	
Marital status				
Married[a]	319 (68.6)	159 (49.8)	160 (50.2)	0.001
Unmarried	146 (31.4)	46 (31.5)	100 (68.5)	
Age, years				
18–59	425 (91.4)	179 (42.1)	246 (57.9)	0.005
≥60	40 (8.6)	26 (65.0)	14 (35.0)	
Household size				
≤4	277 (59.6)	107 (38.6)	170 (61.4)	0.01
≥5	188 (40.4)	98 (52.1)	90 (47.9)	
Sex				
Male	185 (39.8)	70 (37.8)	115 (62.2)	0.027
Female	280 (60.2)	135 (48.2)	145 (51.8)	
Self-reported income level				
Not poor	170 (36.6)	64 (37.6)	106 (62.4)	0.034
Poor	295 (63.4)	141 (47.8)	154 (52.2)	
Duration of residence in 1 place, years				
≤3	142 (30.5)	53 (37.3)	89 (62.7)	0.052
≥4	323 (69.5)	152 (47.1)	171 (52.9)	
Employment status				
Employed[b]	374 (80.4)	159 (42.5)	215 (57.5)	0.166
Unemployed	91 (19.6)	46 (50.5)	45 (49.5)	
Residence location				
Downtown	174 (37.4)	79 (45.4)	95 (54.6)	0.658
Suburban	291 (62.6)	126 (43.3)	165 (56.7)	
Education				
High[c]	410 (88.2)	180 (43.9)	230 (56.1)	0.828
Low	55 (11.8)	25 (45.5)	30 (54.5)	

Values represent number (%).
[a]Includes both divorced and widowed adults.
[b]Includes both students and pensioners.
[c]Denotes ≥10 years of education.

were 2.19 times as likely as smokers to use health services (CI: 1.21–3.98). Furthermore, those who were unconcerned about food and nutrition were less likely to visit a physician (OR = 0.48, CI: 0.28–0.84). Respondents who sought health examinations were 3.58 times as likely to have visited a physician (CI: 1.93–6.76). In addition, people who do not seek information on food and nutrition were 0.59 times as likely to use health services (CI: 0.36–0.96) as compared with those who sought such information. Health service use was also related to medication use, and people who self-medicated were 0.41 times as likely to have visited physicians than those who had not (CI: 0.24–0.69). People with medical insurance (OR = 1.9, CI: 1.96–3.28), those who sought periodic physical exams (OR = 2.2, CI: 1.25–3.71), and those who had not been hospitalized during the previous 3 years (OR = 2.1, CI: 1.22–3.73) were more likely to use health services. Additionally, respondents with proper documentation were 1.94 times as likely to use health services as those without such documentation (CI: 1.10–3.43). After adjustment for health outcome factors, only 2 variables were independently associated with utilization of health services: individuals who were satisfied with the overall cleanliness of the hospital were 2.40 times as likely as those who were not to use health services (CI: 1.12–5.19), and people who did not trust domestic health services were 0.35 times as likely to use health services as those who did (OR = 0.4, CI: 0.20–0.60).

DISCUSSION

We analyzed patterns of health service utilization among Mongolian adults and found that 44% of respondents had used health services during the previous 12 months. This figure is lower than in other post-socialist countries[1] and indicates that utilization must improve in urban and suburban Mongolia. Greater utilization of health services was observed among married people. Also, people from larger families were more likely to seek health care. The finding among married people may be due to the fact that most unmarried respondents in this study were young and in better health than married respondents. In addition, family ties and responsibilities, including caring for elders and relatives, are important in Mongolia, and the nomadic origin of Mongolian culture may affect social interaction, including health utilization, in married and larger families.

Higher income was associated with reduced use of health services in this study; however, many previous studies found that poor people utilized such services less often than people with higher incomes.[25] In Mongolia, poor people have more

Table 2. Health behavior factors associated with health service utilization

Items	*n*	Visited physician during past 12 months?		*P*
		Yes	No	
Self-medication during past 12 months				
Yes	242 (52.0)	71 (29.3)	171 (70.7)	<0.001
No	223 (48.0)	134 (60.1)	89 (39.9)	
Have periodic physical examinations				
Yes	255 (54.8)	145 (56.9)	110 (43.1)	<0.001
No	210 (45.2)	60 (28.6)	150 (71.4)	
Been a patient in hospital in previous 3 years (respondent or family member)				
Yes	275 (59.1)	146 (53.1)	129 (46.9)	<0.001
No	190 (40.9)	59 (31.1)	131 (68.9)	
Have medical insurance				
Yes	288 (61.9)	145 (50.4)	143 (49.6)	0.001
No	177 (38.1)	60 (33.9)	117 (66.1)	
Pay attention to health examinations				
Yes	88 (18.9)	55 (62.5)	33 (37.5)	0.001
No	377 (81.1)	150 (39.8)	227 (60.2)	
Volunteered to help others during past 12 months				
Yes	45 (9.7)	29 (64.4)	16 (35.6)	0.004
No	420 (90.3)	176 (41.9)	244 (58.1)	
Smoking habit				
Smoker	138 (29.7)	48 (34.8)	90 (65.2)	0.009
Nonsmoker	327 (70.3)	157 (48.0)	170 (52.0)	
Visited friend or loved one in hospital during past 12 months				
Yes	257 (55.3)	127 (49.4)	130 (50.6)	0.01
No	208 (44.7)	78 (37.5)	130 (62.5)	
Want to participate in group support activities				
Yes	44 (9.5)	27 (61.4)	17 (38.6)	0.015
No	421 (90.5)	178 (42.3)	243 (57.7)	
Radio use				
Yes	239 (51.4)	93 (38.9)	146 (61.1)	0.021
No	226 (48.6)	112 (49.6)	114 (50.4)	
Lack of legal documents as reason for not visiting health facility				
Yes	122 (26.2)	43 (35.3)	79 (64.7)	0.022
No	343 (73.8)	162 (47.2)	181 (52.8)	
Have periodic dental examination				
Yes	256 (55.0)	125 (48.8)	131 (51.2)	0.023
No	209 (45.0)	80 (38.3)	129 (61.7)	
Internet use				
Yes	221 (47.5)	86 (38.9)	135 (61.1)	0.033
No	244 (52.5)	119 (48.8)	125 (51.2)	
Get health-related instruction from religious people				
Yes	144 (31.0)	74 (51.4)	70 (48.6)	0.034
No	321 (69.0)	131 (40.8)	190 (59.2)	
Want information on child health care				
Yes	44 (9.5)	13 (29.5)	31 (70.5)	0.041
No	421 (90.5)	192 (45.6)	229 (54.4)	
Pay attention to weight				
Yes	62 (13.3)	20 (32.3)	42 (67.7)	0.044
No	403 (86.7)	185 (45.9)	218 (54.1)	
Pay attention to food and nutrition				
Yes	343 (73.8)	142 (41.4)	201 (58.6)	0.05
No	122 (26.2)	63 (51.6)	59 (48.4)	
Want information on food and nutrition				
Yes	191 (41.1)	74 (38.7)	117 (61.3)	0.053
No	274 (58.9)	131 (47.8)	143 (52.2)	

Values represent number (%).

health problems than those with higher incomes,[26] and 38.7% of the Mongolian general population was living below the national poverty line in 2009.[27] A 2007 survey by the Asian Development Bank revealed that 58% of all clients of family group practices (FGPs) were poor people and that nearly 70% of FGP workloads were taken up by children and elderly adults.[28] In addition, primary health service in Mongolia is free for socially vulnerable groups, which include elderly adults, single parents, children younger than 16 years, and unemployed people.

