

FROM THE DEPARTMENT OF NEUROBIOLOGY, CARE
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Karolinska Institutet, Stockholm, Sweden

A COMPARISON OF SELF-RATED HEALTH AMONG IRANIANS IN TEHRAN, IRANIAN IMMIGRANTS AND SWEDES IN STOCKHOLM

**A cross-sectional study on self-rated health, mental health and sleep
quality among three urban populations, aged 60–75 years**

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This thesis is dedicated to my people in Iran, and I will call you my people with pride.

One day you will stand free. The good always outdoes the bad.

An international exhibition on health in London in 1884 extended further interest in how differences in age affect human functions. The exhibition was sponsored by Francis Galton (1822–1911), a cousin of Charles Darwin. Galton had a broad background in mathematics medicine, psychology, and anthropology. At the exhibition, he took measurements of seventeen different bodily functions, including hand strength, hearing, vision, speed of movement, and vital lung capacity. Over 9,337 males and females were measured. Since Galton was exposed to a large mass of data, and given his background in mathematics, he was able to develop the first quantitative measure of the degree of association between two variables, such as age and strength. Another contributor to the quantitative approach to aging was Benjamin Gompertz, a British actuary, who, in 1825, described the relationship of mortality to age as an accelerating curve described by exponential equation. The fact that mortality data could be described as an exponential equation did not itself explain why mortality is related to age. It was, however, an early step toward bringing science into discussions about aging.

ABSTRACT

Background: Self-rated health (SRH) is one of the most widely used single measures of perceived current health status. It is used across disciplines to explore and explain people's perceived health. SRH reflects an interaction between five broad health dimensions: physical and functional health, psychological resources and health, attitudes and expectations regarding health and aging, social support, and demographics. This thesis explores the SRH of three growing populations aged 60 to 75 years old: Iranians in Tehran and Iranian immigrants and Swedes in Stockholm. The health of this particular population is currently on the agenda for policy and decision makers, who aim to providing care that is appropriate and fits the needs of the elderly. A goal of this thesis is to also add to the body of knowledge regarding this age group, such that healthcare personal and policy makers stand on firmer ground when making decisions.

Aim: To describe the process of developing and testing the validity and reliability of the study specific questionnaire "Self-reported health and health-care needs among elderly" (*Sub-study I*). To establish factors that influence SRH in the above mentioned groups in order to better understand health outcomes (*Sub-study II*). To investigate and compare self-reported factors of mental health and depressive symptoms (*Sub-study III*). To investigate variables that could explain sleep quality (*Sub-study IV*).

Method: A quantitative approach was adopted, using a study specific questionnaire created for the intention of exploring aspects of SRH in the above mentioned populations. The first version of the questionnaire was constructed in Farsi, and then translated by bilingual researchers from Farsi into Swedish. An independent professional translator back-translated the questionnaire to Farsi in order to compare the congruency between the Swedish and Farsi versions. The data collection started at the same time in both countries, and finalized during 2005. The total number of respondents in the entire sample was 1088; 515 (49 %) men and 542 (51 %) women ranging from 60 to 75 years (mean age, 67). The three groups did not differ significantly with regard to age or gender.

Results: In *sub-study I*, the development phases of the questionnaire is described which confirmed the validity and reliability of the final version of the questionnaire. In *sub-study II* the results demonstrated that women generally reported lower SRH than men. Both Iranian groups reported having lower SRH compared to the Swedish group. The two Iranian groups had three common factors influencing SRH; education, satisfaction with one's social life and sleep quality. Other factors important to SRH among Iranians in Iran included nocturia (night time urination), weight loss, feeling weak, and income satisfaction. The Swedes was the only group where depression and satisfaction with leisure activities were found to be important. In *sub-study III*, with regards to gender aspects the Iranians in Iran revealed differences in almost every item concerning mental health whereas the Swedes and Iranian immigrants exhibited differences in only three of the ten items. Women reported more depressive symptoms in almost all cases. SRH, smoking, satisfaction of social life and sense of connection to one's cultural roots and traditions were statistically significant factors related to mental health. Demographic

variables that were found to be significant were group belonging (Swedes vs. Iranians), sex and satisfaction with income. In *sub-study IV*, aspects of self-reported sleep quality were explored showing that both Iranian samples reported sleep problems to a greater extent than the Swedish sample. Sex was found to be a significant factor only in the Swedish group. Nocturia was found to be important among all three groups. Other factors important for sleep quality in the Swedish group was SRH, how one views the future and being happy and in a good mood. Education, marital status, depression and appetite were only found to be significant in the Iranians in Iran.

Conclusion: In general women reported lower scores than men with regard to SRH and thereto related dimensions, e.g., sleep quality and mental health. The different sub-studies also concludes that more attention should be given to the impact of SRH and related aspects such as sleep quality, socio demographic and socioeconomic factors calling for more attention by healthcare workers in both countries so that good quality care can be insured. The findings also indicate that the Iranian populations living in both Tehran and Stockholm report poorer SRH, mental health and sleep quality to an extent that raises concern. Although researchers have repeatedly acknowledged the importance of SRH, being the strongest predictor of future morbidity and mortality, this recognition and awareness has yet not gained the full attention it deserves from policy makers and healthcare workers in both countries.

Keyword: *Self-rated health, Elderly, Cross-sectional, Questionnaire development, Cross-cultural comparison, Mental Health, Depression, Sleep quality, Nursing.*

LIST OF PUBLICATIONS

This doctoral thesis is based on the following studies, referred to in the text by their Roman numerals:

- I. Emami, A., Momeni, P., Malekafzali, H., Maddah, S.
Developing a questionnaire for conducting cross-national studies-'Self-reported health and needs among elderly Iranians and Swedes
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- II. Momeni, P., Hasson, D., Maddah, S., Emami, A.
Factors important for self-rated health among Iranians in Tehran, Iranian immigrants and Swedes in Stockholm aged 60–75 years
Manuscript
- III. Momeni, P., Wettergren, L., Tessma, M., Maddah, S., Emami, A
Factors of importance for self-reported mental health and depressive symptoms among ages 60-75 in urban Iran and Sweden
Scandinavian Journal of Caring Sciences, 2011 (Epub ahead of print)
- IV. Momeni, P., Hasson, D., Maddah, S., Emami, A
Self-rated sleep quality in 60-75 years old in Tehran and Stockholm. *Submitted*

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LIST OF ABBREVIATIONS AND GLOSSERY

UNICEF	The United Nations Children's Fund (UNICEF) is an international organization.
WHO	World Health Organization (WHO) is the directing and coordinating authority for health within the United Nations system.
QOL	Quality of life (QOL) is a construct related to SRH and is also important as it specifically assesses how an individual feels about their health status and other non-medical aspects of their lives.
SRH	Self-Rated Health (SRH) assessed by a simple single-item measure has been demonstrated to be a robust predictor of health outcomes independent of many objective measurable physical and biological factors.
FGD	Focus group discussion being a form of a qualitative research in which a group of people are asked about their perceptions, opinions, beliefs and attitudes towards a concept or area.
Likert-scale	When responding to a Likert questionnaire item, respondents specify their level of agreement or disagreement on a symmetric agree-disagree scale for a series of statements.
VAS	Visual analogue scale (VAS) is a psychometric scale. When responding to a VAS item, respondents specify their level of agreement to a statement by indicating a position along a continuous line between two end-points. This continuous (or "analogue") aspect of the scale differentiates it from discrete scales such as the Likert scale.
VRS	A verbal rating scale is a combination of a VAS and a Likert scale; a VAS with descriptors.
SES	Selective survival
GDS	Geriatric Depression Scale

1 BACKGROUND

In Iran and Sweden, the number of elderly persons within the populations is increasing and will continue to increase considerably during the coming years. As the elderly make up a growing proportion of the population in high, middle and low income countries, this thesis represent how three urban populations experienced various dimensions of self-rated health (SRH). The populations consisted of Iranians in Tehran as well as Iranian immigrants and Swedes living in Stockholm. The aim was to assess whether or not differences exist among these populations with regard to perceptions of health. The ultimate purpose of the research studies included in this thesis is to provide a more detailed basis for designing better eldercare in the future that can be adapted to different socio-cultural settings and needs. Scientific knowledge should be used as a base for programs directed at promoting and preserving health and preventing and/or managing illness amongst the elderly.

Therefore, the studies were aimed at providing a knowledge basis for the development of strategies for healthcare professionals, authorities and decision makers for identifying SRH aspects in a psychosocial cultural and socio-economic context. Such knowledge is crucial for enabling the provision of high quality welfare and health services for this growing population. A comparison of different populations also provides an opportunity to learn from broader contextual circumstances that can in turn promote the healthcare for diverse populations (J. Sundquist & Johansson, 1997). In this research, we attempt to investigate whether people being born in the same country but living with different socio-cultural contexts (Iranians in Iran and Iranian Immigrants) versus living in the same country with different backgrounds (Iranian immigrants and Swedes) share similar views and perceptions about their health, and whether or not migration and demographic factors such as economic and social characteristics impact their view on health. This may demonstrate patterns of health and health beliefs among different populations that might decidedly influence their healthcare utilization. A greater understanding of the factors that can influence people's healthcare utilization is relevant in terms of resource allocation and adaptability of elderly care.

A main goal in nursing is to proactively promote health and well-being and to conduct research that helps individuals and groups to better handle ill health. One way in which to acquire the knowledge needed to improve health is to study SRH, which is a complex variable that captures various dimensions of the relation between physical health and other personal and social characteristics (Idler & Angel, 1990). In order to better understand health outcomes in different ethnic groups, previous research has compared dimensions of SRH between different countries (Astrom, Ekback, Ordell, & Unell, 2011; Lindstrom, Sundquist, & Ostergren, 2001; J. Sundquist, 1995; Tinghog, Al-Saffar, Carstensen, & Nordenfelt, 2010; Vadla et al., 2011). More and more studies are being conducted with regard for the health of elderly immigrants in Sweden. These studies generally conclude that foreign-born elderly individuals report poorer health than native-born Swedes (Bennet et al., 2011; K. Sundquist, Chaikiat, Leon, Johansson, & Sundquist, 2011). Also in Iran researchers are pointing out the need for more attention to be directed towards the health needs of the ageing population. In a

recent study in Iran including a sample of 400 participants in Tehran, the investigators found that economic status was the most significant predictor of health status among the elderly (Tajvar, Arab, & Montazeri, 2008). That study concluded that elderly people living in Tehran, Iran, suffer from relatively poor health-related quality of life (HRQOL); particularly elderly women and those with limited education. Indeed, in order to improve elderly Iranians' health status, the authors concluded that much more attention should be paid to all aspects of their life, including their health and economic status (2008).

