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**Factors Associated with Self-Rated Health  
Among Elderly People Living in Old Age  
Homes of Kathmandu Valley, Nepal**

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## **Abstract:**

**Background:** Self-rated health (SRH) is the subjective assessment of own general health. It has been used frequently to predict future health, disability, functional ability and mortality. Exploring factors associated with SRH is vital as it will help inform efforts aimed at promoting health among the elderly. However, there are limited studies regarding SRH and factors associated with SRH among elderly people living in old age homes in Nepal.

**Objective:** The purpose of the study was to describe SRH and explore the factors associated with it among elderly people residing in old age homes in Nepal.

**Methods:** A cross-sectional study was conducted in Kathmandu valley, Nepal. A sample of 208 elderly people aged over 60 years living in one governmental and three private old age homes were randomly selected through multi-stage cluster sampling. An interviewer-administered questionnaire was used to collect data. Descriptive analyses were first conducted. Univariable and multivariable logistic regression analyses were then used to explore the association between socio-demographic factors, self-reported chronic illnesses, lifestyle factors, functional status, social network, satisfaction with health services and SRH.

**Results:** Seventy-four percent of the participants reported good SRH while the remaining twenty-six percent rated their health as “poor”. Females were significantly more likely to rate their health as good compared to males (adj OR 3.69, CI= 1.92-11.03,  $p<0.000$ ); the same was true for unmarried elderly compared to married ones (adj OR=4.55, CI=1.29-9.87,  $p<0.000$ ). Those who were functionally independent were more likely to report good SRH (adj OR 7.00, CI=5.79- 9.31,  $p< 0.005$ ); the same was true for those who did physical exercise (adj OR= 1.96, CI=0.67-5.67,  $p<0.019$ ) and who were members of a social network (adj OR 1.70, CI= 0.78-3.71,  $p<0.017$ ) compared to their counterparts. Those who consumed alcohol (adj OR=0.23, CI=0.07-0.78,  $p<0.019$ ) and those who did not have a friend circle (adj OR=0.62, CI=0.29-1.34,  $p<0.023$ ) were less likely to report good SRH. Education and participation in recreational activities were significantly associated with SRH in univariable analysis. However, the association disappeared in the final model.

**Conclusion:** The study found that sex, marital status, functional status, physical exercise, alcohol consumption, membership in a social network and the presence of friend circles were independently significantly associated with SRH among elderly people living in old age homes of Kathmandu valley. These findings can be used to develop public health interventions and allocate

resources to mainstream physical, behavioral and social support to elderly people living in old age homes. Functional dependence appears to be particularly important, and therefore services to address it including physical rehabilitation need to be promoted.

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Thank you!!!

Amrit Dangi

## **List of Abbreviations**

Adj	Adjusted
CI	Confidence Interval
GDS	Geriatric Depression Scale
ICF	Inner City Fund
KSHAP	Korean Social Life Health and Ageing Project
NASCIF	National Senior Citizen Federation
NGO	Non-Governmental Organization
OR	Odds Ratio
SPSS	Statistical Package for Social Sciences
SRH	Self-Rated Health
TV	Television
US	United States
WHO	World Health Organization

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# CHAPTER 1

## INTRODUCTION

### **Background:**

Ageing is an unavoidable biological process. Today people are surviving longer and population ageing has been universal since it is affecting almost every parts of the globe. It might be due to this reason that the 21<sup>st</sup> century is also sometimes referred to as the century of senior citizen. Nepal is not an exception; it is also witnessing the expansion of life span and enhancement in population of elderly as the result (Geriatric Center Nepal 2010). The proportion of the ageing population in Nepal is mounting year after year due to declining fertility and mortality, improvement in public health interventions, medical advancement, economic development and as a result increase in life expectancy. The movement of fertility rate in Nepal is decreasing over the past fifteen years. According to Nepal Health Demographic survey 2011, the total fertility rate is 2.6 children per woman, which was decreased from 3.1 in 2006 (Ministry of health and population, New Era, and ICF International Inc. 2012). Migration of people from villages to city areas has made it easier to access health services. In addition, health awareness, good housing condition, improved sanitation, good food habits have contributed to an increment in life expectancy resulting in more elderly population in the long run. The life expectancy at birth in Nepal was 68.5 years in 2013 (World Health Organization 2013).

Due to lessening of socio-cultural value system, diversification in occupation, migration of economically active population for job seeking and better education, ageing is considered as a problem in the Nepalese society and old people as a burden for the family. These days the number of elderly living alone has increased and they are vulnerable to psychological problems like lonesomeness, depressions and many physical diseases (Khattri and Nepal 2006, Geriatric Center Nepal 2010).

Health is a major issue that has great influence on elderly people's happiness, satisfaction and quality of life. That is why it is necessary to understand the health status of the elderly population. Understanding the health status of elderly will help in coming across new ideas and concepts to promote health and also to provide rehabilitation where necessary.

There are different measures to assess the health status of older people among which Self-Rated Health (SRH) is one. SRH is one's own assessment of general health. It is a frequently used indicator of health applied in various studies to predict future health, disability, functional decline and mortality (Arnadottir et al. 2011, Alves and Rodrigues 2005). It is a research method where health status of individuals is measured by asking a single question, for example "In general, how is your health condition?" SRH is a subjective assessment of individual status of health and has been well recognized as a reliable predictor of functional disability and mortality in elderly populations (Damian et al. 2008, Sun et al. 2007, Wang et al. 2005, Darviri et al. 2012). It is one of the most reliable measures to assess health status among the elderly population. In the field of perceived health, self-rated health is a valid and relevant measurement of people's health status (Arnadottir et al. , Maria, Oliveira, and Echenique 2010, Cardoso et al. 2014).

Several studies have focused on factors associated with physiological and laboratory measurements, daily life activities and personal behavior. However, research has shown that perception regarding own health condition is as crucial as the clinical perceptions (Idler and Benyamini 1997). Contemporary clinical procedures have progressively stopped listening to patients and have applied diagnostic images and measurements scales instead. This allowed medicine to adopt the discipline of seeing and doing apart from the discipline of listening and feeling. It clearly demonstrates that personal perception towards own health has been largely ignored. Going through the literature (Sun et al. 2007, Phaswana-Mafuya, Peltzer, Chirinda, Kose, et al. 2013, Molarius and Janson 2002), it was found that SRH is useful in the field of public health. It has demonstrated to be an actual reflection of person's health, having well established links with incident mortality and chronic morbidity, which might be just important as collecting biological information (Haseli-Mashhadi et al. 2009, Jia et al. 2014). Moreover, SRH has been globally used to assess the public health status of elderly population. As mentioned above, SRH is examined through a single question for which experienced medical personnel is not required. This has made this method simple, cost-effective and thus popular. It has been difficult to know the exact health condition of old aged people in poor countries like Nepal because of shortage of health status indicators. In such condition, SRH may be the best option to measure the health of elderly people as this method is global, easy and less time consuming (Freidoony et al. 2015, Chalise, Saito, and kai 2007).

Self-rated health has been found to be associated with multiple factors. These factors include socio-demographic variables, acute and chronic diseases, functional status, social interaction and lifestyle behaviors, e.g. alcohol use, tobacco consumption, exercise (Darviri et al. 2012, Alves and Rodrigues 2005, Damian et al. 2008, Gao and Li 2015, Jepsen et al. 2014). Research has shown that health seeking behavior and neighborhood also have significant effects on SRH of elderly people (Damian et al. 2008). However, no study to date has looked at SRH and factors associated with it among elderly people living in old age homes in Nepal.

### **Old age homes in Nepal:**

Traditionally, family members used to take care of elderly people, for instance son and daughter used to be there for parents when they grow old. However, along with the growing technological and varied lifestyle, people have now become busy in their own work, so in many cases, the situation is different from what it used to be before. Hence, many old aged people are living alone being more vulnerable to mental illness, depressions and many other physical diseases (Geriatric Center Nepal 2010). Under such situations, old age home is a good alternative for care of elderly people. In Nepalese context, the younger family members are responsible for the care of the older members of the family. However, there are many problems and challenges to meet the support and care needs of elderly persons because of migration and extensive urbanization. This has increased the risk of older persons to protect and assure their rights in families and communities (Nepal Participatory Action Network 2010).

The concept of old age homes in Nepal is not new. The first old age home was established far before in 1776 when the then His Majesty Government of Nepal established *Pashupati Briddhashram* under Ministry of Women, Children and Social Welfare with the capacity of two hundred and thirty people. However, after that, the government could not establish any other old age homes. Apart from the government, many private institutions, non-governmental organizations and charity organizations have established old age homes with the purpose of serving the elderly people.

### **Nepal's Concern for elderly health:**

The issues regarding elderly population have emerged in recent years all over the world. After the International Plan of Action on Ageing was adopted by the United Nations (UN) in Vienna, Austria

in 1982, concern for the study of the elderly has increased even more. More recently in 2002, the Second World Assembly on Ageing was held in Madrid, Spain. It outlined an action plan in the assembly at national and regional levels to develop concrete plans of action for ageing to improve the living conditions of elders. After that efforts are being made to expand the social security programs for elderly by the signatory countries. Nepal is also one of the signatories of the Madrid Assembly and is concentrating to take action on this subject. However, opportunities have been far more in much of the developed world and less in developing countries like Nepal (Chalise 2006). The government of Nepal has been supporting and promoting individual NGOs and private sector organizations that are coming up to work with ageing population. However, the government is severely limited for effective and efficient implementation of legal and institutional provisions developed so far (Geriatric Center Nepal 2010).

Ageing surely is a universal trait as mentioned above but it is also something that needs to be admired and valued. Understanding the contributors of health in old age is crucial as the number of older people is increasing rapidly nationally and internationally. It is also necessary to recognize that people are living longer and have more years to live an active life. However, along with longer lifespan comes an increased numbers of old age people suffering from chronic diseases with multiple co-morbidities. This clearly shows that there is a challenge for public health to make those added years active and healthy. Similarly, looking from financial point of view, increasing ageing population means higher medical cost due to increased number of health problems. It is thus important to ensure good health of ageing population without disease and illness. Studying determinants of SRH might be a good way to make those added years healthy, active and hence fruitful. It is important to know the self-perceived health status of this population so that intervention could be done initially from the point of health promotion and disease prevention, as well as for the planning of health care services and development of health programs (Ocampo 2010). To a large extent, the research findings can be used as a guidance to promote health in old age.

## **Statement of problem:**

In recent years, the number of old age people is mounting rapidly in both developing and developed countries. Infant, child and maternal mortality have decreased over time, along with general improvement in the health in the population. Medical advancement and economic development have also contributed to an increase in life expectancy. A combination of all these factors has helped in raising the longevity and has resulted in significant demographic shifts towards an aging population(Parker and Thorslund 2007).

Ageing population is relatively higher in industrialized countries and the process of developing suitable policies to address problems of elderly population has already started. However, developing countries face significant challenges of addressing the problems of elderly population (Parker and Thorslund 2007). In the context of Nepal, addressing social, economic and health needs of the elderly population have been a challenge. The government of Nepal has not been able to increase medical, social and economic subsidies to the ageing population. With a lack of financial resources in the government as well as the fact that other public health problems in Nepal are given greater importance, the old age population in Nepal has been neglected. Also, the social security and rights of population of this age group has not received much attention. Although the government of Nepal has formulated schemes like providing Old age allowances and free emergency and inpatient service to the elderly people, the coverage of the schemes is very limited(Shrestha 2013). Nepal itself is a patriarchal country, hence elderly people are supposed to be taken care by their decedents. Recently, migration of youths from rural to urban areas or to foreign countries in search of better income and education and modernization have affected a lot in the care of elderly population. In cases as such, when elderly people are neglected by their decedents, they have nowhere to go and are at crisis(Chalise 2006). This definitely would lead to increase demands of old age home in the long run.

Going through existing literature, I found that there has been limited research in Nepal in the field of SRH and factors associated with it though there are few studies on physiological health. Health is multi-dimensional and understanding only biological health is not enough to address above-mentioned problems of elderly population. Studying factors associated with SRH followed by effective formulation of programs and policy can help solve the problems of elderly to a large extent.

The easiest and the most effective method, which could be used to evaluate the perception of the elderly people towards their own health is by examining SRH(Bombak and Bruce 2012). SRH has been established as a predictor of mortality by various studies that are conducted in the world. People having a positive SRH were seen to live longer and had healthier lifestyle in elderly group of people(Benyamini et al. 2000). In Context of Nepal, where clinical evaluation of the health is expensive as well as not apt for conducting research, SRH could be an effective way to evaluate satisfaction and perception of elderly towards their own health(Freidoony et al. 2015). Lack of health status indicators and also due to low investment in health, assessing health status of elderly people in poor countries like Nepal has been a major problem. Under such circumstances, SRH can be an optional method to record the health of older adults because of its ease and simplicity (Chalise, Saito, and kai 2007).

Unfortunately, literature review shows that SRH has mostly been used only in the developed part of the globe. Various studies have been conducted in high and middle-income countries examining the multidimensional nature of SRH but limited studies have been done using data from low income countries(Chalise, Saito, and kai 2007). With the fact that the elderly population of Nepal is growing over past five decades, the issues and concerns of these elderly people needs to be researched and addressed(Yadav 2012). Growing numbers of elderly people are suffering from problems ranging from economic to health, but there are limited studies in relation to general morbidities specifically focusing in this group of people(Freidoony et al. 2015). This means, research and studies on SRH in Nepal is very limited and is in the initial phase of development. Thus, there seems to be the need of research in Nepal especially focusing on personal perception towards own health among the older people in Nepal and exploring factors related to SRH.

### **Significance and objectives of the study**

It is important to realize that the ageing population of the world has increased in past few decades. With increase in life expectancy, older population is living longer and has more years of active life(Mujahid and Siddhisena 2009). Also, with increasing lifespan, there are several issues that are faced by the elderly population. Over the last two decades, a lot of research has been conducted in the field of gerontology in the developed countries (Freidoony et al. 2015). They have helped to emphasize the issues faced by the elderly population in the respective countries. But that is not true for developed countries where research on the health status of the elderly is limited.