Table 3. Health outcome factors associated with health service utilization

Items	*n*	Visited physician during past 12 months?		*P*
		Yes	No	
Satisfied with hospital equipment				
Yes	72 (15.5)	47 (65.3)	25 (34.7)	<0.001
No	393 (84.5)	158 (40.2)	235 (59.8)	
Satisfied with overall cleanliness of hospital				
Yes	63 (13.6)	41 (65.1)	22 (34.9)	0.001
No	402 (86.4)	164 (40.8)	238 (59.2)	
Satisfied with skills of hospital staff				
Yes	173 (37.2)	92 (53.2)	81 (46.8)	0.002
No	292 (62.8)	113 (38.7)	179 (61.3)	
Satisfied with hospital room facilities				
Yes	82 (17.6)	49 (59.8)	33 (40.2)	0.002
No	383 (82.4)	156 (40.7)	227 (59.3)	
Satisfied with hospital location				
Yes	182 (39.1)	95 (52.2)	87 (47.8)	0.005
No	283 (60.9)	110 (38.9)	173 (61.1)	
Self-assessed long-standing illness				
Yes	228 (49.0)	83 (36.4)	145 (63.6)	0.001
No	237 (51.0)	122 (51.5)	115 (48.5)	
Self-assessed health				
Good	249 (53.6)	93 (37.4)	156 (62.6)	0.002
Poor	216 (46.4)	112 (51.8)	104 (48.2)	
Categories for hospitalization (physician ability and skills)				
Yes	412 (88.6)	191 (46.4)	221 (53.6)	0.006
No	53 (11.4)	14 (26.4)	39 (73.6)	
Desire to be treated abroad				
No	187 (40.2)	69 (36.9)	118 (63.1)	0.011
Yes	278 (59.8)	136 (48.9)	142 (51.1)	

Values represent number (%).

While poor people are the majority of FGP clients, they may not receive secondary and tertiary health services because they often lack health insurance and proper documentation, thus limiting access to health services. This study revealed that having health insurance and proper documentation were important in health service utilization. Migrants from the countryside and poor families in suburban areas are less likely to have proper documentation.

People living in suburban areas are more likely to be poor than those living in urban areas[24]; however, there was no statistically significant relationship between health service utilization and residence location in the present study, perhaps because Ulaanbaatar is smaller than other capital cities; thus, the distance to the nearest FGP or health center is not great and physical accessibility to health services might not influence health service utilization among urban and suburban residents. In addition, education was not significantly associated with health service utilization in the present study, probably because Mongolia has a high education level and the literacy rate among Mongolians aged 15 years or older is 98.3%.[17]

Another important factor in this study was self-medication, which was associated with utilization of health services. The self-medication rate was very high in the community, and self-medication has an important role in health care and health service utilization in Mongolia. Many studies have shown that poverty leads to self-care and self-medication, which affects health service utilization.[29,30]

We also found widespread dissatisfaction with health care services among urban and suburban Mongolian communities. Other studies have noted that client satisfaction affected the decision to seek care.[31] When satisfaction with the overall cleanliness of hospitals was prevalent, people were 2.4 times as likely to use health services in this study. Furthermore, trust in domestic health care was very low, and many people felt that treatment abroad was much better than treatment in Mongolia. Numerous patients are treated abroad each year, and the number is increasing. However, there are no clear data on treatment abroad, which thus needs to be further examined.

Regarding health behaviors, the rate of periodic health examination and attention to health also seemed to be unsatisfactory among our respondents. People who sought to maintain their health by paying attention to food and nutrition had less health service utilization. However, people who did not desire information on food and nutrition also had less health service utilization. These findings can be explained by the fact that individuals who are not careful about their diet may have poorer health status. Mongolians consume much meat, and most have a high intake of salt and low intake of

Table 4. Multiple logistic regression analysis of factors associated with health service utilization

Variables	Visited physician during past 12 months?	
	Unadjusted (95% CI)	Adjusted[a] (95% CI)
Primary determinants		
Marital status (married)	2.16 (1.43–3.26)	2.66 (1.50–4.72)
Sex (female)	0.65 (0.45–0.96)	1.13 (0.66–1.94)
Age (≥60 years)	0.39 (0.20–0.77)	0.86 (0.34–2.19)
Household size (>5 members)	0.58 (0.40–0.84)	0.53 (0.50–0.85)
Self-reported low income	0.66 (0.45–0.97)	0.50 (0.30–0.85)
Duration of residence in 1 place (lived in 1 place longer than 5 years)	1.49 (1.00–2.24)	1.10 (0.64–1.89)
Health behavior		
Paying attention to health examination	2.52 (1.56–4.07)	3.61 (1.93–6.76)
Nonsmoker	1.73 (1.15–2.61)	2.20 (1.21–3.98)
Having periodic physical examination	3.30 (2.23–4.86)	2.15 (1.25–3.71)
Not being a patient in a hospital during past 3 years (family member or respondent)	2.51 (1.71–3.70)	2.13 (1.22–3.73)
Having medical insurance	1.98 (1.34–2.91)	1.96 (1.17–3.28)
Having legal documentation is reason for visiting health facility	1.64 (1.07–2.52)	1.95 (1.10–3.43)
Self-medication during past 12 months	0.28 (0.19–0.41)	0.41 (0.24–0.69)
Not concerned with food and nutrition	0.66 (0.44–1.00)	0.48 (0.28–0.84)
No desire for information on food and nutrition	0.69 (0.47–1.01)	0.59 (0.36–0.96)
No desire for information on child health care	0.50 (0.26–0.98)	0.58 (0.24–1.36)
Desire to participate in group support activities	2.17 (1.15–4.10)	1.52 (0.66–3.49)
Not using internet	0.67 (0.46–0.97)	1.18 (0.66–2.09)
Not using radio	0.65 (0.45–0.94)	0.85 (0.51–1.41)
Not paying attention to weight	0.56 (0.32–0.99)	0.54 (0.26–1.12)
Having periodic dental examinations	1.54 (1.06–2.23)	1.15 (0.67–1.98)
Volunteered to help others during past 12 months	2.51 (1.32–4.77)	1.80 (0.79–4.12)
Visited friend or loved one in hospital during past 12 months	1.63 (1.12–2.36)	0.82 (0.48–1.42)
Received health-related instruction from religious people	0.65 (0.44–0.97)	1.18 (0.69–1.99)
Health outcomes		
Desire to be treated abroad	0.61 (0.42–0.89)	0.35 (0.20–0.60)
Satisfied with overall cleanliness of hospital	2.71 (1.55–4.71)	2.41 (1.12–5.19)
Satisfied with hospital equipment	2.80 (1.65–4.73)	1.75 (0.83–3.69)
Satisfied with hospital staff skills	1.80 (1.23–2.63)	1.19 (0.69–2.05)
Satisfied with hospital location	1.72 (1.18–2.50)	1.17 (0.70–1.98)
Satisfied with hospital room facilities	2.16 (1.33–3.51)	0.96 (0.47–1.99)
Self-assessed poor health	0.55 (0.38–0.80)	1.22 (0.68–2.19)
Self-assessed long-standing illness	0.54 (0.37–0.78)	0.80 (0.45–1.42)
Categories for hospitalization (not concerned with physician ability and skills)	0.42 (0.22–0.79)	0.64 (0.28–1.43)

Values represent odds ratios and 95% CI.
[a]Odds ratios adjusted for all variables in table.

fruit and vegetables.[32] People who had periodic physical examinations and paid attention to health examinations were more likely to use health services, perhaps because they had poorer health than those who did not have periodic examinations.