This project is the first to compare the SHR of Iranian immigrants in Sweden to that of Iranians in Iran and native Swedes. However, other groups have conducted studies investigating various aspects of SRH within these populations. For example, a thesis entitled "Elderly Iranians in Sweden" was published in 2008. It investigated the impact of migration as a risk factor for cardiovascular disease and found that older Iranian immigrants were at a higher risk for developing cardiovascular disease than those in Iran. The odds of Iranian men in Sweden having high blood pressure was more than a threefold higher than for Iranian men in Iran, and among women the risk was twice as high in Sweden as in Iran. With regards to risk factors, the proportion of smokers was six times higher among Iranian immigrants living in Sweden compared to Iranians living in Iran. Elderly Iranians in Sweden consumed more fruit and vegetables, but on the other hand, they consumed more fatty food (Koochek, Jonansson, Kocuturk, Sundquist, & Sundquist, 2008; Koochek et al., 2008; Koochek, Montazeri, Johansson, & Sundquist, 2007). Another recent study also examining esophageal cancer wanted to define the risk of esophageal cancer by histology and length of stay among immigrants in Sweden. This was carried out by calculating standardized incidence ratios (SIRs) for esophageal cancer among immigrants compared with the native Swedes in a sample of 5930 male and 1998 female Swedes, and 410 and 198 immigrants. The risk of squamous cell carcinoma was increased among Finns and Iranian women and no trend was observed for the risks in immigrants according to the length of stay (Mousavi, Brandt, Sundquist, & Hemminki, 2011).

1.1 DEFINITION OF THE WORD "ELDERLY" IN THIS THESIS

There were some difficulties assessing health amongst the elderly in the present study. The research teams in both countries struggled to determine the age span that would define "elderly". According to the latest figures from the United Nations, life expectancy at birth among Swedes is 80.9 years compared to 71 years for Iranians in Iran (www.un.org). The Iranian research team based their definition on population based statistics of health, life expectancy and age of retirement. As a result, they wanted to include ages between 55 and 85 years in the study. It is not unusual that people, mostly women, retire at the age of 55 in Iran, or even earlier (www.un.org). Among the men, the age tends to be higher, usually around the age of 60. In Sweden, however, the official retirement age is 65 and though some do retire earlier due to various reasons, some work until the age of 70 or older. Nowadays in Sweden, many people over 65 continue working (Maddah, Eshraghian, Djazayery, & Mirdamadi, 2003), and the number of people who combine pensions and paid work is on the increase. The retirement age, normally 65, has become more flexible.

Based on a mutual agreement, it was eventually decided to include participants aged 60–75 years in the study. With regards to terminology, the participants are referred to either as elderly or by stating their ages (i.e., 60 to 75 years old). The last convention was adopted due to the fact that people are not generally considered old in Sweden at the age of 60.

1.2 Population Ageing

Population ageing refers to the trend in which more people live long enough to reach older age while relatively fewer children are born (<http://www.who.int/en/>). Population ageing is an increasing median age of a population or a change in the age structure of a population, so that elderly persons are increasingly represented within a country's overall age structure (Shrestha, 2000). The increased life expectancy among western populations has been explained as a result of better environmental conditions and nutrition, and not primarily due to improved healthcare quality. For low income nations, the increased life expectancy is likely the result of preventive and curative medicine, which has decreased the incidence of infectious diseases (Jamuna, 2004). However, elderly care in low income countries is a major social and health problem that has not been sufficiently addressed. Thus, there is an obvious need for interventions to insure good quality care, especially in low income countries (Lena, Ashok, Padma, Kamath, & Kamath, 2009). In the coming 25 years, the elderly group is expected to continue growing more rapidly than other age groups. By the year 2025, the annual growth rate of elderly individuals (> 60 years) will reach 2.8 %. Such a rapid growth will require vast economic and social adjustments in most countries (www.un.org). There are currently 580 million people in the world who are 60 years or older; with a majority (355 million) in low income countries. This number is expected to rise to 1 billion by 2020; a 75 % increase, notably higher than the 50 % increase for the population as a whole (<http://www.who.int/ageing/en/>). The rapid change of demographics in low income countries, together with an unstable institutional context and unfavorable economic environment, generates conditions that make the process much more complex than in other areas of the world (Maia, Duarte, Lebrao, & Santos, 2006).

1.3 Ageing in different societies

The groups of elderly populations that participated in this research study reside in diverse socio-cultural and socio-economic circumstances. The contextual and conditional background of each group's ageing and life situation is outlined below.

1.3.1 Ageing in Iran

In Iranian culture, the social status of an individual traditionally increases with age. The thoughts of elderly individuals are more valued and they are treated with more respect and are privileged by a high position among the family members (Teymoori F., 2006). Respect for the elderly is expressed in Persian literature and poems highlighting the distinguished position the aged should have in families and communities. A couple of decades ago, it was not culturally appropriate to transfer an elderly family member to a nursing home and this may still be true in some rural areas today. In urban areas, the situation has started to shift towards a different structure in which it is becoming more and more acceptable (Sheykhi, 2004). It appears that these traditional attitudes and cultural values have undergone changes in recent years due to factors such as social change, increases in urban living, and increases in

socio-economic differences, as well as limited financial resources. In addition, the decline in the number of caregivers for elderly individuals in families can be partly due to the increased participation of women in the labor force (Nizamuddin, 2006). There are two types of nursing homes in Iran: private and public. It is more difficult to obtain treatment in the public healthcare facilities since they are few in number and have long waiting lists. Private elderly care facilities are more prevalent, yet costly, and not an affordable option for most people (Sheykhi, 2004). The income/pension of the Iranian elderly population is not sufficient to cover their life expenses (Kaldi, 2005). Kahrizak Charity Foundation (KCF) in Tehran is home to more than 1050 elderly and is the largest and oldest nursing home in Iran. The available literature indicates that there is a need for special residency programs in geriatric care, as this is currently lacking in Iran.

Furthermore, research is now showing a decline in the health of the elderly in Iran. One main reason seems to be their poor financial situation and dependency on others. Medical expenses and prices increase every year in Iran and this decreases the ability of elderly to pay for their medical needs, particularly those individuals lacking any medical insurances (Sheykhi, 2004). According to a survey conducted by Sheykhi and colleagues, 25–30 % of the elderly in Iran did not benefit from any medical insurance services (Sheykhi, 2004). A study conducted by Tajvar in 2008 concludes that elderly people living in Tehran suffer from relatively poor HRQOL; particularly elderly women and those with lower education. To improve quality of life among elderly Iranians, more attention should be directed to all aspects of their life, including health and financial status (Tajvar, et al., 2008).

In Iran, there is a need for providing community-based healthcare services such as day care centers, home healthcare services, nursing homes, and hospice care (Norouzi K, 2006). The provision of these services is restricted to the end stages of a person's life, mainly through family members and/or lay caregivers. Nursing home facilities are available primarily in Tehran. In certain cases, families sign contracts with private nursing homes to receive home services. However, these services do not usually comply with standard levels of care and studies suggests that a great number of elderly individuals experience isolation and loneliness during their stay in residential care facilities (Adib-Hajbaghery & Aghahoseini, 2007). Sheykhi (2004) reported that 25 % of isolated elderly individuals in Tehran nursing homes did not have any visitors, while 30 % received monthly visits and about 36 % had weekly visitors.

The role of the nurse in Iran has become more and more important since the shift within the health care system in Iran occurred, with the focus now on the primary health care approach as the base of the new design for service system. This new system has changed the role of employed experts and placed more emphasis and importance on the role of nurses. This shift during the last decade has changed the nature of nursing, their responsibilities and the locations where nurses perform their work (from hospitals to the primary and community-oriented care centers) (K. Geisinger, 1994).

1.3.2 Ageing in Sweden

The elderly represent an increasing proportion of the Swedish population. Many are in good health and lead active lives and the majority live in their own homes. The official government offices of Sweden state on their website that the overall responsibility for care of the elderly in Sweden rests with the State. The general principles of the Swedish welfare state regarding care of the elderly are the same throughout the country, namely that social care and health care for the elderly are primarily public sector tasks and that care is to be provided by trained and qualified staff (Kelishadi et al., 2003).

Sweden has a universal public healthcare system with about 6 % governed by private care providers. The Swedish system is founded on the principle of equality (Persson, 2001) and aims at guaranteeing the allocation of healthcare resources on the basis of need, rather than on the basis of either socio-economic position, civil status, or country of birth. After Japan, Italy and Germany, Sweden has the oldest population in the world (www.un.org, 2011) and this causes a major economic burden. During the 1990's the Swedish healthcare system was subjected to major changes, including staff downsizing and increased workloads (Coulter A, 2003), and one of the main changes occurred in the Swedish elderly care system (Wallenskog, 2011). The municipalities founded special housing for older people with special needs, such as those with severe dementia and multi-morbidity. These modifications within elderly care led to a more challenging work environment for nurses (Karlsson, Ekman, & Fagerberg, 2009).

Nurses now more often work alone without access to a physician (Josefsson, 2006; Josefsson, Sonde, Winblad, & Robins Wahlin, 2007; Karlsson, et al., 2009) and are often required to make independent decisions and take initiatives. This requires the nurses to be confident in their competences and be able to handle the work-related stress (Karlsson, et al., 2009). This may result in awkward situations for nurses as they are expected to carry out specialized care without adequate specialist training or education (Karlsson, et al., 2009). Working in elderly care is currently considered to be psychologically stressful (Josefsson, et al., 2007) and in order to ensure that more nurses remain within elderly care, they should be given enough time to properly perform their work tasks and receive relevant training and education (Armstrong-Stassen & Cameron, 2005).

Due to the high number of elderly persons in Sweden, numerous studies have aimed to investigate different aspects of their health. For example, a recent Swedish study conducted on individuals older than 77 years over a ten year period suggested that health deteriorates significantly in this age group. The results showed that serious health problems increased significantly during this period and the increase was greatest for multiple diseases and symptoms (Meinow, Heap, Parker, & Thorslund, 2009; Meinow, Kareholt, Parker, & Thorslund, 2001; Meinow, Parker, & Thorslund, 2010)

1.3.3 Ageing as an Iranian immigrant in Sweden

During the past two decades, more than 3 million Iranians have emigrated to other countries, making them one of the largest new immigrant groups from the Middle East (www.iranian.com/today, 2001). The most recent data from Statistics Sweden (www.scb.se)

clearly show that Iranians are the fifth largest immigrant group living in Sweden, with over 62,000 people. The largest Iranian population outside Iran is in the USA, and within Europe the largest Iranian populations are found in France, Germany, the United Kingdom and Sweden (Peach C, 1995). Previous studies have found an increased risk of poor SRH (Clarke & Ryan, 2006; Wiking, Johansson, & Sundquist, 2004) among some groups of immigrants in Sweden compared to the native Swedish population.

Despite the fact that Iranians comprise one of the largest ethnic groups born outside Europe, little is known about their health and healthcare needs. Salari (2002) found that older Middle Eastern immigrants are nearly invisible in the literature concerning the ageing (2002). Martin later wrote in 2009 that the main body of research on older Iranian immigrants is found mostly in the studies conducted in Sweden (2009). These studies give some perspective on the health status of older Iranian immigrants. Moghari reported that ‘aged Iranian immigrants have more health problems than the other groups in the host country (2000). Emami found that older Iranian immigrants are more vulnerable than younger immigrants (A. Emami, Torres, Lipson, & Ekman, 2000).