Exploring the SRH status of the elderly provides valuable information that can be used to plan preventive and curative public health services aimed at improving the health status of the elderly. Studying factors associated with self-rated health can also have numerous public health benefits. Firstly, it will provide a close look at socio-demographic, health behavior, lifestyle and disease-related determinants of SRH among old age people, which in turn help health policy makers to come up with public health policies and new interventions to address health problems among the elderly. It is important to understand determinants of health because they can be used as a mitigating tool for improving health (Johnson 2015). In addition, the findings from the study can be used to predict future health and utilization of health care services among old age people because SRH is also a screening tool, which helps in identifying high-risk people and need of health services accordingly. Moreover, it is economical and simple and a global method to assess health status of elderly people. In developing countries like Nepal, enough research has not been conducted to know about the factors that affect the SRH of elderly people (Chalise, Saito, and kai 2007, Freidoony et al. 2015). Hence this study will help in addressing this research gap. Thus, by determining the factors associated with SRH this study expects to help government and other stakeholders to check out the loopholes and address them accordingly.

### **General Objective:**

To identify the factors associated with the health status reported by elderly people living in old age homes of Kathmandu valley.

### **Specific Objectives:**

- To describe the self-rated health reported by elderly people living in old age homes.
- To describe elderly people's reports of chronic illness, lifestyle behaviors, functional status, social interaction/network and perceptions regarding services provided in old age homes and thereafter explore the association of these factors with self-rated health.

### **Research Question**

#### **Research Questions:**

- 1) What is the self-rated health status of elderly people residing in old age homes?

This research question attempts to describe the self-rated health status of elderly people using a standard question about the perception of their own health status.

2) What are the factors associated with self-rated health of elderly people residing in old age homes?

Several factors can potentially influence the self-rated health of elderly living in old age homes. These include demographic, social and lifestyle factors, as well as the presence of chronic illnesses. This research question will therefore explore which of these factors are associated with SRH of elderly people residing in old age homes in Nepal.

## **Theoretical approach**

### **High level theory:**

The epistemological standpoint of this study is post-positivism. Post positivism is based on the new position referred as “orientation” not a unified “school of thought” believing that human knowledge is not based on unchallengeable, rock-solid foundations-rather it is hypothetical (Phillips and Burbules 2000). Factors associated with SRH in general are constructed with post-positivist paradigm: description and the strength of association between SRH and factors such as chronic illness, life-style factors, functional status and social support is simply numerical and measureable.

The study hypothesis that demographic, chronic illness, functional status as well as lifestyle factors and social network/ interaction are associated with the self-rated health status of the elderly living in old age homes includes several post-positivism assumptions. First, the epistemology of post-positivism theory assumes the idea that knowledge can best be obtained by exploring regularities and casual relationship among components of the social world(Ryan 2006). This study on the same ground following the ontological assumptions of post positivism is aimed at establishing associations between various factors like chronic illness, functional status, life style factors and so on with SRH.

Second, post positivism is based on the belief that science involves research projects or programs controlled by presumptions about the nature of reality. The researcher’s inspirations for and commitment to research are central and fundamental to the project (Ryan 2006). The assumption is that the researchers go through literature first to decide their variable of interest and used a



quantitative measure of that variable to determine the areas and process of research. After deciding the topic of the study, I started doing literature review first in order to see which variables fit in the study and how reasonable and logical is it to include them further. The majority of the variables of the study are identified through the literature review and those studied before. Saying this, the strength and probability of association between identified variables and self-rated health has not been presupposed though and I remained neutral to prevent biases from influencing presumed procedures.

Post positivism is characterized as broad research than specialized. Research in this mode requires an ability to see the whole picture, to take an in depth view or general overview. This study occupies broad area in exploring different factors associated with SRH of elderly people. The study is not limited to physiological health but also includes other dimensions like lifestyle factors, social network and so on.

The study follows quantitative methodology and questionnaire is used as a primary data collection method, which is the main core of this paradigm. There is a significant role of quantitative methodology used in this study in the way that participants can rate their health themselves among the options provided. Putting it on another way, they are given freedom to express how they perceive their health themselves through a single question. The choice to examine SRH of old age people privileges the knowledge of the respondents themselves. To assess the factors associated with SRH, elderly people are asked about the knowledge and experience of own health. They are questioned regarding their own personal behavior, life style, subjective experience of social interaction and network. Positivist researchers are of view that full understanding can be reached based on experiment, observation and perception of subjects. Concepts and knowledge are considered to be the result of straightforward experience, interpreted through rational deduction(Ryan 2006).

The choice of doing both descriptive and analytical analysis in this study was encouraged by my intention to optimize transfer of knowledge. First, this study significantly contributes to ageing research of Nepal where there are limited studies (as already mentioned) by providing the status of SRH and factors associated with it among the elderly population. Post positivism unlike positivism helps in producing knowledge and that it has mechanisms for self-correction and self-reflection(Adam 2006). Apart from that, the study has been approached with the purpose to produce knowledge, which would be useful in future for policy making at the governmental level.

**Mid-level theory:****Bio-psychosocial Model:**

Health is defined by the World Health Organization as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization 1946). This definition of health clearly argues that being healthy is not just about physical health but also includes the mental and social aspects of health.

The spotlight in this study is basically SRH and its determinants among elderly population, which is the reason for using bio-psychosocial model as the mid-level theoretical framework. This model was presented by George Engel as a holistic alternative to biomedical model, which was the dominating theory of health until the mid 20<sup>th</sup> century. The bio-psychosocial model describes how suffering, sickness and illness result from several levels of influence ranging from societal to biological (Borrell-Carrió, Suchman, and Epstein 2004). This model includes three aspects: biological, psychological and social meaning that certain process like illness is not only associated with single factor but is a result of multiple factors.

As defined earlier and suggested repeatedly in the literature, SRH is not merely associated with the presence of illness. Several other distinctive factors such as socio-demographic aspects, life style factors, personal behavior, social interaction and network can also contribute significantly in the rating of one's health. Health is not a state of being merely under the domain of the medical profession, nor is health and disease only made comprehensible by findings of medical science. In fact, the state of health is a result of multiple factors. Perspective of health is understandable when it comprises all aspects of human experience and places health fully in the dynamic interplay of social structures and embodied human agency (Yull, Crinson, and Duncan 2010). It indicates that interaction of biological, behavioral and social factors acts as the basis for perceiving health as "very good", "good" or "poor".

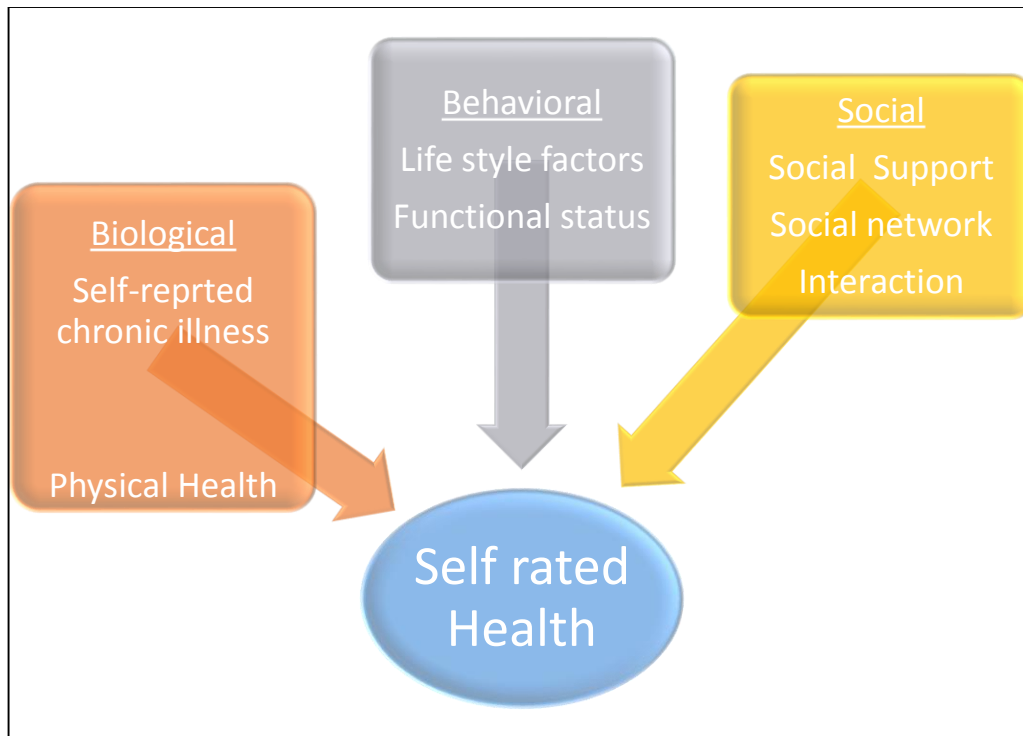


Figure 1. Factors influencing self-rated health

Figure 1 describes that self-rated health based on the ground of bio-psycho-social model is not associated only with the presence of illness or any other single factor but is a result of various determinants.

The use of this theory helps to go in depth to search for multiple factors that determine the SRH of the elderly. This model can be worth using to determine different factors associated with the self-rated health status of elderly people.

**Theory of successful ageing:**

Another mid-level theory used in this study is theory of successful ageing. John W. Rowe and Robert L. Kahn, in their article “Successful Ageing” described the theory by providing three components “low probability of disease and disease-related disability, high cognitive and physical functional capacity and active engagement with life(Rowe and Kahn 1997).” They further explained that these factors are interrelated and somewhat hierarchical. Successful ageing can be understood as, multidimensional and interrelated old age period comprised of absence of disease and disability, maintained high level of functional status along with active engagement in social interaction and network.

External circumstances of being healthy include physical health, social interaction and support, functional capability and so on. Similarly, internal determinants embrace psychological factors like self-satisfaction and self-control to manage life. It means that successful ageing is about maintaining both the physical and spiritual health. Many of the viewpoints about aging that emerged recently shaded the dominant biological model of ageing by recognizing the importance of the multidimensionality of the ageing process which means that successful ageing is not only a molecular process, but occurs also at social and psychological domains of functioning (Steverink 2014)). It is difficult to understand ageing and ageing process by looking at just single variable and believing that ageing is just about biology. In fact, ageing and health is multi-dimensional and the study of multiple dimensions helps in providing solutions to several problems at once. In the same ground of successful ageing, this study is not just based on limited factors but explores several factors like good functional status, psychological condition and active involvement in society in association with SRH.

Looking from a side, it can be assumed that those who rate their health as good or very good have a successful ageing period. The present study incorporates all three above-mentioned components of successful ageing.

## Chapter 2

### LITERATURE REVIEW

#### **Ageing definition:**

Ageing is a continuous and universal process. It encompasses changes in the physical, immunological and mental wellbeing of a person with increase in age (Yadav 2012). The definition of ageing varies from chronological, biological and psychological aspects. Ageing could account for chronological ageing which enumerates the number of years of lives of a person since birth. Similarly ageing also accounts for biological changes, which are more of physical in nature. The symptoms like wrinkles, greying of hair etc. is observed. Ageing also can be perceived psychologically. The change in thinking patterns, memory, learning, intelligence and personality also changes with age. Also, there is sociological ageing which accounts for change in social roles over time of a person (Danan, Matthew, and David 2009).

The Senior Citizen Act (2003) of Nepal defines senior citizen or elderly population as people who have completed the age of sixty years (Government of Nepal 2006). According to the act, the standard age for senior citizen is fixed to be 60 years, the retirement age or being considered older varies according to profession in Nepal (Adhikari 2013).

#### **Ageing: Global and National Context**

With demographic transition life expectancy is increasing all over the world. Over the last 5 decades, the total fertility rate of the world has decreased from 5 to 2.7. This process of reduction in fertility rate has helped to increase the share of working class population and older population in the world (Mujahid and Siddhisena 2009).

Also, within five decades the overall average life expectancy has grown from 46.5 years to 66.5 years. And by 2050, it is expected that the world's life expectancy increases by 10 years and be 76 years by 2045- 2050. If we look at the global share of the older population in the world population, we see that it has increased from 9.2 percent in 1990 to 11.7 percent in 2013 and by 2050, it is

anticipated to reach 21.1 percent of the global population. As a result, there will be a shift in the population distribution in the world (Mujahid and Siddhisena 2009).

The fertility rate in South Asia remained high during 1950s and 1960s. However, during the late 1960s the fertility rate in South Asia started declining. Declined fertility rate was accompanied by improvement in life expectancy. If we look at the trend of life expectancy over a period of 50 years starting from 1950 to 2000, a gradual increment from 40 to 65 can be observed. Fifteen percent of total old age population is from eight South Asian countries. This proportion is anticipated to increase to 22-28 percent of the world population by 2050 (Mujahid and Siddhisena 2009). Average life expectancy in South Asia is 64 years but is already increasing overtime.

Although population aging in South Asia is rapidly increasing, effective policies to address the situation have not been yet formulated. This thus is propelling an unhealthy aging amongst the south Asian group(Engelgau et al. 2011). However, attempts have been made to address the issue of ageing in the region. Since the second world assembly on ageing which was held in 2002, in Madrid, Spain, the countries in South East Asia have increased their focus on population ageing. Attempts of formulating old age friendly plans and policies are being done in this region (Mujahid and Siddhisena 2009). But, developing policies is just not enough. Though there is a rapid increase in the ageing population in this region of the world, with India being the exception, very little research has been done to find the concerns of elderly people in this region(Engelgau et al. 2011). Both public and private sectors provide health services in Nepal. Health post and primary health centers provide health services at the community level. There are district hospitals in each district followed by zonal, regional and sophisticated hospitals at the tertiary level. Free health service is provided to every citizen in order to ensure people's access to health facilities. Available health services and medicine is provided free of cost in health post, primary health center and district hospital. Each level above the health post acts as a referral point in a network from health post, primary health center and to district, zonal, regional and to the specialist hospitals.