In Mongolia, respondents who had been patients in a hospital were more likely to visit a physician. Hospital patients may be more prone to illness and are more likely to have ongoing relationships with physicians. Smoking was also related to health service utilization in this study: nonsmokers were more likely to visit a physician. According to the World Health Organization, the smoking rate for Mongolians aged 15 years or older was 43% among males and 5.2% among females.[33] Smoking is a worsening problem among the Mongolian population, and incidences of tobacco-related diseases are increasing. Therefore, more efforts are needed to promote smoking prevention and cessation as an approach to improving the health status of the local community and encourage use of health services.

A number of limitations in this study should be noted. We considered health service utilization only among adult respondents. We did not control for institutional factors that might influence utilization of services. In addition, we did not control for or use hospital diagnoses, and we did not assess clinical need. Multiple visits to health facilities were not considered. In addition, we described health service utilization patterns only for this relatively small study population. Thus, the present findings cannot be generalized beyond the study groups and areas. The study was a "snapshot" survey and cannot identify trends in utilization of health care services. Therefore, we were only able to examine associations between dependent and independent variables. In addition, the study

design did not allow for inference of causality. Furthermore, the data source for this study was self-reported information from the respondents. The information provided was not validated by an objective source. Recall bias is a possibility because evaluation of self-reported information and behavior patterns was retrospective. Thus, the respondents might have forgotten some of their experiences and previous visits to health facilities.

Despite these constraints, the study has provided important information on patterns of health service utilization. It is important to note that very few studies of this type have been conducted in Mongolia, so comparison with previous studies was not possible.

CONCLUSIONS

To improve and develop local health services and health policy in Mongolia, we need to understand the community, its health seeking behaviors, and the factors that encourage and deter health service utilization. We identified predictors of health service utilization in the developing country of Mongolia and found that the rate of health service utilization was unsatisfactory. Helping local residents to improve their health-related behaviors and empowering the community may improve utilization of health services. In addition, improved trust in medical care and greater satisfaction with health services may increase use of health services. However, local health services and health promotion activities must also improve. In addition, a comprehensive health care system must focus on elderly adults, women, and poor families.

We recommend careful consideration of the patterns found to be statistically significant with regard to health service utilization in this study. It is hoped that our findings will inspire future research, have an impact on the design and implementation of health reforms, and empower the community and health care system in Mongolia.

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Self-assessed health and its aspects in the case of Mongolia

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ABSTRACT

Self health assessment is a simple indicator that is widely used for measuring an individual's perception of his or her overall health. Many studies have been conducted by way of showing which particular aspects should be included in health self assessment, especially in developed world. In the developing world, however, very few studies have examined self health assessment. The aim of this study was to identify particular aspects and associations in self health assessment and differences between subgroups in Ulaanbaatar, Mongolia. The area sampling approach and Kish tables were used for selecting respondents. Total 500 respondents were surveyed by paper-based questionnaires. Spearman's analysis and multiple logistic regression analysis were used to show relations between variables. Socio-demographic status, such as age and gender, proved to be important in self health assessment. Other factors affecting self health assessment included the number of family members, daily life and lifestyles, social environment, community motivation, and utilization of health services. Women, the elderly, or people with less-than- normal access to information suffer from poor self-assessed health. People who are socially inactive and who have poor living conditions are less likely to use health care services and are likely to assess their health as "poor." In order to reduce the poor self-assessed health status it is important to address disparities in socioeconomic factors, such as age, gender, employment, and residential area. In addition, more attention should be paid to community and health services, as well as to health promotion and empowerment activities, including income-generation activities. Further research is also needed, however, for better understanding of about the local people and their health-related issues.

Keywords: Self-Assessed Health; Socio-Demographic Status; Daily Life and Life-Style; Community Motivation; Social Environment; Health Service Utilization and Mongolia

1. INTRODUCTION

Self-assessed health (SAH) is a simple measurement derived from gathering data in research, and in the scientific literature, SAH is also referred to as self-rated, self-perceived, or self-reported health. Although some doubts remain concerning this single measure [1,2], SAH indicators are widely used in international studies, especially in the developed world. A large number of studies present the relationship between SAH and other health-related aspects, including health conditions, medical diagnoses, psychosocial, and emotional status. In several studies, the relationship between mortality risks or morbidity has been studied extensively [3-6]. For example, a meta analysis from Karen De Salvo et al. suggested that "poor" SAH carries a two times higher mortality risk than an "excellent" self-assessment [7]. Additionally, some studies have shown a relationship between self-assessed health and other health aspects, such as physical health problems, physiological factors, long-standing illness, or functional capacities [8-10]. Some studies have also confirmed that such aspects as life or health service satisfaction, stress, social role, and health behavior are significantly related to SAH [11-14].

Other studies have included socio-demographic and socioeconomic inequalities with the SAH. Many studies

have shown that SAH depends on gender, age, and income. Individuals with higher socio-demographic and economic status usually have better health than others do [15-18]. Even though many studies have been conducted to determine the factors of self health assessment, there is still a need to identify the local aspects of SAH in the developing world. In this article, we explored the associations among various factors influencing self health assessment in Ulaanbaatar, Mongolia.

Mongolia is the least densely populated country in the world with a population of 2.7 million people. About 63% of the total population of Mongolia lives in urban areas, including the capital city of Ulaanbaatar and other medium-sized and small towns. The remaining population lives as nomadic herders in the countryside. More than 1.1 million residents live in Ulaanbaatar [19] and the migration stream to Ulaanbaatar is increasing year by year. About 40% of the city population lives in apartment buildings, and the remaining residents dwell in a peri-urban area called the *ger* (traditional felt dwelling) districts, which lack modern infrastructure and where household incomes are 43% lower than those in urban households [20]. This kind of inhomogeneous society, with its high levels of inequality, and the considerable rise in the population of Ulaanbaatar create social and health problem. Since the end of the socialist regime, people's lifestyle and health behavior has altered dramatically toward physical and social inactivity [21]. However, life expectancy at birth has increased in the past few years (in 2009, the life expectancy at birth was 65 years for men and 74 years for women) [22], even though adult mortality rates are rising, especially the male adult mortality rate. Cardiovascular disease, cancer, and injuries have been the leading causes of death in the last 10 years [23]. These high rates of lifestyle-related diseases have increased rapidly because of urbanization, physical activity, nutrition, and tobacco and alcohol use. Today, family practitioners deliver primary health care, services, and preventive care. Although the standard of Family Group Practice specifies one family practitioner per 1300 people, in actuality this number is doubled per family practitioner [24]. Therefore, because of work overload, family group practitioners cannot provide such services as prevention, advocacy, and training.

For reducing diseases and improving health care services among the local residents, practices need to enhance primary health care, health services, health promotion, and health education activities. Policymakers should also be aware of the results of health-related research, considering it when making and planning medical services and formulating health care policies.