Nowadays more and more studies are emerging that examines the health of Iranian populations; for example, studies exploring different dimensions of health in younger Iranians are compared to both Iranians in Iran and Swedes. One of these studies examining participants aged 10-39 years concluded that there is a significantly higher risk of having multiple sclerosis (MS) among Iranian immigrants in Sweden than Iranians in Iran (Ahlgren, Lycke, Oden, & Andersen, 2010). Another study explored the incidence of cancer among adult Iranian immigrants, Iranian residents in Iran, and the Swedish population. Among Iranian immigrants, their all-cancer ASR (age standardized incidence rate) was higher than for the Iranian residents, and though ASR increased among the male Iranian immigrants during the past two decades, it was stable among females. Although Iranian immigrants had a significantly increased risk for thyroid cancers compared to the Swedes, the risk for all-cancers among Iranian immigrants was lower than that for the native Swedish population; the reason for this is yet not clear. The authors concluded that the difference between the Iranian immigrants and the Iranian residents can be influenced by other factors such as different registry systems (Mousavi et al., 2010).

One qualitative study of ten Iranian women in Sweden explored various health determinants. Factors like unemployment or experiences of discrimination and racism were observed even two decades after migration and these factors are known determinants of SRH (Sharareh, Carina, & Sarah, 2007). Although it is not feasible to generalize the results from studies on younger age groups to an elderly population, most studies show that the health of immigrants is worse than the health of the native population. Immigrants are at a particularly high risk of having psychiatric ill health, including depression and anxiety (Bayard-Burfield, Sundquist, & Johansson, 2001; Tinghog, Hemmingsson, & Lundberg, 2007). In regard to Iranian immigrants, socio-economic disadvantages have not been shown to account for the higher prevalence of depression (Taloyan, Sundquist, & Al-Windi, 2008). Research from both Sweden (Wamala, Merlo, Bostrom, & Hogstedt, 2007) and other countries (Braveman, Egerter, Cubbin, & Marchi, 2004; Friedman et al., 2005) have described difficulties that

immigrants experience in accessing appropriate healthcare services. In a study on Iranian immigrant women in Sweden, it was found that several non-medical factors were related to pain symptoms, such as the feeling of being alienated (Polit DF, 2004). A recent study aimed to investigate the mental health of Iranian immigrants and the impact of immigration on the development of mental health problems among these immigrants. Participants defined “mental health” as the absence of mental illness in terms of psychological, social and emotional aspects. Several immigration-related risk factors were revealed as barriers to successful acculturation, including a lack of proficiency in the official language of the host country, under- or unemployment, cultural differences, and a lack of social support (Mathias, Jafari, & Baharlou, 2010)

1.3.4 Reasons for immigrating to Sweden and characteristics of the Iranian immigrants

Among elderly Iranians, a common reason for migration to Sweden was to follow their relatives, often children (Heikkinen & Kauppinen, 2004), while the motivations for younger immigrants differ. The majority of the elderly Iranian immigrants in Sweden live in their own apartments and often do not speak Swedish (A Emami & Ekman, 1998; Hajighasemi, 1994). The vast majority of Iranians in Sweden arrived during the mid-1980s; only 4,554 Iranians resided in Sweden in 1983 (Lithman, 1988) and this number increased dramatically as a result of the war from 1980–1988.

A large proportion of the Iranians who migrated to Sweden and other parts of the world were highly educated individuals from middle-class urban backgrounds (Backman, 1989) and Iranians represent a prominent group within the education system at all levels. Education is widely regarded by Iranians as the means of social betterment and mobility; higher education has long been the reason for migration from Iran, in the hope of gaining qualifications that help secure professional or clerical work.

In cultural and religious terms, many Iranians in Sweden are consciously westernized or at least secular in outlook and behavior (Sander, 1993). In some respects, Iranians are similar to Swedes in terms of education, previous occupation, and degree of travel abroad. In 1979, the Shah of Iran was overthrown and the country was led by more religious Islamic forces. Several years after the revolution, Iranian exiles began to understand that their migration was not temporary, but rather permanent. As a result of this insight, they became increasingly involved in the Swedish society. In other words, they have experienced a transition from they have made the transition from exiled to integrated (Graham, 1997). However, this is not always the case for elderly Iran immigrants, whose greatest challenge is the process of ageing in a foreign culture. The move to Sweden involves a considerable change in lifestyle, particularly for the elderly coming from more traditional society. This fact holds especially true to immigrants from Middle Eastern countries where it is the family that has the main responsibility for the elderly (A Emami & Ekman, 1998).

2 SELF-RATED HEALTH

2.1 CONCEPT OF HEALTH

The World Health Organization (WHO) defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. This definition has been amended very little since 1948 (<http://www.who.int/suggestions/faq/en/>), with only the word “dynamic” added to the definition (<http://www.who.int/en/>). WHO provides a definition of health that clearly demonstrates the complexity of the concept. Although this definition goes beyond the mere absence of biological disease, it nevertheless poses some difficulties. Health is a subjective measure that can be experienced in both the presence and absence of disease and disability.

The way in which the word ‘complete’ is used to describe and define health has been severely criticized by several researchers and institutions over the years. One can simultaneously be relatively healthy in certain aspects of life while unhealthy in other aspects. There are no clear borders that can be crossed in order to move from an unhealthy category into a healthy one. Therefore, the definition of health should be extended and recognize the influence of numerous variables within the context of the assessment. Such variables could include sex, culture, age and socio-economic aspects, all of which need to be taken in account when defining the concept of health.

There is a need to measure health status in order to determine similarities and differences within and between populations. Although health is widely recognized as a social construct, considerable emphasis has been placed on “objective” measures of illness, such as limitations in activity, morbidity, and mortality. Within this biomedical framework, however, self-assessed health status has increasingly gained attention, becoming an important component of contemporary health research (Albrecht G, 1994) as it is arguably as reliable as—or more reliable than—other “objective” biomedical measures.

A study by Martin (2009) on elderly Iranian immigrants to the USA found that, the biomedical model, which dominates western medicine, divides the notion of health into two separate categories: physical and mental. In the Persian culture, health is viewed as physical-spiritual. Physical means body and spiritual refers to everything that is non-flesh, including the mind, emotions, and the soul/spirit. The participants’ view of health is not linear and polarized, with physical health at one end of the spectrum and mental health on the other, but rather more spherical, with the outer shell representing the body and the inside holding the spirit (“*ruh*”). Many of the participants described good health as finding a good balance in their lives, having a proper combination of mental/emotional, physical, and spiritual health as well as a balanced diet and social life. In general, they defined health as an overall absence of worry, good nutrition, “*happy hearts*” and a feeling of being connected to their family and community (Martin, 2009). These findings were consistent with the findings of a study of older Iranian immigrants in Sweden (A. Emami, et al., 2000). The participants expressed that “*ruhi*” health is very significant; in fact, nearly all of the participants reported “*ruhi*” health as a stronger indicator of their overall health than

physical health. This appeared to the participants as different from the western view of health.

2.2 ASSESSMENT OF SRH

There are two general approaches to subjective health assessment by questionnaire: the first involves the use of multiple items covering a number of dimensions of health and the second uses a single global question. Global questions also appear in many validated multi-item instruments, including the General Health Questionnaire and the Short- Form Health Survey and have been found to correlate with multi-item instruments such as the Nottingham Profile. Because of their simplicity, ease of administration, and validated performance, global questions are now in widespread use. The single item question that is used to rate health can be phrased in different ways but a common wording is: “How would you rate your overall health?” (Westerlund et al., 2009). This item is used in health surveys all around the world, in many different languages, for the sole purpose of exploring SRH. Some studies incorporate the aspect of relativity and time by asking: “How would you rate your health in comparison to others in your age group?”, or “How would you rate your overall health today compared to one year ago?” Usually, the responses are graded on a Likert scale ranging from poor to excellent (Bue Bjorner, 1996). Other scale types, such as the visual analogue scale (VAS) or verbal rating scale (VRS), are also used with equally strong predictive value. During the past years, several cross-sectional and longitudinal studies have contributed extensive knowledge on SRH and highlighted its credibility and validity. Although studies have demonstrated different determinants of SRH, the concept of SRH and the reasons for it being such a strong predictor are still largely unexplained.

2.3 THE VALIDITY OF SRH AS A MEASURE

It has been proposed that SRH represents an individual's general perception of health, including biological, psychological and social dimensions. SRH is one of the most widely used single measures of perceived current health status (Hasson, Arnetz, Theorell, & Anderberg, 2006). It is used across various disciplines to explore and explain people's health status. Initially, SRH was studied in order to discover a tool that could be used interchangeably with clinical examinations. During the following decades, in spite of variations in wording, SRH was found to be the strongest predictor of future morbidity and mortality (Idler & Benyamini, 1997). The discovery that a self-rating was a stronger predictor of health than clinical assessments (Elinder LS, 2011; Griffith, Lovett, Pyle, & Miller, 2011; Mossey & Shapiro, 1982) surprised many researchers. In the early 1980s, researchers Mossey and Shapiro (1982) examined 870 persons who had died between 1971 and 1977. As expected, the odds of death were greater for males than for females, as well as among older individuals and those with poorer objective health status. Interestingly, those with poor SRH had considerably higher odds of premature death, and death was more likely among groups with lower life satisfaction and income. For the first time, studies demonstrated the association between SRH and mortality (Idler & Angel, 1990; Idler & Benyamini, 1997).

Given the simplicity SRH and its ability to capture a snapshot of health, it is often used in population health surveys (Idler & Benyamini, 1997). For example in the large scale REVES project being the European Health Expectancy Monitoring Unit together with WHO in a (<http://www.ined.fr/en/>, 2002) examining SRH measures across countries in order to use as a compulsory outcome measure for calculating population health and healthy life expectancy. Studies performed specifically in older age groups have shown that SRH can actually be a better predictor for future mortality than a clinical diagnosis (Elinder LS, 2011; Griffith, et al., 2011; Mossey & Shapiro, 1982). They concluded that SRH reflects an interaction between five broad health dimensions: physical and functional health, psychological resources and health, attitudes and expectations regarding health and ageing, social support, and demographics (Okun, Stock, Haring, & Witter, 1984; Pinguart, 2001; Segovia, Bartlett, & Edwards, 1989; Xu et al., 2011). An important aspect of SRH studies are the socio-demographic and socio-economic factors such as education (Dowd JB, 2010; Franks, Gold, & Fiscella, 2003), gender (Eriksson, Ng, Weinehall, & Emmelin, 2011), and income (Prus, 2011). A Swedish study investigated the associations between marital status and SRH on a total of 27,757 persons aged 18–80 years and demonstrated that the prevalence of poor SRH was 28.7% among men and 33.2% among women. Respondents that were older, born abroad, or had medium/low education, low emotional support, economic problems, or low trust, as well as those who had never married or were divorced, had significantly higher rates of poor SRH than their respective reference group (Lindstrom, 2009).

2.4 SRH IN AN AGEING POPULATION

When performing studies on ageing populations in different countries, researchers have found evidence that certain factors are particularly important for SRH. A study in Finland with about 3,000 participants born between 1926 and 1950 found that participation in leisure activities is associated with better SRH among ageing people (Nummela, Sulander, Rahkonen, & Uutela, 2008). In fact, several studies on the elderly have shown that various forms of leisure activities are associated with better SRH, and that the engagement itself is a predictor of longevity (Helm, Hays, Flint, Koenig, & Blazer, 2000; Hyypa & Maki, 2003; Hyypa, Maki, Impivaara, & Aromaa, 2006; Morrow-Howell, Hinterlong, Rozario, & Tang, 2003; Zunzunegui et al., 2004). A large-scale, cross-sectional Japanese study of the elderly found that better SRH was correlated with a less functional decline and greater independence in the activities of daily living (ADL) as well as absence of depression and chronic disease (Sun et al., 2007).