In Nepal according to 2011 census, there were 2.1 million elderly inhabitants, which makes up to 8.1 percent of the total population in Nepal (Shrestha 2013). The life expectancy in Nepal has increased from 27 years in 1950 to 60 years by 2001 i.e. life expectancy in Nepal has doubled in 50 years (Chalise 2006). Moreover in ten year period from 1991 to 2001, the increment rate of elderly population was 3.39% which was higher than the population growth rate which was 2.3 percent (Shrestha 2013). Hence, these data signify that the increment in the ageing population in

Nepal has been very rapid over the years. Though there is increase in the ageing population over time in Nepal as in other developing countries, this has given rise to questions on addressing the need of this growing population in the government in recent years(Yadav 2012).

In the Nepali tradition, sons and daughter in law are supposed to take care of their parents when they get old. About 80% of the elderly people live with their sons and daughters in law(Geriatric Center Nepal 2010). However, along with modernization and westernization, situation is changing and people are starting to live in old age homes. It is estimated that about 85% of the Nepalese elderly live in rural areas(Geriatric Center Nepal 2010). Most of the elderly in old age are responsible to take care of grandchildren, cattle herding, religious activities and so on.

As already mentioned in the introduction part, many elderly people in Nepal are suffering from depression, loneliness (Geriatric Center Nepal 2010)and physical diseases like gastritis, hypertension, arthritis and infections(Khanal and Gautam 2011). It was found that the prevalence of depression was 53.2% according to Geriatric Depression Scale (GDS) among which 34.2 % was mild and 19 % was severe depression(Khatttri and Nepal 2006); similarly, 54% of the people living in old age homes reported that they had at least one physical disease. Prevalence of disease was higher in females and people in the age group 70-79 years(Khanal and Gautam 2011).A large scale study performed with the purpose to assess the needs of elderly people in Pharping, Kathmandu district of Nepal found that three fourths of studied male reported physical pain (back, joints, knee). Similarly, those reporting respiratory disease, eye problem and gastritis were 39%, 30% and 29% respectively(Bisht et al. 2012).

### **Self-Rated Health:**

Self-ratings of health are often used in the epidemiological and gerontology research. Self-rated health (SRH) is a method considered to be valid and reliable method to assess general health(Bombak and Bruce 2012, Wang et al. 2005, Phaswana-Mafuya, Peltzer, Chirinda, Kose, et al. 2013). SRH is a measurement of health condition which helps in predicting outcomes like mortality and decline in functional ability(Idler, Hudson, and Leventhal 1999). Questions such as “how do you rate your health” are used and this can be used to identify the determinants of health in the study population(Mossey and Shapiro 1982). SRH generally uses a single item and has a person categorize his/ her health ranging from “excellent”, “very good”, “good”, “fair” and “poor” (Bombak and Bruce 2012). The scores gained on this SRH scales are often a perspective to

understand the usefulness of the holistic definition of the health provided by WHO (Idler and Benyamini 1997). WHO defines health as a “Complete state of physical, mental and social wellbeing and not merely the absence of disease and infirmity”. SRH, which is the individual assessment of the health of the individuals, also can help to understand the level of awareness regarding health among the study population(Bombak and Bruce 2012). Having poor self-ratings of health can be in association with the psychosocial states like social isolation, depression, negative life events etc. Thus, self-rating of health is a simple way to capture the perception towards own health which might reflect ill health condition, functional status and so on.

### **SRH and Ageing:**

As health is considered to be a holistic concept and incorporates physical, social and mental wellbeing, the assessment of all the factors that are interrelated into good health is complex and multifaceted. This assessment becomes difficult particularly in elderly population because the ageing process itself is a deleterious process(Ocampo 2010). SRH has been included in different research projects since 1950. Using SRH in research has shown its usefulness in analyzing the state of health of the elderly people and also helps to predict their future health related events(Idler and Benyamini 1997).

Ageing leads to a gradual degradation of the mental, physical as well as social status of an individual. It thus becomes beyond the boundary which traditional clinical history incorporates. Hereby, it becomes important to take into account other physiological, psychological, familial, social and economic condition of an individual into account (Arnadottir et al. 2011). SRH takes into account the self-perception of their health by individuals themselves-- and it thus incorporates information on biological, mental, functional and social aspects of health(Ocampo 2010).

Clinical medical practice has now progressed from observation to diagnosis via images or application of scales. This has made the clinical test a discipline of seeing and doing in recent years. More quantitative aspects of health are taken into account in the clinical practices and qualitative aspects are ignored. The inquiry about feeling of wellbeing, psychological factors and so on that also plays a vital role in being healthy are often ignored(Ocampo 2010) but is more important in old age. Different studies done in global population has shown that SRH reflects not only biological aspects of health but includes psychological, social and functional aspect of health. Thus SRH has a great importance in elderly research. It helps to assess the factors that prompt to



mortality amongst the population. Also, it will help to formulate plans and policies regarding elderly in the population(Benyamini et al. 2000). Further its assessment helps to assess the health services provided and to establish priorities in health care(Ocampo 2010).

## **SRH as a predictor**

### **Mortality:**

Self-rated health is often found to have a correlation with mortality and life expectancy(Mossey and Shapiro 1982, Benyamini et al. 2000). SRH has a significant correlation with longevity. In terms of late mortality SRH emerges as a strong predictor. A study conducted by Mossey and Shapiro in 1982 amongst elderly Canadian citizens showed that self-rating of health was better predictor of the survival than the medical records(Mossey and Shapiro 1982). Self-rating of health has the tendency to explore the unreported diseases to the medical systems which were not diagnosed before(Idler and Benyamini 1997). Thus SRH, helped to validate the WHO's holistic definition of health, which regarded health as a "Complete state of physical, social and mental well-being and not merely the absence of disease and other infirmity"(Idler and Benyamini 1997, World Health Organization 1946).

A study conducted in Brazil also showed that even after adjusting for factors like age, public health system, current smoking status and acute cardiovascular disease, SRH was still found to be a predictor of mortality in elderly men. The subjects who reported fair or poor health after adjusting for all these factors had the risk of mortality higher comparatively(Maria, Oliveira, and Echenique 2010). Similarly, A study done in 3128 non-institutionalized elderly of Manitoba over 65 years found that controlling age, sex, satisfaction in life, income and place of residence, the risk of early mortality (1971-1973) and late mortality (1974-1977) for persons whose SRH was poor was 2.92 and 2.77 times that of those whose SRH was excellent(Mossey and Shapiro 1982).

Studies have revealed differences between genders, age and other SRH measures in the association between SRH and mortality. Consequently, the association between poor SRH and mortality is strong and it is even greater in younger adults, interestingly the presence or absence of chronic illness was not found to have an effect in one study (Burstrom and Fredlund 2001). The study by Joanna Miguez Neruy Guimaraes in Latin America concluded that SRH is useful in the field of gerontology research because of being simple, cost-effective and valid predictor of future health outcomes. The study through 10 years of follow-up had found that after controlling for physician

diagnosed chronic illness and other co-variants, the relative chance of death was 2.13 (male) and 3.43 (female) times higher among those who reported “fair/poor” SRH than those who perceived health as “very good”(Nery Guimarães et al. 2012).

A study conducted in an Israeli older population, with a sample of 622 elderly women and 730 men; found that SRH was related to short-term mortality (Benyamini et al. 2003). A study done in 411 Chinese elderly residing in old age homes found that those who reported their health condition as “fair/poor” had increased mortality in comparison to those in the “good category”. The study further summed up that only global SRH is a direct predictor of mortality among institutionalized elderly people (Leung, Tang, and Lue 1997).

The association between mortality and SRH was also found to be strong in South Asia. Research conducted in a sample of 6000 individuals in rural India also backed up the evidence that SRH was a predictor of mortality amongst the old aged people. The study further showed that SRH was a good predictor of mortality in males compared to females (Hirve et al. 2012).

### **Other health outcomes:**

Physical health and subsequent capability to function decrease as age increases. So, the measure of physical functioning in old age is important. There are limited studies, which have accessed SRH as a predictor of functional ability. Prediction of other health outcomes than mortality is, however, important in the sense that adverse health effects and risk factors associated with it could be screened out among the survivors.

A study by Ellen Idler among 4136 elderly (for morbidity study) found that in addition to life expectancy, SRH has an association with functional limitations prior to death. The study concluded that ratings as “excellent”, “very good”, “good” and even “fair” were associated with fewer activities of daily living limitation while those that reported “poor” had greater limitations on daily activities. The result was the same for both males and females (Idler and Benyamini 1997). Similarly, another study done among 2,812 institutionalized elderly showed that ratings of health as very good, good, fair and poor have implications for the loss or maintenance of functional ability. The study indicated that poor SRH was associated with increased risk of morbidity and disability, which could be used as intervening steps in future health of elderly (Idler and Kasl 1995). Moving on to the neighboring country India, research involving elderly population from hilly state of India revealed that SRH along with advancing age and musculoskeletal problems predict

functional ability. Poor SRH was found to be significantly associated with high risk of morbidity and disability. They, hence, recommended that those who rated themselves, as having “poor” health should be provided rehabilitative support (need for old age homes)(Sharma, Parashar, and Mazta 2014). Similarly, research done in another South Asian country, Sri Lanka, found that self-rated health was associated with quality of life. A study done among 336 people (aged over 60) showed that poor SRH was an important determinant of poor quality of life, which consequently meant that those who rated their health as “poor” had “poor” quality of life.

### **SRH in different contexts:**

It is a universal fact that health status differs from person to person. Because of the difference in health condition of people, the way they perceive their health might also differ. Some people might perceive his/her health as “good” while some other might report “poor” based on various factors. The literature explained below shows the prevalence of poor SRH in various settings.

A study performed with the purpose to assess the prevalence of poor SRH among older people in Columbia found that poor SRH was reported by 40.1 % accounting 42.9% for female and 35% for male after stratification by gender (Ocampo-Chaparro et al. 2013). Another study in Greece showed that 32.2 %, 52% and 15.6 % reported “very good”, “good” and “poor SRH respectively. The study was conducted in rural setting(Darviri et al. 2012). In the same way, another big scale study among South Africans revealed that 76.8% of older people rated good or fair health (Phaswana-Mafuya, Peltzer, Chirinda, Kose, et al. 2013). Similarly, another study among elderly Portuguese found that the prevalence of “poor” SRH was 30.9% (Cardosoa et al. 2014).

A SRH study among 600 male and 2587 female non-disabled elderly in Japan showed that 73.1% of them reported good SRH while rest 26.9% perceived their health as poor(Sun et al. 2007) while another study performed among elderly people living in institutions in the same country revealed that only 55% reported good or very good SRH(Damian et al. 2008). A study in neighboring country, China shows that very few (only 6.3%) rated their health status as ‘poor’(Arnadottir et al. 2011). The study however, had not dichotomized the ratings.

In Kerala state of India, the prevalence of poor SRH was 22 % whereas the overall prevalence was 7 % in the whole study conducted area. The prevalence of multi morbidity, limitation in activities of daily living and poor SRH in the studied elderly people was large with variation among the states. (Arokiasamy, Uttamacharya, and Jain 2015). A study done in Kailali district of Nepal

among 304 elderly people found that 80.3% reported good SRH while 60 19.7% rated their health as poor(Freidoony et al. 2015).

### **Factors associated with SRH:**

SRH may be affected by several factors such as socio-demographic, lifestyle, chronic illness and number of other factors as already mentioned above. Although the dimensions taken into consideration by SRH are not yet totally understood, SRH reflect a comprehensive perception of health, which covers biological, psychological and social aspects(Joanna et al. 2012). Determinants of subjective health in institutionalized elderly people include physical, psychological and environmental characteristics(Damian et al. 2008). Based on the mid-level theory described above, the factors associated with SRH is sub grouped and explained below with regard to purpose of the study to explore association of SRH with socio demographic factors, physical condition, functional status, lifestyle factors and social network and interaction.

### **Socio-demographic factors:**

Those with older age and females tend to rate their health poorly (Ocampo-Chaparro et al. 2013, Eriksson, Unden, and Elofsson 2001, Andersen, Christensen, and Frederiksen 2007). However ambiguity still lies on reporting SRH according to gender(Darviri et al. 2012). Previous studies done on SRH showed that the SRH of older people usually declines with increasing age (Darviri et al. 2012, Andersen, Christensen, and Frederiksen 2007). A longitudinal study done in Denmark including over 11,000 participants from age 42-102 showed that SRH declines with age. The older population tends to rate their health more negatively. The population group over 65 rated their health more negatively compared to other age groups(Andersen, Christensen, and Frederiksen 2007). Another study in Ireland among older people shows that age and education are linked to self-rated health. It shows that as age increases, elderly people are less likely to rate their health satisfactorily. Similarly, it was also seen that those with primary, some secondary or complete secondary education are less likely to rate their health as excellent, very good or good than those with complete tertiary education (Shiely and Kelleher 2004).

Gender also had an impact on ratings of health. A study conducted in Sweden showed that women tend to rate their health more poorly compared to their male counterparts. The study also showed that it was mainly younger age women who showed the tendency as such (Eriksson, Unden, and

Elofsson 2001). When a comparison between the quality of life was done according to sex in a cross-sectional study conducted in China, Japan, South Korea and Taiwan, it was seen that female reported poor quality of life compared to their male counterparts. Despite the fact that women have higher life expectancy compared to men, the self-rating of health is better in males compared to females(Hanibuchi, Nakaya, and Murata 2012). The findings shown by these research are interesting because, despite the fact that women have higher life expectancy than males, the research has consistently shown that males report better SRH compared to female even after adjusting for demographic and socioeconomic factors (Phaswana-Mafuya, Peltzer, Chirinda, Musekiwa, et al. 2013). One of the explanations for the discrepancy in SRH ratings could be that males suffer from life threatening diseases more, while women suffer for more non-fatal chronic conditions, which could be accounted by self-assessment of health (Jylha et al. 1998).