This study also investigates whether differences may exist between societies having different cultures. Residents in Mongolia are ethnically homogeneous and have a nomadic and Buddhist culture. Therefore, some differences in self health assessment may exist as compared to that of other nations. Some previous studies have also noted that cultural differences between countries may influence health evaluation [25,26].

2. METHODS

2.1. Study Population and Data Collection

Five hundred respondents living in urban and peri-urban communities in Ulaanbaatar, Mongolia, were selected for this survey. The respondents were surveyed through a paper-based questionnaire, and all participants were adults aged 18 years or over. The questionnaire included such aspects as SAH status, social environment, community motivation, and utilization of health services. Information on socio-demographic conditions and daily life and life-style were also collected. The set of socio demographic variables included gender, age, education, employment, marriage status, and household size. The daily life and life-style factors included experiences in using media, hobbies and other free time use, physical exercise, self-perceived quality of life, and smoking and drinking habits. The set of social environment variables included satisfaction with the residential area, community motivation, and duration of residence in one place. The measures of health service utilization included medication usage, periodic health exams, health-seeking behavior, and hospital service cost.

The sampling method was based on the area sampling approach. In the first stage of sampling, Ulaanbaatar city was chosen, which consists of 45 % of all resident population of Mongolia [27]. In the second stage, three districts within the city were purposely selected because of their density and the centralization. In the last stage, households were randomly selected. Within the household, Kish tables, which provide equal probability, were used for selecting respondents. Every respondent represents one household.

2.2. Data Analysis

Self-assessed health was the key dependent variable and it was measured through a single question, "How is your health in general?" with the response categories of "very good" (1) "good" (2) "fair" (3) "bad" (4) or "very bad" (5). We included four groups of confounders in the analyses: socio-demographic variables, daily life and lifestyle factors, social environment, and health service status and utilization.

Only the factors that met the statistical significant level in the Spearman correlation analysis were put into the multivariate logistic analyses. For the multivariate logistic analyses, we dichotomized the dependent (1, 2)

versus (3, 4, and 5) and independent variables into 2 categories. All relationships were presented with 95% confidence intervals (CIs), and two-sided p-values of less than 0.05 were considered to be significant. The missing data is excluded from the analyses; thus, the final analytic sample size was 457 respondents. The data was entered into data analysis software, the Statistical Analysis System (SAS 9.1).

3. RESULTS

3.1. Demographic Characteristics of the Participants

The demographic characteristics of the respondents are presented in **Table 1**. A majority of the respondents were women (60.0% versus 40.0%). The respondents' age span was from 18 to 83 years and the median age of the respondents was 35 years. Respondents aged 60 and over constituted 8.5% of the total. Most of the respondents were married (68.0%). The proportion of participants with a high school education (high school graduates, 206 or 45.0%) and higher education (college graduates and beyond, 149 or 32.6%) was quite high. Regarding employment status, 14.9% of the respondents indicated that they were unemployed, and the rest of the respondents were students, pensioners, and employees. The largest proportion assessed their health as good (47.1%) or fair (36.5%), with much smaller percentages for poor or very poor (9.6%) and very good (6.8%).

3.2. Statistical Analyses

According to the Spearman analysis, several significant correlations exist between SAH and the other aspects (**Table 2**). From the set concerning socio-demographic status, age ($r = 0.30$, $p < 0.001$) had a strong correlation with SAH. The next considerable factors were household size ($r = 0.14$, $p = 0.002$), gender ($r = 0.14$, $p = 0.004$) employment ($r = 0.11$, $p = 0.016$), and education ($r = 10$, $p = 0.038$). Marital status showed a negative correlation with the SAH ($r = –0.11$, $p = 0.022$), as unmarried persons had a significantly better SAH than married ones. Some of the factors related to daily life and lifestyles were also significantly correlated with SAH. One interesting finding concerns the Internet: those who use the Internet had self-assessed good health compared to people who did not use the Internet ($r = 0.32$, $p < 0.001$). In addition, persons who use the radio ($r = 0.15$, $p = 0.002$) and read magazines ($r = 0.13$, $p = 0.004$) had better SAH. Greater life satisfaction was associated with significantly better SAH ($r = 0.17$, $p = 0.001$). Those who exercise ($r = 0.16$, $p = 0.001$) and do not smoke ($r = 0.13$, $p = 0.005$) were significantly associated with good SAH. People without regular lifestyles were likely to have good health ($r = –0. 25$, $p < 0.001$). Some correlations were observed between SAH and social environment factors, such as duration of residents in one place ($r = –0.21$, $p < 0.001$) and drinking problems in the local area ($r = 0.12$, $p = 0.013$). Correlations were also observed in the set of community motivation. For example, respondents who had participated in physical activities during the past 30 days ($r = 0.19$, $p < 0.001$) and who had

Table 1. General characteristics of the survey respondents.

Characteristic	N	Percent
Gender		
Male	183	40.0
Female	274	60.0
Marital status		
Married	311	68.0
Not married	146	32.0
Age group		
18 - 59 years	418	91.5
60 ≤ years	39	8.5
Education level		
Higher education with degree	14	3.1
Higher education	149	32.6
Vocational education	35	7.7
High school education	206	45.0
Secondary school education	47	10.3
Elementary school education	6	1.3
Employment		
Employed	245	53.6
Unemployed	68	14.9
Student	55	12.0
Pensioner	89	19.5
Household size		
1 - 5 members	358	78.3
6 or more members	99	21.7
Self-assessed health status		
Very good	31	6.8
Good	215	47.1
Fair	167	36.5
Poor	32	7.0
Very poor	12	2.6

Table 2. Relationship between self-assessed health and subgroups (Spearman's analysis).

Items	Self-assessed health	
	r	p
Socio-demographic status		
Gender	0.14	0.004
Marital status	–0.11	0.022
Employment	0.11	0.016
Education	0.10	0.038
Age	0.30	<0.001
Household size	0.14	0.002
Daily life and lifestyle factors		
Internet usage	0.32	<0.001
Radio usage	0.15	0.002
Magazine reading	0.13	0.004
Regular lifestyle	–0.25	<0.001
Doing exercises	0.16	0.001
Smoking habits	0.13	0.005
Life satisfaction	0.17	0.001
Social environment		
Duration of residents in one place	–0.21	<0.001
Drinking problem in local area	0.12	0.013
Community motivation		
Attended actions to improve a local problem within the past 12 months	–0.10	0.025
Participated in physical activities during the past 30 days	0.19	<0.001
Desire to participate in income-generation activities	–0.09	0.046
Desire to attend experience- and skills-sharing activities	0.14	0.003
Health service utilization		
Met a doctor for general health checkup during the past 12 months	–0.14	0.003
Hospital service cost	0.09	0.037
Health care seeking behavior	–0.11	0.025
Periodical physical examination	–0.12	0.009

a desire to attend experience and skills sharing activities (r = 0.14, p = 0.003) were likely to assess their health as good. Some negative correlations were also observed between community motivation and SAH. The persons who participated in actions to improve local problems (r = –0.10, p = 0.025) and who had a desire to participate in income-generation activities (r = –0.09, p = 0.046) were likely to assess their health as poor. Some negative correlations were found in terms of health service use. Persons who had periodic physical examinations (r = –012, p = 0.009), and who had met a doctor for their general health within the last 12 months (r = –0.14, p = 0.003) were likely to assess their health as poor. Persons who think that hospital service is expensive were also likely to assess their health as poor (r = 0.09, p = 0.037).The interaction between variables were also tested (**Table 3**). However some statistically significant relationships were existed between variables, this study revealed the independently related factors to SAH. **Table 4** presents the odds ratios (ORs) for socio demographic status, factors of daily life and lifestyles, social environment, community motivation, and health service utilization. Age (OR = 5.78, CI: 1.92 – 16.5), gender (OR = 1.81, CI: 1.09 – 3.00), and household size (OR = 1.75, CI: 1.01 – 3.02)

Table 3. Correlation between subgroups (Spearman's Analysis).