2.5 SRH IN RELATION TO SOCIO-ECONOMIC STATUS, SEX AND AGE

A major part of the existing literature on SRH has focused on whether socio-economic differences in health persist, increase, or decrease with age. Studies show that variations in health status decrease with age (Bennett et al., 2001; Marmot & Shipley, 1996), particularly so with ill health among elderly (Hoffmann, 2005). Thus, a higher level of (self-rated) ill health is as strong a predictor of mortality irrespective of socio-economic status. Hoffman argues that welfare states may reduce socio-economic differences in old age through benefits and social policies. He also states that observed mortality differences become smaller in old age because the surviving population is more homogeneous due to selective mortality (Hoffmann, 2005; Salas, 2002).

The fact remains that the results from longitudinal studies performed in different countries are inconsistent (Smith & Goldman, 2007). Selective survival refers to the fact that those who are most disadvantaged die earlier, which might decrease the effect of SES on morbidity and mortality in elderly (Smith & Goldman, 2007). However, in a large English longitudinal study on ageing, selective mortality explained only some of the decline in health inequalities with age (McMunn, Nazroo, & Breeze, 2009). Socio-economic inequality in ill health persists in old age for certain illnesses, particularly functional impairment, but not for heart disease. The debate is yet to be resolved and more research should help to clarify this.

In 1996, a study found sex-related differences in SRH, where women reported greater morbidity and poorer functioning than men (Macintyre, Hunt, & Sweeting, 1996). Others have suggested that these sex-related differences may increase with age (Eriksson, et al., 2011).

When trying to understand the SRH of elderly populations it is important to start from studies on elderly age groups, as there are special characteristics that are specific to elderly individuals (Szanton et al., 2008). One of these characteristics is the tendency of the elderly to compare their health status with others of the same age, which younger individuals often do not do (Kaplan & Baron-Epel, 2003). Several studies have shown that the burden of ill-health, in terms of perceived health problems, is substantially relieved by retirement for all groups of workers apart from those with ideal working conditions (Westerlund, et al., 2009). However, the results are conflicting and while some studies have reported that SRH improves after retirement (Johnston & Lee, 2009; Mein, Martikainen, Hemingway, Stansfeld, & Marmot, 2003; Mojon-Azzi, Sousa-Poza, & Widmer, 2007) others found that it declines (Alavinia & Burdorf, 2008; Buxton, Singleton, & Melzer, 2005) and yet others draw the conclusion that retirement has no effect on SRH whatsoever (Butterworth et al., 2006). In conclusion, SRH seems to generally decline with age, even if it can improve on the short-term (for a few years) after retirement.

2.6 SELF-RATED DEPRESSION AND MENTAL HEALTH IN THE ELDERLY

2.6.1 Symptoms and cost

Depression is characterized by the absence of a positive outlook (loss of interest and enjoyment in ordinary events/situations), low mood and a range of emotional, cognitive, physical and behavioral symptoms (Vink et al., 2009). According to the *Diagnostic and Statistical Manual of Mental Disorders, fourth edition* (DSM-IV) (APA, 1994), in order to diagnose major depression, five of nine criteria must be fulfilled during a two week period and at least one of the symptoms should be either depressed mood or loss of interest or pleasure. Other symptoms according to the DSM-IV include insomnia, hypersomnia (sleeping too much) gaining or losing weight, fatigue or loss of energy, feelings of worthlessness, hopelessness, excessive or inappropriate guilt, and the diminished ability to think or concentrate, headaches, body aches, and sometimes even thoughts of suicide (these occurring almost every day) (APA, 1994).

While sadness, disappointment and occasional mood depressions are a part of human life, prolonged periods of depression and feelings of hopelessness indicate a depressive illness.

Depressive disorders are among the leading causes of illness, lost productivity and disability worldwide (SBU, 2004). In an international survey by the World Bank and WHO, only respiratory infections, diarrheal diseases and infant diseases caused more severe major health impacts than depression. In 2002, approximately 1.6 billion SEK was spent on antidepressants in Sweden and the direct costs of doctor visits and hospital care was estimated in 1996 just below 1 billion SEK. An attempt in 1997 to calculate the sum of the direct and indirect costs of depression in Sweden gave the figure of 12 billion SEK per year. In addition, the risk of suicide is significant for depressed elderly individuals, especially older men. In 2001, 28 % of all registered suicides were committed by those above the age of 65 (www.socialstyrelsen.se).

2.6.2 Treatment and management

It is estimated that only half of those people who suffer from depression seek help (Crossley & Kennedy, 2002a). Although non-pharmacological treatment options exist, including both psychotherapy and cognitive behavioral therapy (CBT), treatment for the elderly suffering with depression is usually pharmaceutical intervention. Those suffering from severe depressions may need to take antidepressants for years and in some cases a lifetime. It is important to note that treatment with multiple drugs increases the risk of side effects, some of which may have serious consequences. An older person's body may be less able to cope with particular treatments due to the body's declining condition and since the risks associated with certain treatments increase when the body's condition declines, the risks can sometimes be greater than the benefits. Health care can reduce these risks by providing services on strict indication and by regularly assessing the effects and possible side effects. A regular and structured drug screening allows health care support workers to make decisions on any changes, additions or discontinuations of medications (2002a).

2.6.3 Overview of current knowledge

A Swedish study (Hagnell O, 1990), known as the Lundby study, conducted at the end of the 1940s and then repeated 25 years later had a great impact on research in the field of psychiatric care. Psychiatrists interviewed the entire population of approximately 2,500 people in communities outside the city of Lund. Although this study was conducted before the international rules for diagnostics were introduced, the study's main strengths are that the interviews were carried out by experienced psychiatrists and the criteria they had used to identify risk factors for depression are largely in line with modern diagnostic systems. This study found a considerably higher incidence of depression than any other studies performed later on. In total, 27 % of the men and 45 % of the women were at risk of developing some form of depression before the age of 70 (Hagnell O, 1990).

The research within the area of mental health disorders among the elderly is extensive and it is now accepted that depressive disorders are common among elderly individuals (Sanders et al., 2011). The prevalence of major depressive disorders in adults older than 65 years is reported to be between 1 % and 5 % (Fiske, Wetherell, & Gatz, 2009). A recent systematic literature review found that depressive symptoms are reported in almost 20 % of older adults (Luppa et al., 2010). It is important to note that the symptoms of depression differ

among age groups. Depression in elderly individuals is to a larger extent characterized by sleep disturbance, loss of appetite, fatigue, hopelessness about the future, and subjective memory complaints as compared to younger adults. It is important to keep in mind that within the research field of SRH, not all studies support the hypothesis that self-reported mental health declines with age; some studies have shown the opposite. One of those is the Swedish study involving almost 43,000 respondents in which about 40 % of women and 30 % of men between the ages 18 and 84 years reported that they were moderately or extremely anxious or depressed. Younger respondents reported poorer mental health than older subjects, and in fact the best mental health was found in ages 65–74 years (Molarius et al., 2009).

There are, however, indications that elderly individuals are under-diagnosed with regard to depression due to the fact that physicians often diagnose with the help of the DSM-IV classification system. As this classification system is not primarily focused on late life depression, it may be less applicable to the symptoms of depression in elderly individuals. The lower prevalence rate of major depression in elderly individuals compared to less severe depressive disorders may support this assumption (A. T. F. Beekman, Copeland, & Prince, 1999). It is important to raise the issue of depressive symptoms among the elderly, not least due to the association between late-life depression and functional decline, diminished well-being, morbidity, and mortality (Spijker et al., 2002).

There have also been some studies with inconclusive and conflicting findings regarding cognitive function in old age and its relation to depression (Butters et al., 2004; Lyness et al., 2006; Mojtabai & Olfson, 2004; Sheline et al., 2010). A recent study by Sanders and colleagues (2011) found an independent association of a slowed cognitive processing speed with depressive symptoms in older people. Another study explored factors possibly affecting quality of life among the elderly, using different self-rating instruments, and found that depression was the single strongest predictor of self-reported quality of life (Brett CE, 2011). Regarding sex-related differences, a Taiwanese study reported that there was a higher prevalence of depression in elderly women than in men. Women with less social support had a significantly higher prevalence rate of depressive symptoms. For men, risk factors included educational level, SRH status and number of chronic illnesses (Lin PC, 2011). Another study aiming at identifying factors associated with depressive symptoms in elderly low-income Korean women found that social support networks, a number of medications, and functional status were independently associated with depressive symptoms (Sung, 2011).

2.7 Self-rated sleep quality among elderly

2.7.1 Symptoms

Among the elderly, waking up several times during the night or too early in the morning is common, and sleep disturbances such as insomnia contribute to fatigue, irritability and difficulty concentrating (www.socialstyrelsen.se). Insomnia refers to difficulties falling asleep or waking before the need for sleep is satisfied, and increases the risk of anxiety and depression as well as more serious mental problems (Ljungdahl, 2007). About one third of the Swedish population report disturbed sleep from time to time. Insomnia is more common in women than men and the prevalence increases with age.

2.7.2 Sleep management and treatment

There are several strategies for treating insomnia in the elderly. Apart from pharmacological treatment, there are indications that physical exercise is a feasible non-pharmacological treatment for sleep and metabolic disorders. A recent study aimed at assessing the effects of moderate physical exercise on sleep quality and found that it improved sleep quality in elderly individuals and the authors concluded this should be taken into consideration in the care of elderly individuals (Lira et al., 2011). Hague (2003) observed that the lack of exercise negatively affects sleep quality and these results have been repeatedly confirmed throughout the years.

In another community-based randomized controlled trial in USA, the authors investigated whether physical exercise reduced poor self-rated sleep in adults 55 years and older. Those with mild to moderate sleep complaints were randomized to moderate-intensity endurance exercise, or a health education control group. Daily sleep logs, Pittsburgh Sleep Quality Index (PSQI) and in-home sleep recordings were collected at baseline, 6 months and 12 months. Although the results showed no differences at 6 months, after twelve months of moderate-intensity exercise resulted in reduced night-to-night fluctuations in self-rated time to fall asleep (Gadd, Johansson, Sundquist, & Wandell, 2003a).

The intake of sleep medication is highly prevalent among the elderly, including daily use despite the fact that it is often not being necessary, appropriate or the most suitable intervention (www.socialstyrelsen.se). In the case of medical treatment, the Medical Products Agency (MPA), which is the Swedish national authority responsible for regulation and surveillance of drugs, stated that the characteristics of an ideal drug are that it acts quickly, gives normal sleep, induced normal sleep cycles, do not cause drowsiness the following day and do not induce tolerance or drug dependence. They also stated that unfortunately there are still no sleeping pills that fulfill all these requirements and therefore drug treatment for insomnia should be limited in both time and dose. The choice of drug should also be adapted to individual patient requirements based on product characteristics, patient's situation and the nature of the sleep disturbance (Gadd, Johansson, Sundquist, & Wandell, 2005).