A cross-country research done in China, Japan, South Korea and Taiwan showed that SRH varied with socio-economic status. Occupational position, income, job security and access to health facilities were all related to health status a person reported (Hanibuchi, Nakaya, and Murata 2012). The result of this research has been consistent over literature. A cross-sectional study of 3840 individuals in South Africa aged 50 and above showed similar results. The study also showed that age, gender, race also affected SRH and quality of life amongst South Africans(Phaswana-Mafuya, Peltzer, Chirinda, Musekiwa, et al. 2013). It was seen that lower level of education, being single and of low socioeconomic status also were factors which negatively affected the SRH ratings. A longitudinal study conducted in Bangladesh from 1996 to 2002 showed that education was associated with SRH. The study found that people who were illiterate or with low education level had a poor SRH compared to people with higher education(Md, Yasuhiko, and Kazuo 2015). Similarly, a study in neighboring country India shows that subjective health of institutionalized elderly was associated positively with variables like education, source of income, and duration of stay (Ayranci & Ozdag, 2005).

### **Self-reported chronic illness:**

A study conducted in Brazil shows that chronic illness in association with sex remained the strongest determinant of SRH among old age people. Men with presence of four or more chronic illness were 10.53 times more likely to report their health status as poor while for the female, the

rate was 8.31 times more in comparisons to those who had less than or equal to two chronic illness (Alves and Rodrigues 2005).

A study conducted in China, researched the relation of five common chronic diseases with SRH. Five diseases were heart disease, arthritis, blood pressure, neck and lumbar disease and chronic bronchitis. The study presented that the impact of chronic bronchitis and heart disease was stronger than other three diseases. The analysis further found that the elderly with fewer self-reported chronic illness rated better SRH than those with higher number of chronic illness(Gao and Li 2015). The findings correlate more or less with another study conducted in Sweden. Neurological diseases and cancer among the institutionalized male elderly of age group 65-79 years had the largest role in determining SRH whereas rheumatoid arthritis, renal disease and cancer had highest contribution to SRH among female of same age group(Molarius and Janson 2002).

A study among elderly people in Sri Lanka found that absence of chronic disease was associated with positive SRH. The proportion of those without chronic illness decreased with increase in age. Putting it in another way, chronic illnesses were present more among older and oldest(Østbye, Malhotra, and Chan 2009). Similarly, a large-scale study conducted in another neighboring country, India reveals that coexistence of multiple and co-morbid chronic illness is likely to have adverse effect on functional status and SRH. The findings of the study showed that those with multiple chronic illnesses rated their health “poor” whereas those with less or complete absence of chronic diseases reported better health status. Those who had multiple chronic illnesses were poor and uneducated (Arokiasamy, Uttamacharya, and Jain 2015).

On the other hand, there are some studies which show that self-reported chronic illness and SRH are not significantly associated with each other. SRH survey among elderly community dwellers of Nepal found that self-reported chronic illness was not significantly associated with SRH after adjusting for age and satisfaction of health care services(Freidoony et al. 2015).

### **Functional status (Activities of daily living):**

Several studies(Nybo et al. 2001, Hoeymans et al. 1997, Gama et al. 2000) have found that activities of daily living or functional status and SRH are not associated with each other while other studies(Ayranci and Ozdag 2005, McCallum, Shadbolt, and Wang 1994) have found a significant relationship.

A research conducted among 2262 nonagenarians (elderly people between 90-99 years old) to study functional status and self-rated health. The study was the largest nationwide cohort study in Denmark; 56% of the total participants rated their health as excellent. The study found that no activities of daily living were significantly associated with SRH. It further explained that although people were disabled and could not function well; they were satisfied with their health condition and rated their health “excellent” or “good”(Nybo et al. 2001).

More or less similar results were found in the survey among elderly population conducted in another European country, The Netherlands. This research also found that SRH was not affected by the presence or absence of functional limitation or disability. However, analysis of disabilities in mobility alone showed that it was positively associated with poor SRH. The association became weaker with increasing age and it was complete absent among the oldest group(Hoeymans et al. 1997). Similarly, another cross-sectional study(Gama et al. 2000) with the purpose to examine the relationship between 18 activities of daily living with SRH found that only use of stairs, ambulation and chair/bed transfer were positively associated with SRH. Only transport was related with SRH on the Barthel index. Hence they concluded (similar to above study of The Netherlands) that mobility is the most important activity of daily living to have effect on self-rating of health. The above studies were however conducted in European settings which are very different to the Nepalese context, for example in terms of facilities that might exist for those with limitations of mobility.

On the contrary to the findings of above surveys, a study in India done among elderly person residing in old age homes reveals that basic activities of daily living such as dressing, feeding, bathing, transfer-moving inside and outside and other activities such as social activity, recreation influence the health status of those who need nursing care in old age homes (Ayranci and Ozdag 2005). Similarly, another assessment of SRH between Australian elderly involving seven year of follow up concluded that old aged people rate their health on the objective basis of illness and disability(McCallum, Shadbolt, and Wang 1994).

### **Lifestyle factors:**

Factors such as physical exercise and lifestyle behaviors also were found to have a great impact on the SRH among the elderly population. A cross sectional study conducted in a population of 1519 old aged participants in Greece showed that respondents with more proactive lifestyle

including regular exercise, healthy diet and better quality of sleep tend to have better self-ratings of health. Also stress and other metabolic disorders were negatively associated with SRH. As excessive stress was related to maladaptive coping, including unhealthy diet, smoking, alcoholism etc. these factors have direct impact on health as they cause non-communicable diseases like diabetes, Cancer, cardiovascular disease etc. in the population (Darviri et al. 2012). A study performed in older US citizens showed that those who were classified as obese and less physically active reported poor/fair SRH. The analysis further revealed that all the participants (irrespective of sex), who consumed high fat foods and <2 servings of vegetables and fruits per day reported poor SRH (Zarini et al. 2014).

A study with the purpose to assess the relationship between lifestyle factors and self-perceived health among Norwegian people found that adverse health effects: smoking (odds ratio 1.2,  $p < 0.001$ ), obesity (OR 1.7,  $p < 0.001$ ), intake of alcohol (odds ratio 3.3,  $p < 0.001$ ) had an higher risk of reporting poor SRH (Jepsen et al. 2014). Lifestyle factors have been found to have association in other studies also. Those who were physically inactive, underweight and obese rated their poor health status in comparison to those who were physically fit (Molarius et al. 2007).

A Nepalese study regarding SRH among elderly people found that absence of physical exercise, alcohol consumption, smoking and unhappiness were associated with poor self-rated health (Freidoony et al. 2015).

### **Social Interaction and Network:**

Level of happiness and being socially active also been associated with better SRH. Research conducted in Nepal has shown that socialization had positive effect on the mental health of older adults. Leisure-time social activities like participation in cultural events and outdoor sports helped to decrease the level of depression and increase level of happiness amongst older people (Gautam, Saito, and Kai 2007). A research conducted in the Kailali district of Nepal also shows similar findings. Respondents who had high level of happiness and satisfaction in life had better rating in their self-rated health compared to people who had low level of satisfaction. Hence, level of happiness could be another variable that might affect SRH (Freidoony et al. 2015).

A study by Howard Litwin among 2,043 elderly Jewish Israelis assessed the relationship between SRH and social interaction, network and support. The study found that self-rated health was positively associated with more familial, traditional, and network dynamics (Litwin 2006).



Research from United States involving 3476 elderly population aged over 60 indicated that need for social support was higher among those who rated their health as “poor”. The need for social support was two times higher than those who were satisfied and reported better health. They hence highlighted the importance of emotional support for better life of elderly people(Ann et al. 2009). The result matched those of a study done among 200 residents of old age home in Jerusalem (Auslander and Howard 1991). A study performed among residential elderly of Korean Social Life, Health, and Aging Project (KSHAP) examined the association of SRH with network properties. The study concluded that those with smaller network were more likely to report their health as poor. Furthermore, they also found that once the member is segregated from his/her large social network, they feel lonelier and rate worse SRH in comparison to those who are still member of large network (Youm et al. 2014).

Self-rated health of elderly was found to be positively associated with quantity of daily social contacts. It was showed that older people who were active in social contact and interaction with family and friends reported better SRH status. It was seen that, each one-unit increment in the number of daily social contact with friends or family lead to an increase in the odds of good, very good, and excellent health versus poor/fair (Hejun and Yvonne 2013).

## **CHAPTER 3**

### **METHODOLOGY**

#### **Identification of variables:**

The choice of variables associated with SRH in this study was based on existing literature as highlighted in the literature review section. Consequently, age, sex, marital status, education and past occupation were taken as socio-demographic (independent) variables. Similarly, self-rated chronic illness, functional status, lifestyle factors, social interaction/network and facilities provided in old age homes were included as dependent variables in the study.

Facilities provided in old age homes is a relatively new variable added in this study. I could not find other SRH research in old age homes incorporating perception towards services but this factor might be an important factor in determining one's perception of own health. This variable is included with the intention to find out whether perception towards own health is affected by the facilities provided in old age homes especially in Nepal where services in old age homes might not be optimal.

#### **Study Design:**

The research design used is a cross-sectional study design. Cross-sectional method is an observational study design, which is performed at one particular time among a group of population. Cross-sectional study was used as it is cheap, less time consuming and easy to perform, therefore, feasible in the timeframe I have to do data collection. In the same way, as participants are only interviewed once, there will be no loss to follow-up and hence data collection is more complete. Moreover, cross-sectional study allows studying exposure to many risk factors and examines multiple outcomes, thus the relationship of SRH can be studied with multiple factors. However, data on both exposures (factors associated with SRH in this study) and health status are collected at the same time, it will be difficult to make inferences about the causalities (Sedgwick 2014). This fact will be taken into account in the interpretation of findings.

**Study Site:**

The study sites are old age homes of Kathmandu Valley, Nepal. Kathmandu valley includes three districts namely Kathmandu, Bhaktapur and Lalitpur. Kathmandu is the capital city of Nepal and there are more old age homes than other cities of Nepal. The study is performed in both governmental and private old age homes.

**Study samples/participants:**

The subjects of this study were elderly population living in old age homes of Kathmandu Valley. The study population comprised of both men and women above 60 years of age. Information regarding the total number of samples was gathered from National Senior Citizen Federation (NASCIF), Nepal. NASCIF is a non-political and non-profit making social organization working for the welfare of senior citizens in Nepal. According to the data of this organization, there are a total of 452 elderly people living in 13 old age homes including one governmental old age homes. After this information was obtained, sampling was done to carry out the remaining research process.

**Sampling Procedure:**

The sampling procedure employed in this study is multistage cluster sampling. In the first stage of sampling, the old age homes in Kathmandu valley were divided into two categories, one being governmental and other private old age homes. There is only one governmental old age home, so it did not require any further sampling to be sampled for data collection. Secondly, depending upon the sample size required 3 private old age homes were selected randomly from a total of 12. Hence, the sampled old age homes were:

*Pashupati Briddhashram* (Governmental)

*Siddhi Saligram Briddhashram* (Private)

*Nisahaya Sewa Sadan* (Private)

*Divine Service Home* (Private)

Among these four old age homes, samples were again selected randomly on the basis of probability proportionate to size i.e. more samples were taken from those with more population.

### Sample size:

The sample size of the survey was determined using the following formula:

$$\text{Population sample size (n)} = Z^2 * P * (1-P) / C^2$$

Where,

Z= z value (degree of confidence level)

P= Percentage picking a choice (Prevalence)

C= Confidence interval, expressed as decimal

No such studies related to self-rated health, elderly population and old age homes were found in Nepal, so the prevalence for this study was taken as 0.5.

Hence,

$$\begin{aligned} \text{Sample size (ss)} &= (1.96)^2 * 0.5 * 0.5 / (0.05)^2 \\ &= 384 \end{aligned}$$

As this study has finite population,

$$\begin{aligned} \text{New Sample Size} &= \text{ss} / 1 + \text{ss} - 1 / \text{population} \\ &= 384 / 1 + 384 - 1 / 452 \\ &= 207.86 \end{aligned}$$

Hence, the total sample size for this study was 208.

Sample size for each old age home:

Name	Population	% Covered	of Samples to be taken
<i>Pashupati</i>	240	240/330*100=72.72%	72.72*208/100=151.25= <b>151</b>
<i>Bridhashram</i>			
<i>Siddhi Saligram</i>	30	30/330*100=9.09%	9.09*208/100=18.90= <b>19</b>
<i>Bridhashram</i>			
<i>Nisahaya Sewa</i>	42	42/330*100=12.72%	12.72*208/100=26.45= <b>26</b>
<i>Sadan</i>			
<i>Divine Service</i>	18	18/330*100=5.45%	5.45*208/100=11.33= <b>12</b>
<i>Home</i>			

<b>Total</b>	330	100	<b>208</b>
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### **Sampling Criteria:**

### **Inclusion Criteria:**

For old age homes residents to be included in the study, the following criteria were taken into consideration:

- Considering the definition of elderly population given by the senior citizen act of Nepal, those only above 60 years of age were included in the study.
- Those who were living in that particular old age home for longer than 6 months as they would be in better position to inform more about their perception on facilities provided by old age homes.

### **Exclusion criteria:**

Following criteria were taken into consideration to exclude subjects from the study:

- Those who are completely deaf.
- Clinically demented or too ill to participate in the study.

### **Data collection instrument:**

Primary data was collected using structured questionnaires applied using face-to-face interviews.

### **The research assistant:**

I employed a research assistant to help me in collection of data. Alone data collection procedure would take long time, which might have affected the timely completion of the thesis. As for the educational background of research assistant, she had completed bachelors in public health and had already worked as a research assistant in more than three researches. Her previous involvement in research and my experience of working with her while I was back in Nepal made me comfortable to coordinate and trust her. Description of the study, purpose of the study and plan for the research

process were discussed with the research assistant. Besides, working closely with me since the very point of approval taking from old age homes, questionnaire discussion with manager of old age homes and so on made her understand the the study better.