	Items	1	2	3	4	5	6	7	8	9	10	11
1	Gender	1										
2	Age	–0.01	1									
3	Household size	0.06	0.10**	1								
4	Internet usage	0.07	0.49*	0.13*	1							
5	Regular lifestyle	–0.05	–0.18*	–0.14*	–0.29*	1						
6	Life satisfaction	0.01	0.08	0.04	0.15*	–0.20	1					
7	Duration of residents in one place	0.06	–0.30*	–0.17*	–0.20*	0.21*	0.08	1				
8	Attended actions to improve a local problem within the past 12 months	–0.06	–0.17*	0.04	–0.01	–0.13*	–0.01	0.04	1			
9	Desire to attend experience and skills sharing activities	0.02	0.04	0.03	0.10**	0.09	–0.04	–0.10	0.11**	1		
10	Met a doctor for general health checkup during the past 12 months	–0.11**	–0.21*	–0.15*	–0.13*	0.07	0.05	0.10**	0.08	–0.06	1	
11	Hospital service cost	0.01	0.08	–0.02	0.07	–0.01	0.11**	0.04	–0.09**	–0.01	–0.01	1

Note: Only the variables that met the statistical significant level in multiple logistic analysis were presented; **$0.01 \le p < 0.0.05$; *$p < 0.0.01$.

Table 4. Factors related to self-assessed health (multiple logistic regression analysis).

Items	Self-assessed health			
	OR	95% CI		P
Socio-demographic status				
Gender	1.81	1.09	3.00	0.023
Marital status	1.26	0.74	2.17	0.396
Employment	0.74	0.43	1.29	0.293
Education	0.17	0.02	1.77	0.138
Age	5.78	1.92	16.5	0.002
Household size	1.75	1.01	3.02	0.045
Daily life and life style factors				
Internet usage	2.27	1.33	3.86	0.003
Radio usage	0.98	0.61	1.57	0.924
Magazine reading	1.09	0.66	1.82	0.733
Regular life style	0.46	0.21	1.01	0.052
Doing exercises	1.03	0.64	1.67	0.889
Smoking habits	0.67	0.38	1.17	0.155
Life satisfaction	1.94	1.16	3.24	0.011
Social environment				
Duration of residents in one place	0.54	0.34	0.87	0.012
Drinking problem in local area	1.45	0.87	2.41	0.151
Community motivation				
Attended actions to improve a local problem within the past 12 months	0.47	0.29	0.75	0.002
Participated physical activities during the past 30 days	1.49	0.87	2.58	0.150
Desire to participate in income-generation activities	0.91	0.58	1.43	0.679
Desire to attend experience- and skills-sharing activities	2.75	1.07	7.06	0.035
Health service utilization				
Met a doctor for general health checkup during the past 12 months	0.60	0.38	0.95	0.031
Hospital service cost	1.76	1.12	2.77	0.015
Health care seeking behavior	1.09	0.69	1.72	0.722
Periodical physical examination	0.88	0.44	1.79	0.731

were significantly associated with SAH. Also using the Internet (OR = 2.27, CI: 1.33 – 3.86) and life satisfaction (OR = 1.94, CI: 1.16 – 3.24) were statistically associated with SAH in the set of daily life and lifestyle factors. Persons who had stayed in one place for more than 10 years assessed their health as good (OR = 0.54, CI: 0.34 – 0.87). Those who had attended community actions within the past 12 months to improve their local area assessed their health as poor (OR = 0.47, CI: 0.29 – 0.75). The people who desire to attend experience and skills-sharing activities rated their health as good (OR = 2.75, CI: 1.07 – 7.06). The analyses also showed that those who had seen a doctor within the past 12 months were independently associated with SAH (OR = 0.60, CI: 0.38 – 0.95). Furthermore, hospital service cost was significantly related to the SAH (OR = 1.76, CI: 1.12 – 2.77).

4. DISCUSSION

In the developing world, use of SAH as a measure in research is not common; therefore, in general the literature does not contain much on this topic. The first benefit of this study is that it included adult populations in the urban and peri-urban area of Mongolia, one of the developing countries in central Asia. Second, it examined the aspects associated with SAH status among the participants in the local area, which is the first in the country to report SAH and its determinants.

We found that several aspects are associated with SAH. First, there was a significant association between socio-demographic status and self health assessment. In particular, SAH depended upon age and gender, as shown in other studies [13,16]. As the age increased, the participants were less likely to assess their health as "good." After age 60, SAH declined for both men and women. Although lower SAH among the elderly may reflect physical functions and changes, it is nonetheless beneficial to promote a healthier lifestyle and empowerment programs for the local community, especially for the older populations in urban and peri-urban areas in Mongolia. The other noteworthy finding was related to gender, which affects SAH. The disparity in the life expectancy of the sexes in Mongolia is very high, as females are expected to live about nine years longer than males [22]; therefore, women were more likely to report poor health compared with men. This suggests that gender inequalities may exist in health care in Mongolia. Furthermore, attention should be paid to other social affairs of women and the local community, such as access to health-related information, health services, and social welfare. On the other hand, lifestyle habits and the roles of women and men in the family and society may influence the self health assessment; hence, this aspect needs further examination. Household size was also important to SAH, as the respondents with five or more family members were more likely to report their health as poor. Although the average family size has dropped over the past few decades, poor families often want more children and have larger family sizes than middle-income or richer families in Mongolia. Large family size has been considered one of the causes of poverty in developing countries [28]; thus, for improving health status among poor families, improvement is needed in prevention activities, health services—especially reproductive health services—and in addressing gender inequalities and inadequate information. However, the multiple logistic analyses showed that age, gender, and household size have a significant relationship with SAH, as well as employment, education, and marital status. Poor self health assessment is correlated to unemployment and poor education, as in other studies [15,29]. We also found that non-married people were healthier than those who are married. This finding may be because most of the non-married respondents were young people in this study, and there may also be cultural and social reasons among married people, such as the living conditions of the families, household sizes, and culture-oriented marital duties.

Second, some aspects related to daily life and lifestyle factors also had a significant relationship with SAH in this study. Respondents who use the Internet, listen to the radio, and read magazines have a higher SAH. According to the 2010 Population and Housing Census of Mongolia, 30.6% of the total population uses the Internet regularly [27]. However, in Mongolia, Internet service is still limited in some areas, especially peri-urban and rural areas. Hence, people who have better living conditions can access the Internet and get more information than others can. Also among older people, the level of Internet and computer usage is very low. In addition, we found a relationship between SAH and life satisfaction. The people who have better SAH enjoy their lives more than those who have poor self health assessment. The next factor that correlated with SAH was regular lifestyle. In Mongolia, people's lifestyles have changed dramatically since the collapse of the socialist regime in 1990. Many people have become more physically inactive, with accompanying poor health habits, and not many community-based organizations exist, especially for the unemployed and the elderly [21]. These factors may explain the result that people who do not have regular lifestyles, but who are active have better SAH than those who have regular lifestyles. Even though a healthier life—such as having a regular lifestyle, exercising, and not smoking—correlated with better SAH, these factors were not proven as predictors of SAH by the multiple logistic analyses in this study.