Although insomnia can be treated with drugs, the primary focus should be on solving the underlying problems. The cases of sleep difficulties that are due to other illness, such as depression or anxiety, therapy should be directed to the underlying disease/disorder. Prolonged use of drugs should be avoided as this can lead to dependence. Other simple methods are to strengthen the connection between bed and sleep and limit the time spent in bed to only the amount of time one actually sleeps (www.socialstyrelsen.se).

2.7.3 Overview of current knowledge

An early cross-sectional study performed in the early 1980s stated that those individuals with highly variable sleep-wake schedules had poorer sleep architecture, physiological arousal, psychomotor performance and subjective mood states compared with individuals with more

regular sleep schedules (Daryani et al., 2005). In the recent years, studies have reported associations between poorer sleep quality and poorer SRH, showing that those with shortened sleep have higher rates of poor SRH, difficulties sleeping, nighttime awakenings, and daytime fatigue and sleepiness (Bixler et al., 2005; Ohayon, 2008, 2009). Furthermore, ageing seem to alter sleep patterns, for instance by increased sleep fragmentation, decreased total sleep time and lower sleep efficiency. It also increases the frequency of sleep disturbances, such as sleep apnea and insomnia (Ancoli-Israel, 2009; Ancoli-Israel, Bliwise, & Norgaard, 2010; Chasens, Sereika, Weaver, & Umlauf, 2007). Other studies have confirmed these results and also show that disturbed sleep negatively influences SRH (Magee, Caputi, & Iverson, 2011; Yokoyama et al., 2008).

Other factors have been found to influence sleep; for instance, depression. The two most important factors are improving sleep quality and expanding one's social network. Providing a suitable living environment can improve both sleep quality and depressive symptoms, as maintaining cognitive function and improving functional abilities may be crucial for preventing suffering from insomnia (Albrecht G, 1994).

An Australian study aimed to determine whether or not sleep duration is associated with SRH and quality of life in older participants using a self-report questionnaire. Short and long sleep was significantly associated with poor SRH and lower quality of life. The authors wrote that in spite of the study being cross-sectional, the results add important data to the evidence emphasizing the importance of adequate sleep in physical and mental health (Magee, et al., 2011). Another study in Spain on a total of 1,567 community-dwelling individuals aged 68 years and older explored the association between habitual duration and quality of sleep in older adults. The results indicated that in older adults, short sleep was associated with nighttime sleep complaints and not feeling rested in the morning, while long sleep is associated with daytime sleepiness (Weinberger, Oddone, Samsa, & Landsman, 1996). Poor sleep quality on this age group has been shown to have a great impact on their health status and quality of life (QOL) and also higher general mortality (Pudarcic, Sundquist, & Johansson, 2000; K. Sundquist & Li, 2006). In the forth paper in this thesis, the author aimed to improve the current knowledge of sleep quality among the elderly in order to better understand which factors influence sleep quality among the three sample groups.

3 AIMS

3.1 RATIONALE FOR STUDIES

A deeper understanding of SRH and some of its related dimensions in relation to elderly individuals in different socio-cultural settings could provide a knowledge basis for developing efficient caring strategies for healthcare professionals, authorities and decision makers. There is a need for more knowledge on socio-cultural diversities so that proficient accommodations can be made when planning and executing elderly care. Cross-cultural studies have been used by social scientists from various disciplines to assess the similarities and differences occurring in two or more societies. Indicators of SRH, including depression and sleep quality, are common public health issues and are particularly relevant in the care for elderly individuals. These dimensions need to be systematically addressed in the field of healthcare in order to provide the best possible care for this growing population. The aim of this thesis is not only to describe and explain the possible socio-cultural diversities among the target groups with regard to SRH, depression and sleep quality but also to study the possible relationships between these dimensions, as well as SRH in general for these groups. The aims of each study in this thesis are presented separately below.

3.2 OVERALL AIM

This thesis aimed to explore SRH and some of its related dimensions, such as depression and sleep quality, in three urban populations in Iran and Sweden. These three populations consisted of Iranians in Tehran and Iranian immigrants and native Swedes in Stockholm. All participants were 60–75 years old. This thesis also describes the process of developing a study specific questionnaire in order to assess SRH in the above mentioned groups.

3.3 AIMS OF SUB STUDIES

Aim of sub study I: To describe the process of developing and testing the validity and reliability of the study specific questionnaire measuring self-reported health and health-care needs among Iranians and Swedes aged 60-75 years.

Aim of sub study II: To establish factors that influence SRH in the above mentioned groups in order to better understand health outcomes in the different groups.

Aim of sub study III: To investigate and compare self-reported factors of poor mental health and depressive symptoms among the samples.

Aim of sub study IV: To investigate variables that could explain poor sleep quality in three urban samples and to investigate whether or not sleep is influenced by demographic characteristics such as age, sex, education, and immigration, as well as the possible associations between sleep quality and self-rated measures of mental and psychical health.

4 METHOD

Quantitative approaches were used in the four studies included in this thesis, in order to best obtain answers to the four aims in the thesis. In study I, the study-specific questionnaire was developed by research teams in both Iran and Sweden using qualitative and quantitative methods; for example, the validation of study a qualitative approach was used including focus group discussions with expert groups. In studies, II to IV, different dimensions of SRH were assessed using quantitative methodology. Data was collected in both countries and the analyses included in this thesis were all performed at the Karolinska Institutet, Division of Nursing. More detailed description of the questionnaire, sample selection; data collection and data analysis are provided in the text below. Limitations of the study are described in the discussion section.

Table 1: Overview of the four studies presented in this thesis, including, aim, method and main findings

Domains	Aim	Article #	Data sources ↓	Summary of Finding
Questionnaire development	Describes validity & reliability in a questionnaire aiming to explore aspects of self-rated health	1	Cross sectional study design with a sample of 1088 participants aged 60-75 years old (mean = 67). Data was collected in 2005 Validation was established using content validity, and reliability by using	The results confirm validity and reliability of the final version of the questionnaire
Self rated health	Describe factors important for SRH in order to better understand health outcomes in the three groups	2		25 % of the Iranians in Iran, 18 % of the Iranian immigrants and 5 % of the Swedes reported having very poor SRH with the majority in all three groups being women. Different aspect was found to be important in different groups.
Self-rated mental health and depressive symptoms	To investigate self-rated mental health and compare self-reported depressive symptoms among three groups	3		Iranian samples reported more depressive symptoms than the Swedes and women poorer self-rated mental health than men. Factors of importance to self-rated mental health were self-reported health, smoking, satisfaction with social life, group belonging, sex and satisfaction with Income
Self-rated sleep quality	To establish factors important for self-rated sleep quality			Both Iranian samples reported sleep problems to a greater extent than the Swedish sample. Mental health (depression), physical health (appetite) & some sociodemographic factors (education, marital status) was found to influence self-rated sleep quality among the groups.

4.1 Study setting for the project

The two countries included in this Study are Iran and Sweden. Due to the major differences between these countries, a brief description of these differences is provided below.

4.2 Country profile - Iran

With an estimated population of 72 million, Iran is the most heavily populated country in the region and the 16th most populous in the world. Iran also has the second largest economy in the region (www.unicef.org). With a total area of 1.648 million square kilometers, this Middle Eastern country borders Afghanistan, Armenia, Azerbaijan, Azerbaijan-Naxcivan exclave, Iraq, Pakistan, Turkey and Turkmenistan. Both "Persia" and "Iran" are used interchangeably in cultural contexts; however, "Iran" is the name officially used in political contexts. The principal language of the country is Persian (Farsi) and other languages spoken include Turkish, Kurdish, Armenian, and Arabic. Tehran is the capital, the country's largest city and the political, cultural, commercial and industrial center (www.unicef.org).



4.3 Country profile - Sweden

The country has indigenous (native) population of Swedes with Finnish and Sami minorities. Foreign-born or first-generation immigrants consist of Finns, Yugoslavs, Danes, Norwegians, Greeks, Turks and Persians, among others. Sweden is the third largest country in the European Union by area, with a total population of approximately 9.4 million (www.scb.se). Over 85 % of the population lives in urban areas. Sweden's capital city is Stockholm, and with a metropolitan population of over 2 million, it is also Sweden's largest city (Statistics, 2007). Today, Sweden is a constitutional monarchy with a parliamentary democracy of government and a highly developed economy. Sweden had the fastest economic growth and is the most competitive economy in the European Union in 2010, and has had one of the world's highest standards of living for hundreds of years (www.unicef.org).

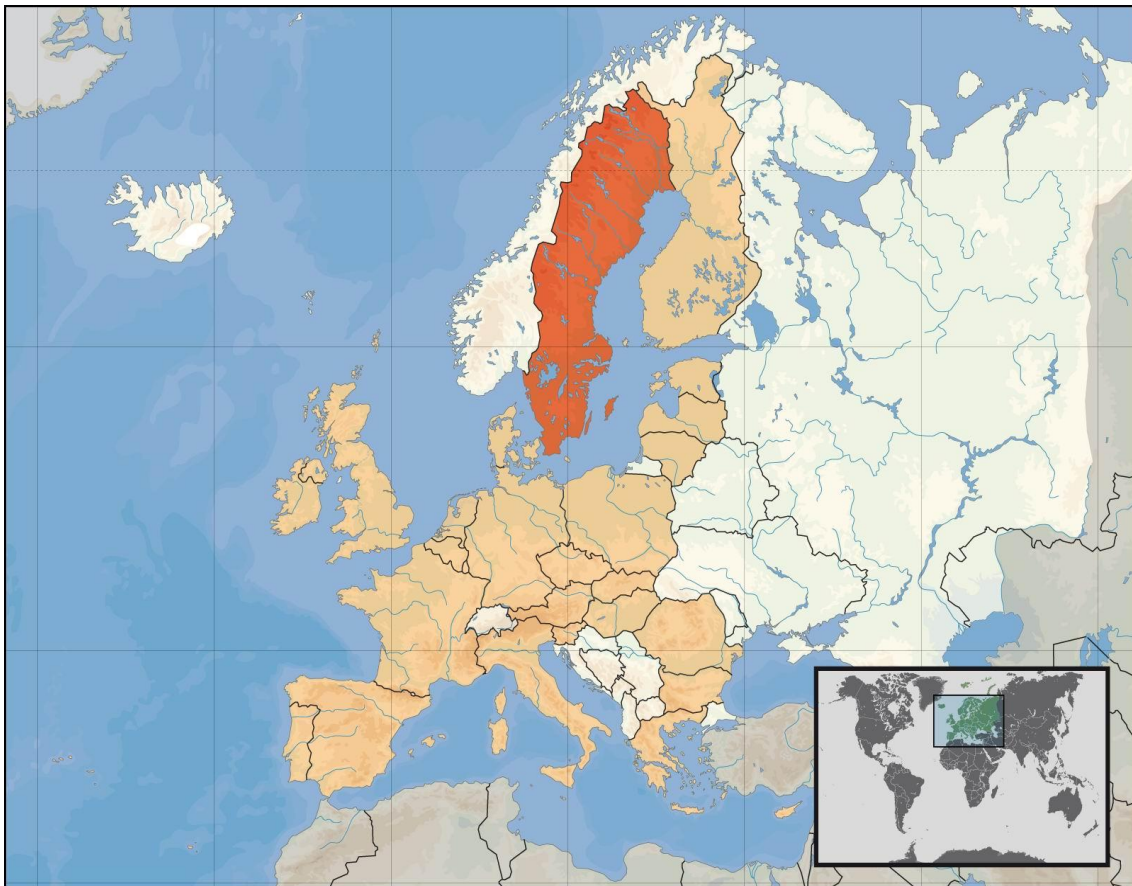


Table 2: Demographic overview of the two countries (Iran and Sweden) studied in this thesis (data from unicef.org and SCB).