### **Measurements:**

#### **Outcome Variable:**

As the topic itself reveals, SRH is the main outcome measure of this research. SRH in this study is measured by asking a single question: In general, how do you describe your current health? The participants were provided five choices: very good, good, fair, poor and very poor. For the analysis, the variable was again categorized into: good (very good, good and fair) and poor (poor, very poor). The measure was taken after a review of various literature (Phaswana-Mafuya, Peltzer, Chirinda, Musekiwa, et al. 2013, Sun et al. 2007, Leung, Tang, and Lue 1997, Jepsen et al. 2014, Darviri et al. 2012) and because of its suggestive reliability to examine the determinants of SRH . SRH is a valid and consistent tool to predict mortality (Maria, Oliveira, and Echenique 2010), functional capacity (Idler and Benyamini 1997) independently of socio-demographic variables, objective health and psychology (Damian et al. 2008). The reliability of SRH was found to be as good as or even better than that of most of the more specific questions asked in one study. The reliability was good in all subgroups, and was found to be actually excellent among older men (Lundberg and Manderbacka 1996).

### **Variables:**

#### **Socio-demographic factors:**

Socio-demographic factors as independent variables in this study included age, sex, marital status, education and occupation (current and previous). Age was grouped as: <70 (60-70), and 70 and above. Marital status was divided into married and unmarried. Unmarried included single, separated/divorced and widowed. Similarly, educational status is categorized as illiterate and primary level and above. Primary level and above included those who have passed secondary level, higher secondary level, bachelors and above. Previous occupation was included as socio-demographic variable in the study with the belief that it could have a role in determining current health status. Previous occupation was categorized as agriculture, business, service and foreign employment. Occupation was then re-categorized as agriculture and others (business, service and foreign employment). Occupation was categorized following the household budget survey (Nepal

Rastra Bank 2008). Occupation as student and housewives were not included, as they do not fit for elderly people living in old age homes.

**Physical condition:**

Physical condition was assessed on the basis of visual ability, hearing ability and self-reported chronic disease. The questions were adapted after going through different literatures(Damian et al. 2008, Sun et al. 2007, Østbye, Malhotra, and Chan 2009). Visual ability was examined dichotomously as use of corrective lenses for clear vision or not. In case of answering yes, ability level was further assessed as the ability to see letters of newspaper clearly, can see only the larger prints, unclear vision of objects and do not see at all. In the same way, hearing ability was examined asking the question whether they have difficulty in normal conversation or difficulty only in noisy environment or the speaker has to raise the voice. Self-rated chronic disease was also examined dichotomously as presence or absence of disease. The diseases examined were arthritis (physical pain in joints, knee, back and so on), diabetes, gastritis, asthma, heart disease, urinary tract infections and cancer. The presence of chronic disease was just provided with descriptive data. It was not used further for univariable and multivariable regression analyses as some of the data constituted a very low percentage of the total, which would make it difficult to conduct analyses.

**Functional Status:**

Barthel index(Mahoney and Barthel 1965) was used to assess the level of dependency in accomplishment of basic activities listed as: eating food, going to the toilet, bathing/showering, dressing/ undressing, transferring, walking and use of stairs. On the basis of response, scoring was first given on each above-mentioned activity. The score was then totaled and categorized on the basis of score as severe dependence (0-5), moderate dependence (5-10), slight dependence (10-15) and independence (15-20).

**Lifestyle factors /personal behavior:**

Lifestyle factors in this study include physical exercise, leisure-time activities, smoking habit and alcohol consumption. Physical exercise was assessed by asking whether the respondent performs regular physical exercise or 3-4 times a week or less than 3 times a week or never. Similarly, leisure time activities were categorized as sleeping, watching TV, roaming around, doing religious activities or any others in order to establish relationship with SRH. The question regarding leisure time activities was multiple-choice question. Smoking habit was accessed by asking question ‘Do you smoke’ and if yes, ‘How many cigarettes per day?’ In the same manner, frequency of alcohol

consumption was asked if the respondent consumes alcohol to examine alcohol consumption. Do you consume alcohol was asked first and if the response was positive, they were further asked about the frequency of consuming alcohol by providing them options- daily, few times in a week, few times in a month and only on occasion. For the analysis purpose, it was re-categorized as few times in a month (daily, few times in a week and few times in a month).

#### **Social interaction/network:**

Social activities were assessed through social network, participation in recreational activities, visiting and telephone conversation with family members, relatives and friends. “Are you a member of any active group?” followed by its types and frequency of involvement in the group in case of positive response was questioned to assess social network. Furthermore, frequency of participation in recreational activities organized by old age homes was also asked. Frequency of meetings with family members, relatives and friends including telephone conversation with them was questioned to examine social interaction.

#### **Services provided in old age homes:**

It was measured by asking the question related to duration of stay in old age homes, health check-up, foods provided, accommodation and communication with the caregivers. Duration of stay is categorized as < 1 year, 1year-3 years, 4 years- 5 years, 6 years- 10 years and >10 years. It was later re-categorized into <1 year, 1 year-3 years and 4 years and above for the analyses. Health checkup was accessed through the question, “Are you provided regular health checkup?” Similarly, “If somebody falls sick, who provides necessary check-up?” was also asked. Moreover, satisfaction regarding foods provided and accommodation was also asked to examine the facilities. Lastly, respondents were asked to describe the communication with caregivers providing five options: very good, good, average, poor and very poor, and this was re-categorized into very good (very good and good), average (average) and poor (poor and very poor).

The re-categorization of variables in the study was partly influenced by the distribution of the variables (in order to avoid categories with too few participants) as well as the need to minimize categories due to sample size considerations.



### **Data Analysis:**

The collected data was entered and analyzed using SPSS 22 software. Explanatory variables for this study are age, sex, marital status, occupation, duration of stay in old age home, physical exercise, daily activities, self-reported chronic illness, alcohol and tobacco consumption and social interaction. First, these variables are described by use of percentage for categorical variables and means and standard deviation for continuous variables.

Thereafter, univariable regression analyses were performed to explain the relationship between SRH (categorized into good and poor) and all independent variables. Multivariable logistic regression model was then conducted. All those variables that were significantly related to SRH in univariable analysis were entered into the multiple logistic regression analysis. Before putting only significant variables in multiple logistic regression analysis, those variables, which were insignificant but still had p-value less than 0.25 were also entered in final model, but there was no significant change in the associations obtained. So, it was decided to include only significant variables in final model given that the total sample size was relatively low. Results of regression analyses are presented as odds ratio (OR), 95% confidence interval (CI) and p-values. The significance level was set to 0.05.

### **Ethical Consideration:**

Prior to data collection, ethical clearance was asked and obtained from the Regional Ethical Clearance Committee of Norway. Approval was taken from each of the sampled data collection old age homes. The respondents were informed about the purpose and procedure of the study including the approximate time duration of interview process. An informed verbal consent was taken prior to administration of the questionnaire. The main reason behind taking verbal or oral consent form is high illiteracy rate among Nepalese people particularly among older people. Moreover, old people might not be in position to read and sign the consent form due to vision impairment. Additionally, the name of the participants was not written in the questionnaire. All participants were told that they could leave the interview process at any time they want and also they could refuse to answer questions they were not comfortable answering. Ethical consideration was maintained carefully throughout the study period so that no one was harmed, no one suffered from emotional distress and privacy and confidentiality, which was a priority, was not violated.

## **CHAPTER 4**

### **FINDINGS**

**Table 1: Socio-demographic characteristics of the population**

<b>Characteristics</b>	<b>N</b>	<b>Percentage</b>
<b>Age</b>		
i. <70 years	64	30.8
ii. >=70 years	144	69.2
<b>Sex</b>		
i. Male	91	43.8
ii. Female	117	56.2
<b>Marital Status</b>		
i. Married	76	36.5
ii. Unmarried/Divorced/ Widowed	132	63.5
<b>Educational Status</b>		
i. Illiterate	156	75
ii. Primary level and above	52	25
<b>Previous occupation</b>		
i. Agriculture	130	62.5
ii. Others	78	37.5

Out of 208 participants 91 (43.8%) were males whereas 117 (56.2%) were females. The mean age of the participants was 75.6 (SD=8.1). Amongst the participants 36.5% were married and 63.5% were single. Out of all the participants 74.8% were illiterate and 16.4% had education at primary level. Similarly, the majority of the participants (62.5) were previously farmers. Other occupations of the remaining participants included business, service and foreign employment. Table 1 describes the socio-demographic characteristics of participants.

**Table 2: Self-rated health of the participants**

Variable	Percentage
Self-rated health	
i. Good	74
ii. Poor	26

As seen in Table 2, the majority of participants (74%) rated their health as good whereas 26% rated their health as poor.

**Table 3: Vision and hearing ability of the participants**

Variables	Percentage
Use of Corrective lens	
i. Yes	25
ii. No	70
Vision ability	
i. Can see letters of newspaper well	33.7
ii. Can see only larger prints	25.0
iii. Can identify only objects	23.1
iv. Unclear vision of objects	18.2

**Use of hearing appliances**

i.	Yes	14.4
ii.	No	85.6

**Hearing ability**

i.	No difficulty in normal conversation	51.9
ii.	Difficulty in noisy environments	38.5
iii.	Speaker has to increase volume	9.6

As presented in table 3, only 25% of the participants wore corrective lenses for their vision. 33.7% of the participants could see the letters of newspaper well. Furthermore, 51.9% of the participants had no problem in normal conversation and 14.4% of the total participants wore hearing aid.

**Table 4: Descriptive analysis of self-reported chronic illness**

<b>Variable</b>	<b>Percentage</b>
<b>Physical Problem</b>	
i. Yes	94.2
ii. No	5.8
<b>Physical Pain</b>	
i. Yes	87.4
ii. No	12.6
<b>Respiratory Disease</b>	
i. Yes	39.4
ii. No	60.6
<b>Diabetes</b>	
i. Yes	23.7

ii. No 76.3

#### Gastritis

i. Yes 68.7

ii. No 31.3

#### Asthma

i. Yes 33.3

ii. No 66.7

#### Heart Disease

i. Yes 6.1

ii. No 93.9

#### Teeth related Problem

i. Yes 38.4

ii. No 61.6

#### Cancer

i. Yes 3.5

ii. No 96.5

94.2% of the total participants suffered from a physical problem of one sort or another as listed in Table 4. The majority of the participants suffered from physical pain (83.2%) and gastritis (65.4%). Out of 208 participants, 10 participants (4.8%) refused to answer what kind of disease they had, or if they did not have any.

**Table 5: Functional status and lifestyle factors of participants**

<b>Variable</b>	<b>Percentage</b>
<b>Functional status</b>	
i. Dependence of any sorts	75.0
ii. Total independence	25.0
<b>Physical Exercise</b>	
i. Yes	27.9
ii. No	72.1
<b>Frequency of doing exercise</b>	
i. Regularly	11.1
ii. 3 or more times a week	17.4
iii. Do not exercise at all	72.1
<b>Smoking</b>	
i. Yes	23.6
ii. No	76.4
<b>Number of Cigarette Per day</b>	
i. 1-3 cigarettes/day	12.0
ii. >3 cigarettes/day	11.5
iii. No cigarette	76.4
<b>Alcohol</b>	
i. Yes	7.2
ii. No	92.8
<b>Frequency of alcohol consumption</b>	
i. Few times on a month	5.8
ii. Only on occasion	1.4
iii. Do not drink at all	92.8

Only 25% of the total participants could do their daily activities (eating, going toilet, bathing, dressing, transferring, walking and use of stairs) on their own. Rest 75% of the participants had to depend on people/ caretakers to do their daily activities. Majority of participants (72.1%) did not engage in physical exercise. Regarding the smoking and drinking habits of the participants, only 23.6% of the sample population smoked cigarettes and only 7.2 % of the participants consumed alcohol. Only 2.4 % of the participants consumed alcohol daily and 11.5% of the participants smoked more than 3 cigarettes per day.

**Table 6: Social network, family and friends' correspondence**

<b>Variables</b>	<b>Percentage</b>
<b>Member of social Network</b>	
i. Yes	7.2
ii. No	92.8
<b>Participation in recreational activities</b>	
i. Yes	95.7
ii. No	4.3
<b>Frequency of participation in recreational activities</b>	
i. Every time	21.6
ii. Frequently	24.5
iii. Some time or rarely	44.7
iv. Never	9.1
<b>Frequency of family visit</b>	
i. More than once monthly	32.7
ii. Monthly	24.5
iii. Never (no family)	42.8
<b>Telephone Conversation with the family</b>	
i. More than once a month	23.1

ii.	Monthly	16.3
iii.	Never	60.6

Frequency of meeting with friends

i.	More than once a month	12
ii.	3 months or more than >3 months	13.0
iii.	Never (do not have friends)	75.0

Only 7.2% of the total participants were member of any social network or group. Majority of those who were member of any kind, belong to religious group. Although participants were not active member of any social group, they did participate in the recreational activities inside the old age home (95.7%). And 21.6% of the participants participated every time when recreational activities were conducted and 24.5% participated frequently in such activities. 57.2% of the participants' family members visit them. However, majority of the sample never conversed with their family member in the phone (60.6%). 25 % of the participants reported that they were visited by their friends whereas 75% of the participants did not have any friends who visited them. Table 6 presents the characteristics of social network, family and friends correspondence of participants.

**Table 7: Services provided in old age homes**

<b>Variables</b>	<b>Percentage</b>	
<b>Duration of Stay at Old age home</b>		
i.	<1 year	18.8
ii.	1-3 year	23.6
iii.	4 years and above	57.6
<b>Health check up</b>		
i.	Yes	94.2
ii.	No	5.8
<b>Medical service satisfaction</b>		



i.	Yes	68.8
ii.	No	31.2
Food in the old age home		
i.	Good	48.5
ii.	Okay (average) or bad	51.4
Accommodation of old age home		
i.	Comfortable	76.4
ii.	Uncomfortable	16.8
iii.	Congested	6.7
Environment at old age home		
i.	Good	48.6
ii.	Satisfactory	44.2
iii.	Unhygienic	7.2
Communication with care takers		
i.	Good	61
ii.	Average	31.2
iii.	Poor	7.7

As shown in table 7, 94.2% of the participant had a regular health check up inside the old age home. However, only 68.8% of the participants showed satisfaction with the medical services provided. The satisfaction with food provided in the old age home was measured in a scale ranging from very good to bad and only 1.9% of the participants were dissatisfied with the food quality in the old age home. Findings also show that 76.4% of the participants thought accommodation in the old age home was comfortable.