Third, we found that the persons who do not live more than 10 years in one place demonstrated poor health. The

population in Ulaanbaatar increased by 31% from 2000 to 2007. People who migrated into the capital city usually settled into peri-urban areas, and life was not secure for many of them [30]. The migrants, especially those who live in peri-urban areas, may need attention as they are more likely to suffer from SAH.

Furthermore, community motivation, such as attending community activities and having a desire to attend experience- and skills-sharing activities showed a significant relationship with SAH. From these findings, we may deduce that the people who suffered from poor SAH had not attended actions to improve local problems within the past year. Other studies have also found that social participation is important for health and that people who attend more social activities tend to report better health [31]. The people who have better SAH also have a desire to attend experience- and skills-sharing activities compared to the people who suffer from poor SAH.

Last, but not least, it should be noted that some factors related to health service utilization also have a significant relationship with SAH. In particular, the people who had been to a doctor for a general health checkup during the preceding 12 months had poorer health than others, and poor SAH also correlated to periodic physical exams. This finding implies that among the local residents, health promotion and health prevention activities are not promoted and that only those who have poor health use hospital services. In addition, we found that poor SAH and high costs for hospital service were related. This finding may indicate that it is still hard for people with low income to get health care services compared with high-income residents.

This study has some limitations: first, we did not consider hospital-diagnosed morbidity and medical conditions. Second, income was not included in the analysis, because household income was missing for a substantial minority of the study sample. Third, we did not assess children's status, as the survey did not include children under age 17. Finally, we chose SAH as a dependent variable.

5. CONCLUSIONS

The present study analyzed the particular aspects that affect SAH in Mongolia. Although, the sample size was relatively small, the study findings were important, a step toward identifying the aspects involved in self health assessment. In addition, the results of this study may reveal the population health status.

In order to reduce the gap in health status, it is important to address disparities in socioeconomic factors, such as age, gender, employment, and residential area. The level of disease prevention and periodic exams is very low in the community, and to improve SAH, more attention should be paid to community and health services, as well as to health promotion and empowerment activities, including income-generation activities. Finally, we suggest that because there is still much to do, these kinds of studies should be continued in Mongolia in order to provide understanding of the mechanisms that affect poor SAH in both urban and rural areas.

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APPENDICES

APPENDIX 1. QUANTITATIVE STUDY QUESTIONNAIRE

APPENDIX 2. GUIDING QUESTIONS OF FOCUS GROUP INTERVIEWS

APPENDIX 1. QUANTITATIVEIVE STUDY QUESTIONARIE

According to the law of personal information, statistics and citizens, the research team members will protect the privacy of personal information.

Date:……

Questionnaire number: ……

Questionnaire for residents` in Mongolia

Introduction:

Please take a few minutes to complete the following questions and this brief survey will allow us to evaluate health related Community empowerment activities in Mongolia, collect public opinion, and evaluate the residents` activity, life style and social health services. Thank you in advance for your time and consideration.

Please read the questionnaire carefully and circle your answer according to the instructions.

1. Background:

<table>
<tr><td colspan="2">1. Gender</td><td colspan="2">1. Male</td><td colspan="2">2. Female</td></tr>
<tr><td colspan="2">2. Are you married?</td><td colspan="2">1. Yes</td><td colspan="2">2. No</td></tr>
<tr><td colspan="2">3. Are you employed?</td><td>1. Employed</td><td>2.Unemployed</td><td>3.Student</td><td>4. Pensioner</td></tr>
<tr><td colspan="6">4. Education:</td></tr>
<tr><td colspan="2">1. Elementary</td><td colspan="2">2. Secondary</td><td colspan="2">3. 10 years education</td></tr>
<tr><td colspan="2">4. Vocational education</td><td colspan="2">5. Higher Education</td><td colspan="2">6. Higher education with degree</td></tr>
<tr><td colspan="6">5. Your age? .....</td></tr>
<tr><td colspan="6">6. Family shape?</td></tr>
<tr><td colspan="2">1. Single family (only wife and husband live with their unmarried children)</td><td colspan="2">2. Extended family (couples live with their children and grandparents, or grandfather and grandmother)</td><td>3. Mixed family (two or more families live together)</td><td>4. Living alone</td></tr>
<tr><td colspan="6">7. How many live in your household? Totally….....persons, out of these:</td></tr>
<tr><td>1. Aged 0-5…</td><td>2. Aged 6-15</td><td>3. Aged 16-29...</td><td>4. Aged 30-54</td><td colspan="2">5.Aged 55 ≦</td></tr>
<tr><td colspan="2">8. Do you own home?</td><td colspan="2">1. Yes</td><td colspan="2">2. No</td></tr>
<tr><td>If yes:</td><td>1. House,</td><td>2. Apartment</td><td>3. Dormitory</td><td>4. Hut</td><td>5. Ger</td></tr>
<tr><td colspan="6">9. If you rent home which of the following do you rent?</td></tr>
<tr><td colspan="2">1. House</td><td>2. Apartment</td><td>3. Dormitory</td><td>4. Hut</td><td>5. Ger</td></tr>
<tr><td colspan="6">10. What is your monthly income?</td></tr>
<tr><td colspan="3">1. Less than: 108 000 tgs</td><td colspan="3">2. Between 108 001 and 180 000 tgs</td></tr>
</table>

3. Between 180 001 and 250 000 tgs	4.Between 250 001 and 350 000 tgs
5. Between. 350 001 tgs and more	
11. What is your family monthly income? ….....*tgs*	
12. Which district and *Khoroo* do you live?	
1. Sukhbaatar / 2. Khan-Uul / 3. Nalaikh	
Number of the *Khoroo*.....	
13. Which religious do you respect or believe?	
1. Budda	2. Shamanism
3. Christ	4. Islam
5. Other.....	6. Non religious

2. Daily life and life style

14. How often do you watch television?			
1.Almost everyday	2. Three times a week	3. Once a week	4. Not at all
15. How often do you read newspapers?			
1. Almost everyday	2. Three times a week	3. Once a week	4. Not at all
16. How often do you use internet?			
1. Almost everyday	2. Three times a week	3. Once a week	4. Not at all
17. How often do you listen to FM radio?			
1. Almost everyday	2. Three times a week	3. Once a week	4. Not at all
18. How often do you read magazines?			
1. Almost everyday	2. Three times a week	3. Once a week	4. Not at all
19. How often do you read books?			
1. Almost everyday	2. Three times a week	3 Once a week	4 Not at all
20 Do you have any hobbies?			
1. Yes	2. Difficult to answer	3. Almost No	4. No
21. Do you have a free time?			
1. Yes	2. No		
22. If YES how do you spend your free time			
1. Social volunteer activities	2.Staying and communicating with family	3. Travel	
4. Communicating with friends	5. Reading	6. Shopping	
7. Attend community activities	8. No special things	9. Other ( )	
23. Is there any places (walking trails, parks, playgrounds, or sports fields) near **your house, to spend your free time with your children and family or yourself?**			
1. Yes	2. No		