Country profile (2011 est.)	Iran	Sweden	Iranian immigrants
Population	78 million (Tehran – 7.19 million)	9 million (Stockholm – 2 million)	
0-14 years	24.1%	15.4%	1286
15-64 years	70.9%	64.8%	56688
65 years and over	5 %	19.7%	4148
Median age	26.8 years	42 years	
Urbanization	71 % of total population	85 % of total population	
Life expectancy at birth	70.06 years Male: 68.58 Female: 71.61	81.07 years Male: 78.78 Female: 83.51	
Religions	Muslim 98% , Zoroastrian, Jewish, Christian	Lutheran 87%, Muslim, Jewish, and Buddhist	
Literacy	77 % literate	99 % literate	

4.4 The questionnaire, Sub-study I

The main goal of sub-study I was to develop an appropriate questionnaire regarding SRH among the three target urban populations and to test the validity and reliability of that questionnaire. This questionnaire was then used in sub-studies II, III and IV. The questionnaire used in this research was a study-specific questionnaire that was developed by a joint research group in Iran and Sweden. The work started in 2003 with a joint research meeting between the groups. The Swedish research team consisted of two nursing researchers and the Iranian team consisted of three nurses, one physician and one statistical expert. The Iranian team was responsible for constructing the hybrid questionnaire in Persian and the Swedish teams were initially responsible for the process of translating the questionnaire into Swedish. This questionnaire was inspired by previously developed and well-tested instruments for example the Depression Scale (GDS) (Brink, 1989; Yesavage et al., 1983), which is intended for easy measurement of symptoms of depression in elderly patients. The validity and reliability of the rating scale have been tested consisting of 15 questions (Almeida & Almeida, 1999; van Marwijk et al., 1995). In the study regarding depressive symptoms our study specific questionnaire covers six of these questions, though in different

ways then the DSM-IV describes them. In spite of this, it was necessary to add new items, as not all items were always culturally appropriate for the Iranian culture. In a joint meeting, the research groups developed new items based on the selected questionnaires, experts in the various areas and extensive discussions within the two research groups. A total of three meetings occurred between research groups lasting two hours each, and a total of 150 questions were formulated during these meetings, covering the topics agreed upon.

Table 3: Regarding the different areas covered by the study specific questionnaire

Demographic information	Physical health	Sleep	Nutrition	Safety of living environment	ADL & Leisure Time	Mental health condition	Attitudes towards care giving	Culture & Tradition
9 Items total	12 Items total	8 Items total	5 Items total	5 Items total	26 Items total	5 Items total	9 Items total	4 Items total
Country of Citizenship, Country of birth, Sex, Marital status, Educational level, Occupation, Income satisfaction	How would you assess your overall health? Do you have an illness that you are currently being treated for? Do you alter your use of medication based on recommendations from somebody other than your doctor?	Do you have trouble falling asleep? Do you wake up several times during the night? Are you satisfied with your sleep	How do you assess your appetite? Do you follow any special diet? Which meals do you eat daily?	In what type of housing do you live? Do you have stairs in your residence? Are there railings with the stairs?	The ability to: shower, go to the toilet, take care of personal hygiene, eat, most common leisure time activities, social interaction	How have you been feeling the last two weeks? I have been feeling happy and in a good mood, I have been feeling rested and alert when I wake up	It's a given that children should help their parents, It's better to receive help from your own children than home help service	What is your ethnic background? How strong is your sense of belonging to your cultural traditions? What religious group do you belong to?

The research groups decided to construct a hybrid questionnaire that would combine items from several established instruments with newly-constructed items that were relevant to the aims of the overall study. Validity of the Farsi version was tested through face and content validity. This was done by having the research team in Iran present the hybrid questionnaire to a panel of 17 selected content experts whom they felt could best evaluate each item. The group discussions were carried out using Nominal Group Technique (NGT). NGT allowed the team to combine quantitative and qualitative data collection in small groups according to the following steps: (a) generation of ideas by each individual; (b) round-robin recording of ideas; (c) clarification; and (d) selection and ranking of ideas (voting).

4.4.1 Translation

The translation process involved two steps. The first was to directly translate the instrument as accurately as possible from Farsi into Swedish, while retaining the structure and its items. A second commonly used step is to back-translate the questionnaire into Farsi. This enables the development of a questionnaire fit for use in internationally comparative research (Hunt et al., 1991). The hybrid questionnaire was translated from Farsi into Swedish by an experienced bilingual researcher and an independent translator. For the back translation

phase, two translators, unaware of the original version and without clinical background, translated the entire instrument back into the Farsi. This was one means of checking content validity. There was agreement between the forward and back-translations. The back-translation helped ensure that comparable meaning was maintained across the translated versions.

The research group then reviewed the translated version of the questionnaire and reached consensus on any discrepancies that arose. Those formulations that sounded culturally unfamiliar were revised. For example, the Swedish word “sambo”, which means a person with whom one is cohabitating, such as a partner or a common-law spouse, does not exist in Iran with the same meaning. In Iran the word cohabitating does exist, but it is unusual for a man and a woman to move in together without first getting married. Hence, this was excluded from the Persian questionnaire, but included in the Swedish version.

4.4.2 Validity and reliability

For this study we checked reliability through internal consistency and also examined the stability of our measurements. For stability, we used the test retest method, by correlating pairs of scores from the same people on two different administrations of the same test. The differences between test-retest values were assessed by using Spearman’s rank correlation coefficient (Cohen, 2002). With respect to internal consistency, Chronbach’s alpha was used to assess the internal consistency of the different parts of the questionnaire. All analyses were conducted with the statistical program package SPSS 16.0.

The test-retest procedure for the Swedish version of the questionnaire was as follows: The test was sent out to the Swedish population through postal circulation, and one week later a reminder letter was sent out to those who had not returned the questionnaire to Statistics Sweden, who were responsible for the data gathering. The Spearman rank correlation coefficient ranked between 0.73 and 0.80 for the different sub-parts in the Swedish questionnaire, showing a high level of reliability. The Spearman rank correlation coefficient ranked between 0.69 and 1.00 for the different domains in the Farsi version of the questionnaire showing a high reliability.

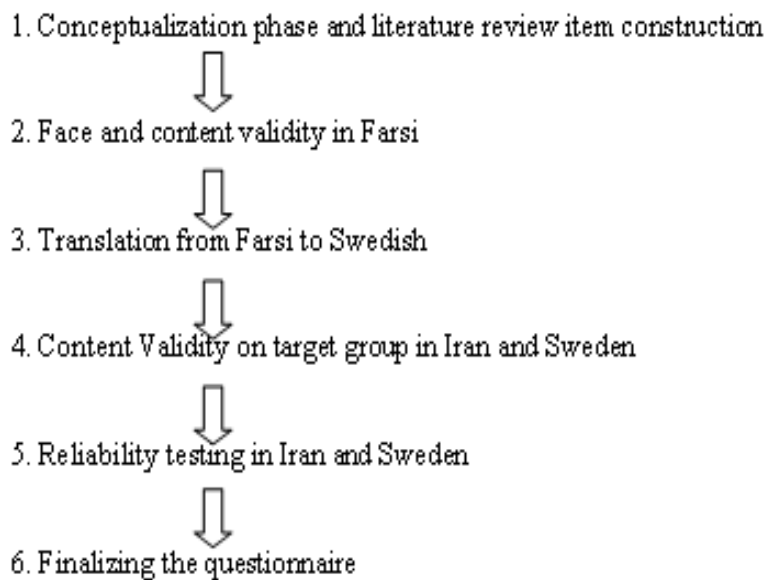
Reliability of the questionnaire was also confirmed by a calculation of the Equal-length Spearman-Brown coefficients. Spearman-Brown coefficient estimates full test reliability based on split-half reliability measures (Motohashi, Maeda, Yuasa, & Higuchi, 2000). Results from this measurement were satisfactory, ranging from 0.6 to 0.92. The Cronbach’s alpha for the different domains ranged between 0.77 and 0.90. A satisfactory to excellent internal consistency reliability was observed and the performed analyses showed that the self-reported questionnaire is a reliable questionnaire with good feasibility, useful for evaluation of self-reported health among elderly persons in Iran and Sweden.

Content validity was further tested with target groups in both Tehran and Stockholm. A pilot study included a sample of 20 elderly Swedes who were selected from a square dance session and 18 responded. A sample of 20 Iranian elderly immigrants in a day care center was also asked to fill in the Farsi version of the questionnaire, with a lower response rate of

15. All respondents were urged to verbally summarize their opinions when looking through all items. The results from both groups of elderly indicated that the questionnaire was too long and contained too many questions. Some medical terms also were found to be unclear and some questions regarding financial status were unclear and generated an unwillingness to answer. Based on the results of this pilot study, the questionnaire was revised.

For the Iranian part, a pilot study was conducted in order to validate the questionnaire with a total number of 30 respondents. The pilot study resulted in similar results as the Swedish one, mainly that a majority of respondents complained about the complexity and length of the questionnaire. After undergoing the various phases, both groups could now complete the final version of the questionnaire and present it in both languages for distribution. The process from idea to distribution took the research groups three years to complete. This questionnaire has later been used with the target populations that it was intended to address.

Figure 1: The main phases in developing the study specific questionnaire



4.5 Data Collection and Sample for Sub-Study II, III and IV

Table 4: The response rate in the three different study groups during data collection

Swedes	Iranians in Sweden	Iranians in Iran
408 receive the questionnaire by mail 77% response rate 293 participants Mean age 67 SD 4.23	208 receive the questionnaire by mail 54% response rate 105 participants Mean age 67 SD 3.97	682 persons are asked to participate by interviews at their home 95% response rate 669 participants Mean age 67 SD 4.78

4.5.1 Sweden

All registered citizens in Stockholm County born in Sweden or Iran aged 60 to 75 and living in their own homes in the Stockholm region were drawn from the general population. A stratified sample of 408 Swedes and 208 Iranian immigrants in each stratum were chosen. Potential participants received a letter providing study information and a study-specific questionnaire. The response rate was 77 % among the native Swedes and 54 % among the Iranian immigrant group. Non-responders were reminded twice if the questionnaire was not returned; the first after a week and the second reminder was sent out 9 days after the first reminder. Due to low response rate in the immigrant group a final phone call reminder during week 19 was conducted by one of the researchers. Data collection was performed by Sweden statistics (SCB) and finalized in June 2005.

4.5.2 Iran

A stratified multi-stage area sampling was applied by the research team in Iran. Every household within 22 different districts in Tehran had the same probability of being selected. In the first stage, units (blocks) were randomly selected after stratifying by district. Then the homes to be sampled within each block were selected by random routes. Finally, in the last-stage sampling units (the individuals) were selected randomly from all persons living in the same home, and a total of 832 persons were invited to participate in the study of which 826 were interviewed (response rate 95%). Trained research assistants went to the homes of the elderly people in order to perform the interviews according to instructions from the researchers. Administration by post was not possible, as people are not part of a national registry in Iran and therefore the tracing system was more complicated than in Sweden. Furthermore, a high rate of illiteracy among the elderly made it impossible to perform the data collection by mail.