The living environment of the old age home was rated on a scale ranging from very good to unhygienic and the majority of the participants seem to be satisfied with the environment. Furthermore, it was found that 61% perceived the communication between people at old age home and caretakers to be good and 31.2% perceived it to be average.

**Table 8: Univariable logistic regression analysis showing variables significantly associated with SRH (Good Vs Poor)**

<b>Variables</b>	<b>OR</b>	<b>95% CI</b>	<b>P Value</b>
<b>Sex</b>			
Female	3.69	1.80- 7.53	0.000*
Male	1		
<b>Marital Status</b>			
Unmarried	4.55	2.01-10.27	0.000*
Married	1		
<b>Education</b>			
Education of some sort	2.77	1.16- 6.59	0.021*
Illiterate	1		
<b>Functional status</b>			
Independent	7.93	3.34-9.41	0.001*
Dependent	1		
<b>Physical Exercise</b>			
Yes	4.29	1.81-10.10	0.001*
No	1		
<b>Alcohol Consumption</b>			
Yes	0.36	0.16-0.82	0.015*
No	1		

Member of social network			
Yes	1.99	1.04-3.78	0.035*
No	1		
Participation in recreational activities			
Every time	4.4	2.06-9.3	0.000*
Frequently	1.41	0.63-3.1	0.399
Sometimes	1		
Friend Circle			
No	0.44	0.23- 0.87	0.019*
Yes	1		

\*P value <0.05, results of univariable logistic regression analysis presented

Univariable logistic regression analysis was used to analyze the factors associated with good SRH. The variables that showed statistically significant relationship with SRH on univariable regression analyses are reported in Table 8.

As the OR shows females were 3.6 times CI (1.8-7.5) more likely to report good SRH compared to their male counterparts. Also, unmarried people were 4.5 times CI (2.0-10.2) more likely to report good SRH compared to married people. Unmarried people included divorced, widowed and never married participants. Also, people with some sort of education (including primary level) were 2.78 times more likely to report positive SRH compared to people with no education.

Similarly, regarding functional status; participants who were independent on conducting their daily activities on their own were 7.9 times more likely to report good SRH compared to people who had to depend on other people for conducting their daily activities like brushing, bathing etc. With regards to life style factors, doing physical exercise and alcohol consumption were related to good self-rated health. Consequently, people who did some kind of physical exercise were 4.2 CI (1.81-10.10) times more likely to report good SRH compared to people who did not do any kind of physical exercise. Those who consumed alcohol were on the other hand found to be less likely to report good SRH compared to those who do not drink (OR=0.36 (0.16-0.82)). Smoking habit was not related with SRH. Being a member of any social network was associated with good SRH

(OR=1.99 (1.05-3.78)). Participation in recreational activities was also found to be associated with SRH; compared to those who report never participating in recreational activities, those reporting participating in recreational activities every time were 4.4 times (2.06-9.3) more likely to report good SRH. Those who reported having no friend circle were less likely to report good SRH (OR=0.44 (0.22-0.87)). Facilities provided in old age homes were not found to be associated with self-rated health.

**Table: 9 Multivariable logistic regression analysis showing the association between SRH and different characteristics of participants (Good Vs Poor)**

<b>Variables</b>	<b>OR</b>	<b>CI</b>	<b>P value</b>
<b>Sex</b>			
Female	4.60	1.92-11.03	.001
Male	1		
<b>Education</b>			
Literate	1.31	0.42-4.10	.637
Illiterate	1		
<b>Marital status</b>			
Unmarried	3.57	1.29-9.87	0.014
Married	1		
<b>Functional status</b>			
Independent	7.00	5.79- 9.31	0.005
Dependent	1		
<b>Physical exercise</b>			
Yes	1.96	0.67- 5.67	0.021
No	1		
<b>Alcohol consumption</b>			
Yes	0.23	0.07-0.78	0.019

No	1		
<b>Member of social network</b>			
Yes	1.70	0.78-3.71	0.017
No	1		
<b>Participation in recreational activities</b>			
Every time	2.7	1.05-6.91	0.38
Frequently	0.84	0.31-2.27	0.735
Sometimes	1		
<b>Friend Circle</b>			
No	0.62	0.29-1.34	0.023
Yes	1		

A multivariable logistic regression analysis was conducted to explore the association between SRH and sex, education, participation in recreational activities, marital status, functional status, social network, physical exercise, alcohol consumption as predictors. A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliable to explain the variance in the dependent variable (chi square = 50.962,  $p = 0.00$  with  $df = 7$ ). Sex, marital status, alcohol consumption, functional status, member of social network and friends circle remained significantly associated with SRH.

Furthermore, education and participation in recreational activities were no longer significantly related to SRH. The results of the multivariable logistic regression analyses are presented in table 9.

## **CHAPTER 5**

### **DISCUSSION**

The purpose of this study was to describe elderly people's reports of SRH, assess their self-reported chronic illness, lifestyle behaviors, functional status, social interaction/network and perceptions regarding services provided in old age homes and thereafter explore the association of these factors with SRH. The following sections will present the discussion of the main findings.

Of the total 208 elderly included in the study, 31% were aged 60-70 while the remaining were above 70 years of age. This is expected given that those who end up in elderly homes might be those who are very old, physically not so able to function within society and therefore might be brought to old age homes by family or by themselves. This is the age when most of the jobholders retire, many of them become physically disabled and many lose spouse (Acharya 2008). By the age of 70, elderly people become more dependent on their children as it is expected in Nepalese culture. But with urbanization, young people become more involved in work and have less time to care for parents. Hence, the old age people are sent to old age home, when they are not capable of taking care of themselves. Moreover, for people to be enrolled in governmental old age home, they have to be at least 60 years old (Yadav 2012).

Looking at sex composition, the female population was higher than the male population. Female constituted 56.2% while male was 43.8% of total participants. Interestingly, 36.5% of the elderly were married and living in old age homes. This is surprising as in a country like Nepal culturally marital union is valued a lot. However, as divorce is not common in Nepalese society, many married men and women leave home but do not undergo legal procedures for separation, as divorce in Nepal is not culturally accepted. Similarly, the possibility that both husband and wife live in the same old age home cannot be ignored though this would appear to be uncommon.

Three quarter (75%) of the total studied population were illiterate and only 25% had some kind of education. Very few of the participants had higher education. According to demographic survey, the literacy rate in Nepal was 65.9% in total. For both sexes, the literacy rate for aged 65+ years was found as 15.64% (Government of Nepal 2011). The literacy rate amongst the participants in the survey was slightly higher than those of national statistics. As the research was conducted in Kathmandu, a city of Nepal; the literacy rate is higher compared to other parts of Nepal, which

could explain higher literacy rate in the participants of the study. Previous occupation of the participants was also assessed with the assumption that it could have some effect in determination of one's health. Among the total sample 62.5% were previously farmers and the remaining 37.5% were engaged in other occupations like service, business and so on. Farming is the major occupation of Nepalese people and almost three quarter of the population are farmers including the people in that age group.

It is natural to be physically and mentally weak in old age and also ability to fight against disease also decreases which can cause different health problems in elderly. Descriptive analysis of self-reported illness showed that very few (5.8%) did not have any chronic illness or any sort of physical problem while remaining 94.2 % had at least one chronic illness or some physical health problem like back pain, arthritis and teeth related problem. Data from other studies performed in old age homes of Kathmandu valley also showed similar findings. It was found that almost 90 % of the institutionalized elderly people had some kind of physical health problem (Acharya 2008). The study performed by Geriatric Center Nepal also found that more than half of the residents were diagnosed with at least one disease among gastritis, hypertension and arthritis (Geriatric Center Nepal 2010). Referring to the figure of this study and these articles, it is seen that a large proportion of institutionalized elderly people have some sort of health problems. One possible explanation for this might be that, old age people who are prone to have disease or already had some disease/physical problem are sent to old age homes. The case might be even higher in *Pashupati Briddhaashram* (governmental old age homes) as it will be government's responsibility for the treatment once they are enrolled in old age home. Raj Kumar Yadav in his article "Ageing population in Nepal: challenges and management" also mentions that those who are ostracized, deprived of love, sick, frail and disabled are left behind in old age homes of Nepal (Yadav 2012).

With regards to the functional status of elderly people, it was found that 75% of the elderly were dependent upon others to perform basic activities of daily living like eating, bathing, moving and so on while 25% respondents were able to accomplish their basic activities themselves. A Nepalese study (Chalise 2012) performed among elderly people aged over 60 also found somewhat similar finding. The result of the research presented that the functional disability on at least one activity of daily living was 32.8%. The author further mentioned that functional disability is high among elderly people of Nepal (Chalise 2012).

Lifestyle factors- physical exercise, alcohol consumption and smoking habit were also assessed. Findings showed that 27.9% of the elderly people exercise while the remaining 72.1% did not do physical exercise. Through my experience during data collection, I can say that some private old age homes even hired some personnel to help old people to do yoga and exercise while the same was not found in governmental old age homes. Similarly, 23.6% of the respondents were found to smoke cigarettes while remaining were non-smokers. Surprisingly, descriptive analysis showed that 7.2% people consumed alcohol. To my understanding, private old age homes have strict rules that no one is allowed to consume alcohol except on occasions but the condition is not same for governmental old age home. Elderly people in governmental old age home are free to go outside and drink alcohol. Hence, those who drink might be residents from governmental old age home. Human resource might not be sufficient to take care of each and every elderly people in governmental old age home.

Social network, family and friends' correspondence is more important during old age period as they are more prone to depression and psychological problem. Participation in social activities can help them reduce the risk of depression and anxiety. The findings revealed that very few (7.2%) were a member of social network while the rest (92.8%) were not member of any social network. Social networks included old age home management committee, group for religious activities, political group. Although very few engaged actively as a member of social network, large proportion of elderly people (95.7) participate in recreational activities like singing, dancing, going to picnic and so on conducted by old age homes. Among those who participated, 26.5 % participated every time the activity is conducted while 44.7% participated rarely. The descriptive result interestingly showed that 42.8 % never visit their family members. One reason might be that some people do not have any family members to visit, especially those who are not married or don't have kids. A study conducted in old age homes of Kathmandu valley, Nepal found that only 16.26 % residents have active children. Remaining population either did not give birth to any child or lost their children sooner or later(Acharya 2008). Another reason might be that once elderly people are abandoned or ignored by their family members, they might not feel like being in touch with them. Those elderly people who were ill-treated from their children and compelled to leave the family did not even want to recall them(Acharya 2008). Similarly, 75% of the respondents do not also meet with friends outside old age homes.



The study assessed the services provided in old age homes, and results showed that 94.8% of the respondents were provided with health check up in old age homes. High coverage of health examination could be due to the provision of doctors and/or nurses in old age homes for taking care of elderly people whenever they fell sick. Moreover, free health camps are often conducted targeting institutionalized elderly. Almost 50% of the respondents mentioned that food provided is good. Similarly, 76.4% perceive that they have comfortable accommodation and half of the residents told that the environment at old age home was good. The figure showed that residents of old age homes are satisfied with food and accommodation services and environment. Residents in private old age homes have to pay for services. So, it became a responsibility of old age homes to satisfy residents with good food and accommodation. More importantly, 61% of the elderly people responded that they have good communication with caretakers followed by those who rated average communication (31.2%). Only 7.7% rated poor communication with care takers. Possible explanation for the result so obtained is due to Nepalese culture of valuing elderly people with respect. Nepalese society has set up the norm, “love the juniors and respect the seniors” which inspires the citizens to be good to elders(Acharya 2008).

### **Self-rated health:**

SRH encompasses the assessment of health as WHO defines it. WHO defines health as a “Complete state of physical, mental and social wellbeing and not merely the absence of disease and infirmity”(World Health Organization 1946). Like the definition of health by WHO, research on SRH focuses on a holistic approach incorporating physical, mental and social determinants. Self-ratings of health are often used in the epidemiological and gerontology research as a valid and reliable method to assess general health (Bombak and Bruce 2012, Wang et al. 2005, Phaswana-Mafuya, Peltzer, Chirinda, Kose, et al. 2013). SRH is a measurement of health condition which is said to be a good predictor of mortality and decline in functional ability (Idler, Hudson, and Leventhal 1999). SRH, which is the evaluation of the health of individuals, also helps to understand the level of awareness regarding health among the study population (Bombak and Bruce 2012).

With regards to self-ratings of health, 74% of the subjects rated their health as “good” (which included very good, good and fair) while the remaining 26% perceived their health as “poor” (which included poor and very poor). The results appear similar with other studies conducted

among elderly in the age group of above 65 years (Phaswana-Mafuya, Peltzer, Chirinda, Musekiwa, et al. 2013, Sun et al. 2007) while other studies in same age group in different settings found different results (Ocampo-Chaparro et al. 2013, Arnadottir et al. 2011, Cardoso et al. 2014). However, caution should be taken when comparing results directly because the categorization of self-rated health might differ to some extent. The study in Japan (Sun et al. 2007), showed that 73.1% had good SRH (which included excellent and good) and 26.9% had poor SRH (including fair and poor). The finding of this study is almost the same to the present study. Another research (Phaswana-Mafuya, Peltzer, Chirinda, Kose, et al. 2013) using the exact categorization like this study also found similar results. It was seen that 76.8% rated their health “good” and remaining 23.2% reported poor SRH. On the contrary to my findings, the study in neighboring country China, showed that very few (only 6.3%) rated poor health status (Arnadottir et al. 2011). The study however, did not re categorize the five ratings. The study by (Ocampo-Chaparro et al. 2013) had re categorized the variable similar to this study but found different result. Overall, 59.9% rated good SRH and other 40.1% rated poor SRH. The differences in SRH might be explained by the fact that this study was conducted in the old age homes. As already mentioned above, people might end up in old age homes because they are not economically capable, become burden to the family and more prone to disease. This might be the reason behind reporting poor SRH by the respondents. Moreover, it is important to note that very few studies assessing SRH have been conducted in old age homes to compare the findings to the present study.