24. Do you think that you have a regular or routine lifestyle?			
1. Very much	2. Sometimes	3. A little	4. Not at all
25. Which of the following items do you pay attention to keep your health? Please mark the most necessary for you with two circles (choose one answer), and mark with one circle for other answers (choose two). Please circle three answers total.			
1. Food	2. Exercise	3. Weight	
4. Rest	5. Sleep	6. Stress	
7. Regular life	8. Not smoking	9. Not drinking alcohol	
10. Tooth	11. Disease management and preventive	12. Health examination	
13. Communication with others	14. Keep environment clean	15. No special things	
16. Others ( )			
26. Do you often do exercise?			
1. Every day	2. Sometimes	3. No	
27. Are you smoking?			
1.Smoking	2. Had stopped smoking	3. Never smoking	
28. If you are smoking how long have you been smoking? (…….years)			
29. How often do you drink (vodka, wine, beer et al)?			
1. Almost every day	2. Sometimes	3. No	
30. Are you worrying about your life in the future?			
1. Very much	2. A little worry	3. Not at all	
31. If you answer is "Very much" or "A little worry" above, why you feel nervous? Please mark the most necessary for you with two circles (choose one answer), and mark with one circle for other answers (choose two). Please circle three answers total.			
1. The health of my family members and mine	2. future development of the country		
3. Family income	4. Social problems such us crime, violence		
5. Offspring's future	6. Pollution		
7. Others ( )			
32. How would you rate your quality of life?			
1. Very Poor	2. Poor		
3. Neither good nor poor",	4. Good		
5. Very good			

3. Possibilities of getting health related Information

33. Can you get the useful information about the health and health service?	
1. Yes	2. No
34. If you cannot get the useful information about the health, please write the reasons. Why? …… ……	
35. If 'Yes', from where do you get health related information?	
1. Radio /FM	2. TV
3. Family doctor	4. Friend and relatives
5. Newspaper	6. Leaflets / posters / other written materials
7. Magazines	8. Internet
9. Phone info service	10. Others ( )
36. What kinds of information do you want to know about health and health service in the future? Please mark the primary information with two circles (choose one), and all ones with one circle (choose two). Please choose three answers total.	
1. Preventive health information	2. Hospital services and their addresses
3. Health consultation	4. use of medication
5. Nutrition and food	6. Hygiene
7. family plan	8. Emergency situation addresses
9. Child health care	10. Others ( )

37. How would you consider different methods of receiving health information according to efficiency? ***Put 1 behind the one you consider most effective, 2 behind the second most effective etc***

Alternatives	**Ranking number**
Talking with family, neighbors or friends	
Talking one to one with health workers	
Health training together with other community members	
Health campaigns	
Books and brochures	
Leaflets / posters / other written materials	
TV	
Radio	
Internet	
Newspaper	

Magazine	
Phone	
Others (*specify*)……..	

4. SOCIAL ENVIRONMENT

38. How long have you lived in this area?		
1. Less than 1 year	2. 2 to 3 years	3. 4 to 5 years
4. 6 to 10 years	5. 11 to 20 years	6. 21 years or longer
39. How satisfied are you with this area as a place to live?:		
1. Very satisfied	2. Fairly satisfied	3. Neither satisfied nor dissatisfied
4. Slightly dissatisfied	5. Very dissatisfied	
40. Are people being drunk or rowdy in public places in your local area?		
1. It always happens	2. Sometimes it happens	3. Not always happen
4 Not a not a problem at all	5. It happens but its not a problem	
41. How much of a problem is rubbish or litter lying around?		
1. Very big problem	2. Fairly big problem	3. Not a very big problem
4. Not a problem at all	5. It happens but its not a problem	
42. In the last 12 months have you taken any of the following actions in an attempt to improve situations and solve a problem affecting people in your local area?" (Please do not include if you participate campaign or activities related to election.)		
1. Contacted a local radio station, television station or newspaper	2. Contacted the appropriate organization to deal with the problem, such as the city office	
3 Contacted a local primary administration unit (Khoroo)	4. Share opinions with neighborhood	
5. No local problems in our local area	6. Never attend any actions	
7. Others (…….)		
43. During the last 12 months have you given any unpaid help to any groups, community or organizations in any of the ways of protecting their health, receiving health services or solving other local problems. (Please do not include if you participate campaign or activities related to election.)		
1. Yes	2. No	3. That kind of activities are not organized
44. What kind of activities do you want to participate in the future?		
1. Volunteer activities	2. Community activities	
3. Activities for spending free time	4. Income generation activities	
5. Experience and skills sharing	6. Learning activities	

7. Support help group activities	8. Other ( )
9 Do not want to participate any activities	
45. During the past 30 days, other than your regular job, did you participate in any physical activities or exercise. Physical activities include such activities as running, sports activities, or ride a bicycle	
1 YES	2.NO

5. GENERAL HEALTH AND HEALTH SERVICE

46. How is your health in general?		
1. Very Good	2. Good	3.Fair
4. Bad	5. Very Bad	
47 Do you have any long-standing illness and sickness?		
1. Yes	2. No	
48. If Yes please choose the appropriate categories below:		
1. Mental health problem, including stress, depression or anxiety	2. Back pain	3. Cancer
4. Respiratory diseases	5. Cardiovascular disease	
6. Bone, joint or muscle problems excluding back pain	7. Infectious disease (virus, bacteria)	
8. Allergy	9. Stomach	10. Diabetes
11. Other (……)		
49. Within the last 1 month, have you taken any medicine or pills?		
1. Yes	2. No	
50. If YES is it prescribed by your physician?		
1. Yes	2. NO	
51. The pills and medicine is for ……..…… (For what illness). For example: Blood pressure, head ache, cold and so on…		

52. How would you describe the most serious illness in your community:		
1.Mental health problem, including stress, depression or anxiety	2. Back pain	3. Cancer
4. Respiratory diseases	5. Cardiovascular disease	
6.Bone, joint or muscle problems excluding back pain	7. Infectious disease (virus, bacteria)	
8. Allergy	9. Stomach	10. Diabetes

11. Other (……)			
53. During the last 12 months, including all types of visits, how many times did you see or talk to a medical doctor? (Please do not include visits to a dentist, psychotherapist or periodical exams)			
1. Number of visit……	2. Did not see a medical doctor in the last 12 months		
54. Did you see a doctor for your general health check up during the past 12 months? (Please do not include visits to a dentist, psychotherapist or periodical exams)			
1. Yes	2. No		
55. How many times have you visited a friend or loved one in the hospital in the last year?			
1. Write the number ……..	2. Not visited		
56. How many times have you and other members of your family been a patient in a hospital in the last 3 years?			
1. Write the number ……..	2. Not visited		
57. How would you evaluate the hospitals in your area in their ability to treat health problems?			
1. Excellent	2. Good	3. Fair	
4. Poor	5. Not sure		
58. How satisfied are you with the skill and competency of the staff of the hospital?			
1. Very satisfied	2. Somewhat satisfied	3. Neutral	4. Somewhat dissatisfied
5. Very dissatisfied	6. Not sure		
59. Does the hospital have equipment for modern diagnosis and treatment?			
1. Yes	2. No	3. Not sure	
60. Does the hospital have room facilities, which the patients satisfied?			
1. Yes.	2. No	3. Not sure	
61. How satisfied are you with the overall cleanliness of the hospital			
1. Very satisfied	2. Somewhat satisfied	3. Neutral	4.Somewhat dissatisfied
5. Very dissatisfied	6. Not sure		
62. Efficiency of nursing care			
1. Excellent	2. Good	3. Fair	4. Bad
5. Very bad	6. Not sure		
63. Friendliness and courtesy of the staff			
1. Very satisfied	2. Somewhat satisfied	3. Neutral	4. Somewhat dissatisfied
5. Very dissatisfied	6. Not sure		

64. Convenience of location for you		
1.Satisfied	2. dissatisfied	3. Not sure

65. Cost to you			
1. Very expensive	2. Expensive	3.it is OK	4. cheap
5. Do not know	6. Do not pay for hospital, because of having health insurance		

66. What kind of medical insurance coverage do you have?			
1. None	2. Voluntary insured	3. Employer sponsored	4. Student
5. Pensioner	6. Not sure	7. Other (…….)	