Table 5: Demographic overview of the participants included in this thesis

	Iranians in Iran n=668	Iranian immigrants n=105	Swedes n=305
	n (%)	n (%)	n (%)
Female	340 (51)	52 (50)	153 (52)
<i>Marital status</i>			
Married, co-habitant	455 (68)	61 (58)	200 (98)
Single, widower	191 (28)	28 (27)	58 (20)
Divorced	22 (3)	16 (15)	32 (11)
<i>Educational status</i>			
Illiterate/Incomplete elementary school	440 (66)	22 (21)	7 (2)
Elementary School	54 (8)	7 (7)	92 (32)
High School	19 (3)	15 (14)	31 (11)
Vocational Education	87 (13)	28 (27)	73 (39)
University	42 (6)	33 (31)	74 (25)
Other	26 (4)	0 (0)	14 (5)
<i>Employment status</i>			
Unemployed/Sick listed	108 (16)	6 (6)	7 (2)
Gainful employed	95 (14)	24 (24)	89 (31)
House wife/man	239 (36)	8 (8)	2 (1)
Retired	224 (34)	64 (64)	194 (66)
Other	2	0	1

4.6 Data analysis

A description of the analysis performed in studies II-IV will be described below. Study I has been described in the previous section 4:4 named sub-study I.

4.6.1 Sub-study II, Self-Rated Health

The single item: “*How do you rate your health*” was used to assess respondents SRH. The respondents answered on a seven-graded response scale ranging from very good to very bad. Independent variables used in the analyses were demographic data such as age, marital status, sex, income and education. Other variables were also tested regarding both mental and physical health. A forward linear regression analysis was conducted in order to assess possible factors influencing for SRH. Sampling adequacy was good with a Kaiser-Meyer-Olkin (KMO) value of 0.795 and Bartlett's test of sphericity was significant ($p < 0.0001$). The regression model was estimated in different steps influencing SRH. The independent variables were selected with the primary rationale of choosing variables that have previously been associated with SRH. Demographic factors are known to be associated with health

outcomes, and were therefore included as covariates in the first step of the regression analysis. In the second and third steps, factors important for mental and physical health were included. The strength of the association was determined by the standardized beta coefficient. Statistical significance was set at $p < 0.05$. First, all three groups were analyzed together by performing a linear regression. Thereafter, separate analyses were performed for each group in order to detect differences between the groups. The program SPSS V.17.0 was used for all statistical analyses.

4.6.2 Sub-study III, Self-rated mental health and depressive symptoms

Demographic variables (age, sex, group, income satisfaction, education, occupation and marital status) were presented with frequencies and percentages. χ^2 tests and Fisher's exact tests were used to compare proportions of categorical variables between groups. Items regarding mental health were inspired by previous work of the short version of the Geriatric Depression Scale (GDS). All items concerning depressive symptoms are presented as presence vs. not presence of a symptom and where are all converted negatively for easier readability. Eight of the items measuring presence of depressive symptoms had seven-graded response alternatives ranging from 1 (all of the time) to 7 (never). Those were *"feeling sad and in a bad mood"*, *"feeling stressed and tense"*, *"feeling weak"*, *"lack of interest in everyday life"*, *"dissatisfied with life"*, *"dark view over future"*, *"feeling that something will happen to you"*, *"feeling unhappy"*. The responses were dichotomized into presence of symptom (all the time, most of the time, more than half the time, half the time) or no presence (less than half the time, sometimes, never). The two remaining items: *"being treated for depression"*, *"reported feeling depressed"* had a response option of yes or no. The program SPSS V.17.0 was used for all statistical analyses. Prevalence was calculated via frequency plots and crosstabs were used for calculation of χ^2 . Statistical significance was set at $p < 0.05$

A confirmatory factor analysis was conducted to assess the consistency of the dependent variable and reliability was calculated using Chronbach's α . Principal component analysis with Varimax rotation was used for factor extraction and cutoff for components were set at an Eigen value > 1 . The structure rotation was conducted to obtain a clear pattern of loadings. The factor analysis yielded one component including the following items with factor loadings ranged between 0.730 and 0.894. A new variable 'Mental Health Index' was computed based on the results of the factor analysis, using the mental health items presented in Table 2. Sampling adequacy was good, Kaiser–Meyer–Olkin (KMO) value of 0.925, an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. Large values for the KMO measure indicate that a factor analysis of the variables is a good idea and for a satisfactory factor analysis to proceed this should be greater than 0.5. Bartlett's test of sphericity was Significant ($p < 0.0001$). Internal reliability of the Mental Health index was measured using Cronbach's α , which yielded a reliability score of 0.93. Thereafter, a linear regression to detect factors associated with mental health was performed. To determine possible predictors of Mental Health, a stepwise linear regression analysis was computed with the Mental Health index as the dependent variable. Independent variables that previously have

been associated with self-reported depressive symptoms were selected. Factors such as socioeconomic status, marital status and gender are known to be associated with health outcomes, and were therefore included as covariates in the first step of the regression analyses. Also group (Iranians vs. Swedes) was included as a factor in the first step to adjust for possible study group effects. In the second and third step, factors shown to be important for mental and physical health were included such as self-reported health, smoking, satisfaction with social life and sense of connection to ones cultural roots and traditions. Also collinearity statistics were applied and both VIF and tolerance was at satisfactory levels.

4.6.3 Sub-study IV, Self-rated sleep quality

The following items were used in order to assess sleep quality: “*trouble falling asleep*”, “*waking up frequently during the night*”, “*taking naps*”, “*being able to sleep deeply*”, “*feeling satisfied with sleep*”, “*having nightmares*”, “*experiencing sleep problems*” and “*experiencing sleep apnea*”. Seven of the items assessing self-rated sleep had five-graded response scales ranging from “all the time” to “never”. These responses were dichotomized into prevalence of sleep problems (all the time, often and sometimes = yes, thereby indicating a negative response; or rarely and never = no, indicated a lack of sleep problem). The last three items had only yes or no as response options. Those were: experiencing sleep problem, sleep apnea or using special method to sleep.

Prevalence was calculated via frequency plots and crosstabs were used for calculation of χ^2 in order to detect differences between the three groups in regards to sleep quality. Statistical significance was set at $p < 0.05$. To assess the consistency of the dependent variable, confirmatory factor analysis was conducted. Principal component analysis with Equamax rotation was used for factor extraction and cutoff for components were set at an Eigen value > 1 . The structure rotation was conducted to obtain a clear pattern of loadings. The factor analysis yielded one component including the following items: having difficulties falling asleep, waking up several times a night, waking up early in the morning and having difficulties falling asleep again, being able to fall into deep sleep and being satisfied with your sleep. Factor loadings ranged between 0.670 and 0.822. A new variable, “Sleep index”, was then computed based on the results of the factor analysis, using the sleep items presented above. Internal reliability of the sleep quality index was measured using Cronbach’s α , which yielded a reliability score of 0.804. The data was then assessed for normality using QQ plots, which creates a scatter plot with the quartiles of the scores on the horizontal axis and the expected normal scores on the vertical axis. This revealed a straight line. Also mean, median, and skewness was analyzed confirming that data was normally distributed.

A linear regression analysis was conducted in order to assess possible factors important for sleep quality. Sampling adequacy was good with a Kaiser-Meyer-Olkin (KMO) value of 0.795 and Bartlett's test of sphericity was Significant ($p < 0.0001$). The regression model was estimated in four steps including demographic variables, physical health, mental health and other variables such as social life. The independent variables were selected with the primary rationale of choosing variables that previously have been associated with self-rated sleep.

5 ETHICAL CONSIDERATIONS

For every researcher, regardless of the field of study, it is of great importance to carry on a reflective and critical dialogue regarding the ethics evolving around the project. As a doctoral student, I am fully aware that even when all ethical standards are being met a researcher has the responsibility to maintain ethical dialogues open, first and foremost with oneself but also with one's supervisors in order to assure that ethical guidelines are being followed. When starting the research presented in this thesis, an application for ethical approval was sent to a review board, providing all the necessary information needed to base judgment. The ethical board in Iran approved the study, and the ethical board in Sweden stated that although this type of volunteer research does not require ethical approval, an advisory statement concluded that this research could be carried out.

Participation in the study was strictly voluntary, and all of the respondents received information concerning the project's objectives and relevance, including their rights as volunteers. The Iranian participants received the information in Farsi, and the Swedish participants in Swedish. The data has been handled with the utmost confidentiality in order to protect the identity of the persons involved, and no names or other characteristics have been or will be used that could make identification possible. The results have been published in scientific journals and also in this thesis, something that was pointed out in the information letter as well.

When doing research, I believe that the rights of the participants always should be in focus, and one should always try to carry the "risk-benefit" thinking in mind. The benefits of doing a cross sectional study of this nature has been far greater than the risks involved for the participants. As it is I have held over 100 hours of lecturing to researchers, students and lay people regarding my research topic and findings. There is no doubt in my mind that the benefits have outweighed any potential risks.

6 RESULTS

The results of the studies included in this thesis are presented below in sections according to the corresponding research question.

Sub-study I: Is it possible to develop a study specific questionnaire that can be cross-culturally adapted? How do you ensure its validity and reliability?

The questionnaire was developed according to a multiphase process, during which the researchers tested the validity and reliability of the questionnaire using various methods, and the questionnaire was modified based on the test results (see section 4.4 for more details). Face and content validity was measured by the use of expert groups. The group discussions were carried out using NGT. The hybrid questionnaire was translated from Farsi into Swedish by an experienced bilingual researcher, and an independent translator. For the back-translation phase, two translators, unaware of the original version, translated the entire instrument back into Farsi. There was agreement between the forward and back-translations.

Both the Iranian and Swedish teams conducted a further test of content validity using target groups with the same demographic characteristics in all three sample groups. For this study we checked reliability through internal consistency and also examined the stability of our measure. For stability we used the test retest method, by correlating pairs of scores from the same people on two different administrations of the same test. The differences between test-retest values were assessed by using Spearman's rank correlation coefficient. The Spearman rank correlation coefficient ranked between 0.73 and 0.80 for the different sub-parts in the Swedish questionnaire, showing a high level of reliability. The Spearman rank correlation coefficient ranked between 0.69 and 1.00 for the different domains in the Farsi version of the questionnaire showing a high reliability. Reliability of the questionnaire was also confirmed by a calculation of the Equal-length Spearman-Brown coefficients. Spearman-Brown coefficient estimates full test reliability based on split-half reliability measures (Motohashi, et al., 2000). Results from this measurement were satisfactory, ranging from 0.6 to 0.92. With respect to internal consistency, Chronbach's alpha was used to assess the different parts of the questionnaires. The Cronbach's alpha for the different domains ranged between 0.77 and 0.90. A satisfactory to excellent internal consistency reliability was observed and the performed analyses showed that the self-reported questionnaire is a reliable questionnaire with good feasibility, useful for evaluation of self-reported health among elderly persons in Iran and Sweden.