### **Factors associated with SRH:**

Several factors were found to be associated with SRH in the present study. Sex, marital status, functional status, physical exercise, alcohol consumption, being a member of a social network and friend circle were found to be significant in the final regression analyses conducted. Education and participation in recreational activities were not found to be associated with SRH in the final model although they showed significant association in univariate analyses. On the other hand, factors such as age, previous occupation, self-reported chronic illness, smoking habit, services provided in old age homes were not found to be associated with SRH. These findings will be discussed below, including by comparing them to existing literature.

**Socio-demographic factors:**

Sex has been found as one of the major factors that tend to affect SRH. The finding of the study shows that females were more likely to report good SRH compared to males. A SRH study conducted among non-disabled elderly in Japan, showed similar results. More female (73.8%) in comparison to male (69.8%) reported good SRH(Sun et al. 2007). Previously, it has also been found that males have more morbidity related diseases, compared to females which could be a reason why females show better SRH ratings than males in this study. However, several other studies have shown that females rated their health poorly compared to males (Hanibuchi, Nakaya, and Murata 2012, Jylha et al. 1998, Eriksson, Unden, and Elofsson 2001, Chung and Kim 2014). Hence, Further studies should be conducted to further confirm the relationship between Sex and SRH in the context of Nepalese society.

Marital status was another factor, which showed a significant association with SRH in the present study. Unmarried people were 3.6 times more likely to report good SRH compared to married people. Marital satisfaction taken into account, many studies on Western populations have shown that marriage has a positive influence on individual health. In western societies marriage is said to affect the health of the individual much due to “marriage selection” and “marriage protection” effect in the western culture (Chung and Kim 2014). The notion that healthy people are more likely to get married-also known as marriage selection and marriage protection which included inter spousal communication and encouraging healthy behaviors such as visiting doctors and discouraging unhealthy habits like smoking and drinking were seen(Chung and Kim 2014). Hence studies have shown that married people tend to rate their health better compared to unmarried people in previous studies(Zheng and Thomas 2013). However, such correlations were not visible in the Asian communities. The psychological implication of marriage might vary from the western culture in the eastern culture, which might be the reason why such correlations are not found in Asian society (Chung and Kim, 2014). This might hold true for this study too; the psychological implication of marriage did not appear to matter much and the unmarried were more likely to report good SRH compared to the married ones.

A study conducted in Jamaica also found, that married men were more likely to report better self-rated health than never married separated, divorced or widowed men The relationship between married women and never married women with SRH however, was not studied.

The present study does not look at marital satisfaction and its association with SRH, this could be an interesting aspect to explain the relationship between marriage and self-rating of health even more. An important aspect is also that the study is conducted in old age homes, the association between the marital status and SRH might have a different dimension, as separation from the spouse by joining the old age home might result in adverse psychological impacts for those who are married subsequently adversely affecting SRH.

Education has been found to be associated with SRH in several studies (Shiely and Kelleher 2004, Rathnayake and Siop 2015)(Idler & Benyamin, 1994). In a study conducted by Sarath and Sidiah in Sri Lanka, it was found that people who had formal education were 2.6 times more likely to report good SRH compared to people with informal or no education(Rathnayake and Siop 2015). However another study conducted in the neighboring country, India revealed that education is not related with self-rated health among elderly people(Hirve et al. 2010). In the present study, the association between education and SRH showed significant association on univariable analysis, but the association between the two disappeared in the final model. The association between education and SRH is likely to be mediated through several factors including some of the factors that were included in the final model, e.g. alcohol consumption, physical exercise. If such factors completely mediated the association between education and SRH, it is expected that the association between education and SRH would become insignificant in models where these factors are included, which appears to be the case in the study. Furthermore, the lack of association could be due to the very low numbers of people having higher education plus due to stronger competing predictor effect of other variables(Hirve et al. 2010).

### **Self-reported chronic illness:**

As stated earlier, the bio-psychosocial model explains that health is multi-dimensional. The study, based on the bio-psychosocial model and the theory of successful ageing explored biological, behavioral and social factors among the institutionalized elderly. Both models assume, that, biological or physical health is crucial in determining the self-rated health of elderly people. Theory of successful ageing also remarks that low probability of disease and disease related disability is essential to have successful ageing.

But the findings of the study showed that biological health (self-reported chronic illness) does not have an effect in the rating of health. The association, however, has been checked only for respiratory disease, diabetes, gastritis, asthma and teeth related problem. Because of wide

skewness in responses for other diseases (physical pain, heart disease, cancer), they were not entered in the analyses. A study (Freidoony et al. 2015) performed among Nepalese elderly people (community dwellers) also found similar results. After adjusting for age and satisfaction of health care services, they found that chronic disease was no longer associated with SRH. Cultural beliefs and expectations of Nepalese elderly people might partly explain the lack of association obtained. In a Nepalese context, having disease or chronic illness in old age is seen as normal. People frequently fall ill because of pollution, unhygienic food, and poor living condition and so on. This might have effect in the self-rating of health. Although they had disease, the elderly might think that it is normal and rated their health as good. Elderly people in Nepal ignore disease condition or severity of disease because of deeply rooted cultural beliefs. It is believed that old age is like setting sun, which does not have any importance. Ill health in old age is obvious and thus, spending money for treatment of disease is considered to be waste of money and lack of knowledge towards self-care (Adhikari and Rijal 2014). Furthermore, another possible explanation might be that some chronic disease like diabetes if controlled in the initial stage or adapting healthy life style do not impair functional ability and consequently do not effect in self-rating of health (Freidoony et al. 2015). Disease-related disability as the theory of successful ageing has worded has not been assessed in the study.

**Functional status:**

Another factor that was significantly associated with SRH was functional status. Results showed that those who were independent were 7 times more likely to report good SRH than those who had to depend upon others. Several studies from around the world showed a significant association between functional status and SRH among elderly population (Hanibuchi, Nakaya, and Murata 2012, Jylha et al. 1998, Eriksson, Unden, and Elofsson 2001). A study done amongst elderly population residing in old age homes in India also revealed that basic activities of daily living such as dressing, feeding, bathing, transfer-moving inside and outside and other activities such as social activity, recreation is associated with self-rated health status of the participants (Ayranci and Ozdag 2005). Further, another assessment of SRH between Australian elderly involving seven year of follow up concluded that they rated their health on the objective basis of illness and disability (McCallum, Shadbolt, and Wang 1994). As SRH is a subjective assessment of health, different factors along with functional independency also has an effect on it. If functional status diminishes, one is no long able to perform household or self-care activities independently. This

might lead one to rate his/her health 'poor'. The individual capacity of people to maintain the autonomy and independence in their everyday activities is seen as an important factor whilst assessing their health (Bernard et al. 1997).

### **Lifestyle factors:**

Lifestyle factors like consuming alcohol, smoking cigarette and physical exercise have been found to be significantly associated with SRH in previous studies (Darviri et al. 2012, Arnadottir et al. 2011). The bio-psychosocial theory also argues that behavioral factors- life style factors and functional status is important in determining one's health. The findings of this study support this assumption. Dependency of elderly people in doing basic activities of life, physical exercise and alcohol consumption were found to be significantly associated with SRH. It is a well-established fact that those who exercise, consume less alcohol, have high functional ability are less prone to disease and thus they can have a healthier life and have a successful ageing in turn.

A study conducted in Korea, showed similar results as found in this study. People who were physically active or involved in physical exercise and consumed less alcohol were seen to report better SRH compared to people who were not physically active and had habits of drinking alcohol (Molarius and Janson 2002). This is because, studies show that people with habits that promote healthy living have good health compared to people who do not have good healthy habits. The cross sectional study among 1519 Greek old aged population indicated that those who were more physically active, had a healthy diet and better quality of sleep had a better rating of SRH (Darviri et al. 2012). A study conducted in US adults showed that adults who were physically active had increased likelihood of reporting better SRH compared to adults who were not physically active (Tsai et al. 2010). Physical exercise reduces the risk of chronic disease like diabetes, cancer, and osteoporosis. It makes one feel relaxed with better mood and promotes sound sleep (Freidoony et al. 2015), although this might depend to some extent on the intensity and duration of exercise that is conducted. These might probably be the reasons behind why those who exercise were more likely to report good SRH.

Alcohol consumption was also found to be significantly associated with SRH. Those who consumed alcohol were less likely to rate their health as good in comparison to those who did not consume alcohol. The relationship between alcohol consumption and SRH can be explained by the fact that alcohol consumption along with other lifestyle factors have direct impact on health because they increase the risk of chronic non communicable diseases such as diabetes and

cardiovascular diseases, which degrades the quality of life amongst the individuals (Darviri et al. 2012). This in turn can have an effect on the rating of one's health. A study with the purpose to assess the relationship between lifestyle factors and self-perceived health among Norwegian people found that those who consumed alcohol had a higher risk of reporting poor self-rated health (Jepsen et al. 2014). Another study conducted in Nepal regarding SRH among elderly people (community dwellers) also found that absence of physical exercise, alcohol consumption, smoking and unhappiness were associated with poor SRH (Freidoony et al. 2015). A study conducted among older people with the purpose to assess the association of drinking frequency with self-rated health found that participants with moderate or frequent drinking habit reported better SRH compared to nondrinkers (life time abstainers or former drinker) (Moriconi and Nadeau 2015). This study however did not show any relationship between smoking habit and SRH like the Norwegian and Nepalese study conducted among elderly people. The possible explanation for this might be the difference in setting of studied population. Those mentioned studies were conducted among the community people but this study was conducted among institutionalized elderly people. Smoking habit is taken as a bad taboo in Nepalese context and institutionalized people might be prohibited to smoke inside the premises of old age homes. But, community dwellers are free to smoke anytime which might be the reason for different result in different setting, as the smoking frequency might be lower in this group of individuals. Another possibility is related to the theory that people may not perceive their health status as bad unless they can observe direct relation between their behaviors and chronic disease or functional limitations in their mind (Freidoony et al. 2015).

### **Social Interaction and Network:**

Social interaction and network is an important subject to discuss especially in old age because of its influence on health and mortality. Social factor as mentioned in bio-psychosocial model and active engagement in life as worded in theory of successful ageing, can, can play a vital role in explaining SRH. The findings, in line with the assumptions of the bio-psychosocial theory and the theory of successful ageing confirm that social network, friend and family correspondence is important in rating one's health as "good" or "poor".

Various studies (Sun et al. 2007, Youm et al. 2014, Phaswana-Mafuya, Peltzer, Chirinda, Kose, et al. 2013, Hejun and Yvonne 2013) have shown a positive association between social activities and SRH among elderly people residing in old age homes. Being a member of a social network and

those who have friend circle or meet with friends were more likely to report good SRH in this study. The result of this study is in line with the results of a Korean survey among residential elderly people. The study found that those who had smaller social network rated their health as poor. Furthermore, they also found that once the member is segregated from his/her large social network, they feel lonelier and rate worse SRH in comparison to those who are still member of a large network (Youm et al. 2014). Similarly, meeting and interacting with friends have also been an important factor to influence SRH of elderly people. In line with the findings of the present study, another study found that those who met with friends were more likely to report a better SRH. Another study (Hejun and Yvonne 2013) found that each one-unit increment in the number of daily social contact with friends or family lead to an increase in the odds of good, very good, and excellent health versus poor/fair by 1.09 times (Hejun and Yvonne 2013). Factors related to social interaction were found to be strongest determinants of happiness among the interviewees and association with self-rated health status was also seen(White et al. 2009). Loneliness and lack of support from society are found to be acute/chronic stressors that bring change in biological and behavioral resulting unhealthy behaviors. Furthermore the study found that those who are socially isolated do not have family members, do not have close friends and relatives have more probability to report poorer health(White et al. 2009). Social factors- social interaction, social network, social activities therefore have been found to be important for better self-rated health in the literature. Participation in recreational activities was not found to be associated with SRH in the final model, although associations were found in another study(Arnadottir et al. 2011). The study had looked upon the role of recreational activities on SRH and it was found that participation in recreation activities showed a significant and positive relationship with SRH. However, in this study, though participation in recreational activities showed a statistically significant relationship in the univariate analysis, the association was no longer found significant in the multivariate analysis. The relationship between the variable with the SRH might be modified in the final analysis by other factors that were present in the analysis.

### **Services provided in old age homes:**

Services provided in old age homes was relatively new variable incorporated in this study. To my knowledge, none of the studies performed in old age homes have looked at this variable till date. The nearest similar study(Shi et al. 2002) was a rare study though performed among elderly



community dwellers, had looked at whether primary health care supply could have any effect in SRH. The study had found significant association between good SRH and primary health care supply.

In the present study however, 94% of the elderly reported getting a health check-up therefore this variable was not entered in regression analysis due to small proportion of participants reporting no health check-up. The study was conducted in old age homes, where health services are provided frequently through health camps.

The factors such as accommodation, food and the general environment might also actually be similar in the old age homes, although there was some variation in the responses by the participants. If there is no actual variation, it is impossible to get associations. More studies have to be conducted to further explore the relationship between SRH and services provided in old age homes.