67. For whom or where do you apply first, if you are sick?		
1. Family doctor	2. Public hospital	3. Private hospital
4. Ambulance	5. Familiar doctor	6. Friends or relatives
7. Not sure	8. Other ( )	

68. If you need to be hospitalized what categories will you choose? **Please mark the most necessary for you with two circles (choose one), and all ones with one circle. (choose two) Please choose three answers total**		
1. Physician ability and skills	2. Cost	3. Equipment
4. Location	5. Familiar person, who works at the hospital	
6. Other ( )		

69. What do you think that the most common reason for not going to the hospital and meet doctor is? Please mark the most necessary for you with two circles (choose one), and all ones with one circle (choose two). Please choose 3 answers in total.		
1. Because of not having health insurance	2. Because of not having legal documents, such as passport.	3. Cost too much
4. people do not like to go to hospital and it is not become habits	5. Hospitals are too crowded	6. Because of doctor's bad behavior
7. No health problem	8. They offer bad health services	9. Do not know any familiar person, who works at the hospital
10. Other ( )		

70. Do you agree that it is much better to be treated abroad?	
1. Yes	2. No

71. Do you have dental examination periodically?		
1. Periodical	2. Sometimes	3. Never

72. Do you have physical examination periodically?		
1. Periodical	2. Sometimes	3. Never
73 Do you have periodical examination for cancer?		
1. Periodical	2. Sometimes	3. Never
74. Have you ever been tested for HIV?		
1 YES	2 NO	

6. Others

75. Do you get instruction and advice on your health situation from Shaman? Lama or Imam?		
1. Yes	2. No	
76. If "Yes" Can you say it helps your health getting better?		
1. Yes	2.. No	3.Do not know

You may offer additional comments if you wish:

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Thank you for participation.

APPENDIX 2. GUIDING QUESTIONS

Community Focus Group Interview

Guiding Questions

Date:_____(dd-mm-yy)

Interviewer_____ Start time:_____

Guides and Probes

Introduction and Background information

- Introduction (Probe: study purpose, background information)
- Where do you live?
- How long have you lived in this area?
- How would you rate your current health?
- Have you ever been ill in the past 6 months?
- Do you know what was making you ill?
- Did you seek any treatment in the past 12 months?
- If yes, where did you seek treatment?
- Has anyone else in your household been ill in the past 12 months?
- If yes, do you know what was making them ill?
- What do you think are the most common illness in this area?

Theme 1. Living condition

- What are some barriers that you face in seeking care at a family group practice? (Probe: gender, income, age, marital status, education, finance, or residence location)
- What is your biggest concern about your health and the health of those in your household?
- How far is your home from the family group practice? (Probe: Does the distance from their residence to the health care facility affect his/her decisions to seek care? If yes or no, why?)

Theme 2. Life styles and health behavior

- Do you meet a physician before getting sick?
- Why the people go to hospital after sick? What do you think what are the reasons?
- What do you do when you/someone in your family gets sick? For whom or where do you apply first? If you not go to the family group practice or other clinics, what is the reason?
- Within the last 1 month, have you taken any medicine or pills? If yes, is it prescribed by your physician?
- Do you get instruction and advice on your health situation from Shaman? Lama or Imam?

Theme 3. Health service satisfaction

- Were you and your family able to get all the treatment they needed? If no, why not?
- How satisfied are you with the skill and competency of the staff of the hospital?
- What does treatment cost? Are you satisfied with treatment cost?
- How did you feel when you were at the family group practice or other clinic and hospital?
- How long do you have to wait at the clinic before seeing the doctor?
- How would you describe your relationship with the health care workers?
- How about the health insurance system? What kind of medical insurance coverage do you have? Can you get benefits from the health insurance scheme?
- Do you agree that it is much better to be treated abroad? What is your opinion?
- What do you think about the quality of medicine?
- If you need to be hospitalized what categories will you choose?

Theme 4. Local and cultural factors influencing health service use

- What would you say are the major influencing factors in most people's decision to seek care at the health care facility? (Probe: for the role of family members/ social networks in such decisions, stigma related issues. Does the poor health service utilization is affected with others, such as a family members and colleagues'' poor

health behavior?

- Who normally makes the decisions about the healthcare of members of your households?

Conclusion

- What do you think that the most common reason for not going to the hospital and meet doctor is?
- What needs to be done to empower local community in improving their health, local situation and attending health care facility as required?
- Are there any other comments you would like to make?

End time: _____

Family Group Practioners Focus Group Interview

Guiding Questions

Date:_____(dd-mm-yy)

Interviewer_____ Start time:_____

Number of the family group practice_____

Guides and Probes

Introduction and Background information

- Introduction (Probe: study purpose, background information)
- Age, gender, level of education, designation of the interviewees.
- Duration of time working at health institutes? How long have you been working for the health organizations?
- Duration of time working at the family group practice? Number of the clients of the khoroo and number of patients she/he sees per day.

Theme 1. Working condition and local problems

- What do you think are the most common illnesses in this area?
- How would you describe the health situation in this community? (Probe: What would you say are the factors contributing to illness in this community?)
- How would you describe the working conditions of family group practitioners and local problems, which may affect clients' desire to use health services?
- How about the availability of equipment at this clinic?

Theme 2. Health behavior of local communities

- In you experience, what type of people are more likely to use health services?
- Do you think that people seek care or do self treatment before they come to the health care facility?
- Community members in the focus group interviews have reported that the major

barriers in seeking care at the family group practice are poor skills of family group practioners and relationship between clients and health care workers. How can you explain this? What do you think how to solve this problem?

- The majority of the people are reported to seek care late at the clinic or hospital, making their treatment problematic. What in your opinion needs to be done to improve early health seeking in the local community?
- How is the relationship between client and family group practioners?
- How about the proper usage of the medicines?
- What do you think about the health insurance scheme? Do the local people can receive its benefits?

Theme 3. Local and cultural factors influencing health service use.

- What are the barriers for people in seeking care at your clinic? (Probe: finance, age, gender, education, or social stigma)
- What are the major factors that influence people's decisions to seek care at the health facility for treatment? (Probe: Where do the clients usually go and what are the main reasons for that?)

Conclusion

- What do you think that the most common reason for not going to the hospital and meet doctor is?
- In your opinion, what more could be done to improve health services and health service utilization among the local residents?
- Are there any other comments you would like to make?

End time: _____