### **Implications of the study:**

#### **Practical Implications:**

Seventy-four percent of the participants rated their health as good and twenty-six percent of the participants rated their health as poor in the study. A significant proportion of participants still have evaluated their health as poor, and this needs to be addressed. Further, from the study conducted, it was seen that functional status, lifestyle factors and social network had a significant effect on the health of the elderly. Hence, to improve health of elderly individuals living in old age homes, these factors should be addressed amongst people of this age group. SRH is likely to improve with elderly adapting a proper lifestyle (including physical exercise and abstaining from alcohol consumption) and also being a part of social network. The functional ability of a person could be improved by implementing rehabilitation program in the old age home. Physical exercise can be encouraged amongst the older population along with functional rehabilitation program. This will help to improve the health status of the older population. These issues must be encouraged by the government and private sector in the elderly community living in old age homes. As age increases, the health status of elderly people starts to fade slowly which induces demand for long-term care. Therefore, the government of Nepal should predict and plan for increasing demand of health services for elderly people to address age related health problems. Elderly health is given less importance in context of Nepal, and very less has been done in the field. With increasing

elderly population in Nepal, more importance should be given in the field of improving health and lifestyle of people of this age group.

### **Implication for research:**

This study was the first research to be conducted regarding SRH among elderly living in old age home in Nepal. The study itself sets a base for further research to be conducted in the field of gerontology in the country. One of the limitations of the present study involves sample size. Studies using a larger sample size should be conducted to further explore the predictors of SRH among the elderly. Studies related to SRH and its predictors are needed as SRH can predict future health outcomes and mortality, and can be easily measured. Results of such studies will help in planning future health programs for the elderly.

Also a longitudinal study could be recommended in this field to explore the true effect the factors associated in the study with SRH in context of Nepal. Last but not the least, more researches should be conducted focusing elderly people living in old age homes as the present scenario shows that more people will start living in old homes in near future.

### **Strengths and limitations of the study**

This study should be an important research in the field of Nepalese gerontology as there is scarce data regarding self-rated health among institutionalized elderly people in Nepal. The study was completed within the given time frame despite the fact that data collection needed long time and was effected by a disastrous earthquake. The study has looked at multiple factors including previous occupation (sociodemographic variable) and services provided in old age homes that were not included in previous studies. Furthermore, this study is expected to be an important research in Nepal, where there is scarcity of gerontology literatures.

Although the research has reached its aims, there are some limitations of study. Firstly, it is a cross sectional study, so it limits the inference about direction of association between dependent and independent variables. The causality between the measured factors cannot be predicted via this study. Hence, future studies should focus on testing the association between various factors and SRH using a longitudinal study. Secondly, the assessment of all variables in this study is via self-report, so there is chance of information or recall bias. Further, the interviewer bias should be taken into account, as it could lead to bias in measurement than giving questions for the participants to answer themselves. However, this method has the advantage of minimizing missing values in the

study, which was one of the strongest points in the analysis of the study. Thirdly, the sample size of the study was relatively low (in particular given that only 26% reported low SRH). In addition, although SRH is used as a measure of health and has an established value as a predictor for adverse health outcomes, SRH as a marker of the individual's true health often tends to be viewed by many with skepticism of perception vs. observation(Hirve et al. 2012). This should be taken into consideration when interpreting the results of the study.

## **CHAPTER 6**

### **CONCLUSION**

The study aimed to describe elderly people's reports of SRH, assess their self-reported chronic illness, lifestyle behaviors, functional status, social interaction/network and perceptions regarding services provided in old age homes and thereafter explore the association of these factors with SRH.

The study found that almost three quarter (seventy-four percent) of the participants had good SRH while the remaining twenty-four percent rated their health as 'poor'. The study showed that SRH was significantly associated with sex and marital status among socio demographic factors. Females were more likely to report better SRH compared to males, also unmarried individuals were found to report better SRH status compared to married individuals in the study. Further, the study showed that SRH is significantly associated with lifestyle factors- alcohol consumption and physical exercise, functional independency, friends circle and social network. Those participants who exercise, did not consume alcohol, had autonomy in conducting their daily activities and who were participants of a social network or had a friend circles were more likely to rate their health 'good'. Education and Participation in recreational activities though showed statistically significant association with SRH in univariate analysis, the relationship was not significant in the multivariate analyses.

As the study shows that social network and different lifestyle factors were positively associated with self-rated health in elderly population of Nepal, these should be promoted amongst the old age population. For this, the government can come up with policies to enhance the social interactions in this age group. Further, public health programs to encourage healthy lifestyle habits such as physical exercise and abstaining from alcohol could be implemented to improve health status of elderly people in Nepal. Efforts aimed at promoting physical dependence are also critically needed.

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## Appendix:

### Questionnaire:

#### Oral Informed Consent

Namaste! My name is..... I am studying Masters in International Social Welfare and Health Policy in Oslo and Akershus University College of Applied Sciences, Norway. I am conducting research on “**FACTORS ASSOCIATED WITH SELF RATED HEALTH AMONG ELDELRY PEOPLE LIVING IN OLD AGE HOMES OF KATHMANDU VALLEY.**” This research is being conducted for my master’s work in International Social Welfare and Health Policy.

I would like to ask you some questions regarding your health. The questions may take about 15 to 20 minutes. All of the answers you provide will be confidential and will not be shared with anyone. No part of this interview is being recorded in tape or video. You don't have to be in the survey if you don't want to, but I hope you will agree to answer the questions since your views are important. If you feel like not responding, then you are free to quit the research any time you want to.

Do you have any questions?

Would you be willing to participate?            a. Yes            b. No

DATE: .....

Name of old age home: .....

Type of facility: Public/ governmental old age home.....1

Private old age home.....

**Part 1:**

**Demographic Characteristics:**

<b>QN</b>	<b>Questions</b>	<b>Coding Categories</b>	<b>Skip</b>
1	Age	.....years	
2	Sex	Male.....1 Female.....2	
3	Marital Status	Married.....1 Unmarried.....2 Divorced/ Separated.....3 Widowed.....4	
4	Education	Illiterate.....1 Primary level.....2 Secondary level.....3 Higher Secondary.....4 Bachelors and above.....5	
5	Are you engaged in any kind of job now?	Yes.....1 No.....2	7
6	If yes,	Business Service Others	
7	Previous occupation	Agriculture.....1 Business.....2 Service.....3 Foreign employment.....4	
8	How long have you been staying in this old age home?	< 1 year.....1 1 year-3 years.....2 4 years- 5 years.....3	

	6 years- 10 years.....4	
	>10 years.....5	

**Part 2**

**Factors associated with self-rated health status**

<b>QN</b>	<b>Questions</b>	<b>Coding categories</b>	<b>Skip</b>
9	In general, how do you think about your health?	Very good.....1 Good.....2 Fair.....3 Poor.....4 Very poor.....5	

**Physical condition/ Self-rated chronic illness**

<b>Q N</b>	<b>Questions</b>	<b>Coding categories</b>	<b>Skip</b>
10	Do you use corrective lenses for clear vision?	Yes.....1 No.....2	
11	Which one of the following activities best describes your vision ability? (with lens if used)	Can see letters of newspaper well.....1 Can see only larger prints.....2 Can identify only objects.....3 Unclear vision of objects.....4 Do not see at all.....5	
12	Do you use any hearing appliance?	Yes.....1 No.....2	
13	Which one of the following best describes your hearing ability?	No difficulty in normal conversation.....1 Difficulty in noisy environments.....2 Speaker has to increase volume.....3	



	(with hearing appliance if used)	Absence of useful hearing.....4	
14	Do you have any physical problems now?	Yes.....1 No.....2.....	16
15	If yes, types of disease	Do you feel you have (type of)diseases Yes.....1 No.....2	
	Physical pain (joints, knee, back and so on)		
	Respiratory diseases		
	Sugar/ Diabetes		
	Gastritis		
	Asthama		
	Heart diseases		
	Teeth problem		
	Eye problem		
	Kidney/ urinary		
	Cancer		

**Functional status/ Daily Activities:**

16	How do you perform following daily activities?	<i>See Boartheal index and give score accordingly. <b>Add all scores and differentiate as:</b> Total independence if score is (0-5) Moderate independence if score is (6-10) Mild dependence (11-25) Total independence (16-20)</i>	
	Eating food		

	Going to the toilet		
	Bathing/ showering		
	Dressing/Undressing		
	Transferring		
	Walking		
	Use of stairs		
<b>TOTAL SCORE OBTAINED</b>		.....	

**Life Style Factors:**

17	How do you spend your time free time? (Multiple choice question)	Sleeping.....1 Watching TV.....2 Roaming around.....3 Religious activities.....4 Others (Specify).....5	
18	Do you perform physical exercise?	Yes.....1 No.....2.....	26
19	If yes, How often do you do it?	Regularly.....1 3-4 times/week.....2 <3 times /week.....3	
20	Do you smoke?	Yes.....1 No.....2	
21	If yes, how many cigarettes per day?	.....cigarettes	
22	Do you drink alcohol?	Yes.....1 No.....2	30
23	If yes, how often do you drink?	Daily.....1 Few times in a week.....2 Few times in a month.....3	

		Only on occasion.....4	
--	--	------------------------	--

**Social Interaction/ Networks:**

24	Why did you come here (old age home)?	Lack of proper care from family.....1 Did not want to bother my family.....2 Have no family.....3 Financial problem.....4 Forcefully brought.....5 Other reason please specify.....	
25	Are you a member of any social network or group?	Yes.....1 No.....2	33
26	If yes, what type of network or group is? (Multiple Choice Questions)	Old age home management committee Group for religious activities Political Group Others (Specify).....	
27	How often do you engage in activities conducted by those groups?	Frequently.....1 Normal.....2 Rarely.....3	
28	Does old age home conduct any recreational activities such as games, dancing, singing and so on?	Yes.....1 No.....2	36
29	How often do you participate in such recreational activities?	Every time.....1 Frequently.....2	

		Some time.....3 Rarely.....4 Never.....5	
30	Do your family members or relatives visit you?	Yes.....1 No.....2	38
31	If yes, how often do they visit you?	Weekly.....1 Fort nightly.....2 Monthly.....3 More than monthly.....4	
32	How often do you have telephone conversations with your family members or relatives?	Daily.....1 Weekly.....2 Monthly.....3 More than monthly.....4 Never.....5	
33	Do you have friends you meet up with?	Yes.....1 No.....2	41
34	If yes, How often do you go meet them?	Fortnightly.....1 Monthly.....2 Once in 3 months.....3 Once in >3 months.....4	

**Perception regarding services:**

35	Are you provided with regular health checkup in your old age home?	Yes.....1 No.....2	43
36	If yes, how often?	Monthly.....1 Occasionally.....2 Once in six months.....3 Only when sick.....4 Only in health camps.....5	

37	Are you satisfied with the medical services provided in your old age home?	Yes.....1 No.....2	
38	Are there sufficient numbers of staffs for care?	Yes.....1 No.....2	
39	If someone in this home falls ill, who provides the necessary checkup?	Nurse who works in this home.....1 Visit to doctor/ pharmacy.....2 Hospital OPD.....3 Traditional healers.....4	
40	How do you like the food available here?	Very good.....1 Good.....2 Okay (Average).....3 Bad.....4	
41	What do you feel about your accommodation here?	Comfortable.....1 Uncomfortable.....2 Congested.....3	
42	What do you feel about the environment here?	Very good.....1 Good.....2 Satisfactory.....3 Unhygienic.....4	
43	How do you describe your communication with the personnel in the nursing home?	Very good.....1 Good.....2 Average.....3 Poor.....4 Very poor.....5	

**Thank you very much!!!**

**Ethical Clearance:**



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Vår dato: 26.10.2015

Vår ref: 44831 / 3 / AMS

Deres dato:

Deres ref:

## TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 22.09.2015. Meldingen gjelder prosjektet:

44831	<i>Factors associated with self rated health of elderly people living in old age homes of Kathmandu valley</i>
<i>Behandlingsansvarlig</i>	<i>Høgskolen i Oslo og Akershus, ved institusjonens øverste leder</i>
<i>Daglig ansvarlig</i>	<i>Mekdes Kebede Gebremariam</i>
<i>Student</i>	<i>Amrit Dangj</i>

Personvernombudet har vurdert prosjektet, og finner at behandlingen av personopplysninger vil være regulert av § 7-27 i personopplysningsforskriften. Personvernombudet tilrår at prosjektet gjennomføres.

Personvernombudets tilråding forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 16.05.2016, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Katrine Utaaker Segadal

Anne-Mette Somy

Kontaktperson: Anne-Mette Somy tlf: 55 58 24 10

*Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.*

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# Personvernombudet for forskning



## Prosjektvurdering - Kommentar

---

Prosjektnr: 44831

### PURPOSE

The purpose of the project is to identify the factors associated with the health status reported by elderly people living in old age homes of Kathmandu valley.

### INFORMATION AND CONSENT

According to the notification form, participants will receive verbal information about the project and give consent to participation. In order to satisfy the requirement of informed consent of the law, the participants must be informed of the following:

- which institution is responsible
- the purpose of the project/the research question(s)
- which methods will be used to collect personal data
- that information will be treated confidentially and who will have access to it
- that participation is voluntary and that one may withdraw at any time without stating a reason
- the expected end date of the project
- that all personal data will be anonymized or deleted when the project ends
- whether individuals will be recognisable in the final thesis/publication
- contact information of the student and supervisor

### DATA

There will be registered sensitive information relating to health.

### SECURITY OF THE DATA

The Data Protection Official presupposes that the researcher follows internal routines of Høgskolen i Oslo og Akershus regarding data security. If personal data is to be stored on a private computer, the information should be adequately encrypted.

The student/Høgskolen i Oslo og Akershus should make a data processing agreement with research assistant for data collection regarding the processing of personal data, cf. Personal Data Act § 15. For advice on what the data processor agreement should contain, please see: <http://www.datatilsynet.no/English/Publications/Data-processor-agreements/>.

### PROJECT PERIOD

Estimated end date of the project according to the proposal is may 2016. According to the notification form all collected data will be made anonymous by this date.

Making the data anonymous entails processing it in such a way that no individuals can be recognised. This is done by:

- deleting all direct personal data (such as names/lists of reference numbers)
- deleting/rewriting indirectly identifiable data (i.e. an identifying combination of background variables, such as residence/work place, age and gender)

Please note the research assistant for data collection must delete all personal information connected to the project.