The process of developing this kind of cross-cultural questionnaire was both time demanding and required many experts' involvement. After undergoing the various phases, both groups completed the final version of the questionnaire and present it in both languages for distribution. This questionnaire has later been used with the target population it was intended to address and the results are presented in the forthcoming articles below. The results confirm the validity and reliability of the final version of the questionnaire

Sub-study II: Which factors are important to the SRH of those aged 60 to 75 years old in the three target groups: Iranians in Tehran, Iranian immigrants in Stockholm and Swedes in Stockholm?

Approximately 25 % of the Iranians in Iran reported having very poor SRH, compared to 18 % of the Iranian immigrants and 5 % of the Swedes. The majority of respondents in each of the three groups that reported very poor SRH were women; 62 % of the Iranians in Iran, 65 % of Iranians in Sweden, and 54 % of Swedes. Very few predictors were common among the groups, even between the two Iranian groups. The two Iranian groups resembled each other in factors such as weight gain, sleep quality and satisfaction with social life. In the Iranian immigrant group, only education was found to be a significant predictor, apart from those variables mentioned above. For Iranians in Iran the results revealed that age and sex were the strongest influence for SRH in this group. Physical factors such as weight gain ($p=0.011$), weight loss ($p<0.001$), sleep ($p=0.004$), nocturia ($p<0.001$), and shortness of breath ($p<0.001$) were significant predictors in the model. Other factors were also found to predict SRH, including income satisfaction ($p<0.001$), the item regarding parents being able to ask their children for help ($p<0.001$), satisfaction with social life ($p<0.001$), and participation in any group activity ($p=0.003$).

In the Swedish group, no demographic factors significantly predicted SRH, whereas factors such as trouble walking, tiredness and depression were found to be important. In summary, different aspects seemed to be important in determining SRH in the three groups (see Table 6).

Table 6: Overview comparing the significant factors for SRH for the three study groups

DOMAINS	PREDICTORS	IRANIANS IN IRAN	IRANIAN IMMIGRANTS	SWEDES
Demo graphic variables	<i>Age</i>	X		
	<i>sex</i>	X		
	<i>education</i>	X	X	
	<i>marital status</i>			
Physical health	<i>nighttime urination</i>	X		
	<i>weight loss</i>	X		
	<i>weight gain</i>		X	
	<i>trouble walking</i>	X		X
	<i>sleep quality</i>	X	X	
	<i>feeling weak</i>	X		
	<i>being tired</i>			X
	<i>problem with sight</i>			X
Mental health	<i>feeling depressed</i>			X
Social life/Leisure time and Income	<i>satisfaction with social life</i>	X	X	
	<i>satisfaction with leisure time</i>			X
	<i>satisfaction with income</i>	X		

This table was created by performing separate linear regression for the three study groups. Dependent variable used was the single item "SRH"

Sub-study III: What influences self-rated mental health and depressive symptoms in people 60 to 75 years old in the three target groups: Iranians in Tehran, Iranian immigrants in Stockholm and Swedes in Stockholm?

In all the items regarding mental health, the Swedish group rated higher mental wellbeing than the two Iranian groups. Comparisons between the two Iranian samples showed differences in two items, one being "treated for depression", with 6 % of Iranians in Iran compared to 21 % of Iranians in Sweden selecting the affirmative, and the other being "worried that something will happen to you", with 43 % of Iranians in Iran compared to 31 % of Iranians in Sweden selecting the affirmative.

Regarding gender, the Iranian group in Iran revealed differences in almost every aspect of mental health, whereas the Swedes and Iranian immigrants revealed differences in only three of the ten items. Women reported more depressive symptoms in all cases with two exceptions, for the item "Worry that something will happen to you", men reported to a larger extent in all three groups. Iranian men in Iran reported "Lack of meaning in life" to a larger

extent than women in Iran. In general, women reported depressive symptoms to a higher extent than men in all three groups. Factors influencing self-reported mental health in all three groups were SRH and smoking, and “Satisfaction over social life” and “Sense of connection to ones cultural roots and traditions” were statistically significant factors. Demographic variables that were found to be significant were “Group belonging” (Swedes vs. Iranians), sex and “Satisfaction with income”. The remaining variables, such as education, marital status and age were not found to be significant factors in the regression model.

These findings indicate that the Iranian populations living in both Tehran and Stockholm report depressive symptoms to an extent that merits concern. Health care providers in both countries should be aware of the current state of mental health among Iranians in both Sweden and Iran, and this issue should be incorporated into the educational system for nursing students and other medical practitioners’. The difficult current political situation in Iran makes this topic increasingly important, as it will likely lead to higher rates of migration to Sweden and effect the mental health of Iranians in both countries.

Sub-study IV: What influences self-rated sleep quality in people between 60 and 75 years old in the three target groups: Iranians in Tehran, Iranian immigrants in Stockholm and Swedes in Stockholm?

The analysis of the sleep quality items revealed that both Iranian samples (immigrants in Sweden and those living in Iran) reported sleep problems to a greater extent than the Swedish sample in all self-ratings. When comparing only the two Iranian groups, they differed significantly on three items regarding sleep quality; the first being taking naps, with 70 % of Iranians in Iran napping compared to 48 % of Iranians in Sweden. The second item, having nightmares, was reported by 19 % of Iranians in Iran compared to 34 % of Iranians in Sweden. Finally, a difference was shown in the item regarding whether or not one experience sleep problems, which was reported by 79 % of Iranian in Iran compared to 8 % of the Iranians in Sweden.

In terms of which factors influence sleep quality, the results revealed that mental health, physical health and some demographic variables influence self-rated sleep quality, and SRH in particular greatly impacted sleep quality. In all three samples physical health-related problems, such as nighttime urination and poor appetite, were also found to be important factors influencing poor sleep quality. The following mental health factors were also found to be significant: ‘how one viewed the future’ (pessimistic or optimistic) and ‘being happy and in a good mood’, as well as reported depression. The demographic variables that were found to be significant in the regression models were group belonging (Swedes/ Iranians), education, and marital status (not sex). However, when performing separate linear regressions for each group, different pattern emerged showing the differences between the groups regarding self-rated sleep quality. Below is a table that gives a clear overview of the three study groups in regards to factors important for sleep quality. The factors marked with an X represent those that were significant when performing separate analysis. The three separate models yielded stable values of The Durbin Watson test measuring autocorrelation. The models accounted for 24-40 % of the explained variance ($p < 0.0001$). The table below shows

that urinating nighttime was the only factor that the three groups had in common. Among the demographic factors, age was not found to be significant, although sex was found to be significant the Swedish group while education and marital status was found to be significant in the Iranians in Iran.

Table 7: Overview comparing the significant factors for sleep quality for the three study groups

DOMAINS	PREDICTORS	IRANIANS IN IRAN	IRANIAN IMMIGRANTS	SWEDES
Demo graphic variables	<i>Age</i>			
	<i>sex</i>			X
	<i>education</i>	X		
	<i>marital status</i>	X		
Physical health	<i>SRH</i>	X	X	
	<i>Appetite</i>	X		
	<i>Urinating frequently during night</i>	X	X	X
Mental Health	<i>Feeling happy and in a good mood</i>	X		X
	<i>Being treated for depression</i>	X		
	<i>View over future(pessimistic vs. optimistic)</i>			X

This table was created by performing separate linear regression for the three study groups. Dependent variable used was "Sleep Index"

7 DISCUSSION

One of the aims of the thesis was to describe the process of developing a study specific questionnaire “Self-reported health and health-care needs among elderly”. Another aim was to establish factors important for SRH, mental health and sleep quality among the three study groups. The main findings were that women reported having lower SRH, poorer mental health and sleep quality than men, something being supported by most studies. Both Iranian groups reported having lower SRH, poorer mental health and sleep quality compared to the Swedes. Among factors that were important to SRH among Iranians in Iran were physical health factors such as night time urination, weight loss, sleep quality, feeling weak. Also socioeconomic factors such as income satisfaction and education were only found to be important in the Iranians in Iran. The elderly Swedish group did differentiate from the two other groups being the only group reporting depression and satisfaction with leisure activities as important for SRH. The Iranian immigrants reported education, weight gain, sleep quality and satisfaction over social life as important. Factors influencing self-reported mental health in all three groups were SRH and smoking. Also satisfaction over social life and sense of connection to one’s cultural roots and traditions and was statistically significant factors. Demographic variables that were found to be significant were group belonging (Swedes vs. Iranians) sex and satisfaction with Income. Sleep quality was influenced by different factors among the groups and urinating nighttime was the only factor that the groups had in common. The two Iranian groups showed poorer sleep quality than the Swedish group. Among the demographic factors, age was not found to be significant, although sex was found to be significant the Swedish group while education and marital status was found to be significant in the Iranians in Iran.

7.1 METHODOLOGICAL DISCUSSION OF STRENGTHS AND WEAKNESSES

7.2 IF THE STUDY WAS TO BE REPEATED

If any of the sub-studies presented in this thesis were to be repeated, both the items presented in the questionnaire and the response format could have been designed in such a way as to be more appropriate for elderly, in regards to possibly poorer vision and/or moderate literacy. Most importantly, the questionnaire was too long for a person of that age to complete and should in hindsight maybe be shortened down even more.

More attention should have been paid to the fact that our participants were elderly and hence could be failing in terms of memory, something that could have influenced the results. For example, the overall performance of older subjects may be reduced compared to younger subjects, due to cautiousness, fatigue, poor health, fear of failure, and/or lack of motivation (K. Geisinger, 1994). During the development phase, it seemed necessary to ensure that important aspects of health were covered by the questionnaire. In hindsight, however, one could argue that it would have been better to focus on one aspect of SRH and aim to thoroughly cover that aspect, rather than try to cover as many large areas as possible. Nevertheless, the main advantage of such a large questionnaire is that it generates very rich data, making it possible to see correlations that can result in interesting findings and new

hypotheses. Moreover, this gave us the possibility to gain a more general impression of this target age group. Based on the findings from this study, future studies using a similar design should adopt a more suitable design targeted for this age group, which could help to improve the response rate as well as ensure its validity.

Any future studies investigating immigrant health should include an item asking the participants how many years they have resided in their new host country, as the length of stay has been shown to impact SRH in past research. Although there are several potential mechanisms that could negatively impact health among immigrants, poor acculturation in the host country has been suggested to lie behind the increased risk of worsened health among certain immigrant groups (Wiking, et al., 2004). Acculturation is partly related to individual behavior and it includes the process of social and cultural integration to the host country (Abdoli, Ashktorab, Ahmadi, Parvizy, & Dunning, 2011), such as being employed and having good language and communicative skills (Jalali-Nia, Salsali, Dehghan-Nayeri, & Ebadi, 2011). There is no objective marker for defining the complex processes of acculturation, although it has been suggested that age at migration and/or length of residence can be used as proxies for acculturation. This notion is based on the assumption that individuals undergo a greater integration over time (Abdoli, et al., 2011).

In a recent study (2000), the investigators examined 7137 women and 7415 men and showed that the odds of poor self-rated health increased with increasing age at migration to Sweden among first-generation immigrants. For those who had resided in Sweden less than 15 years the odds of poor self-rated health were significantly increased. In addition, most of the immigrant groups had higher odds of poor self-rated health than the reference group. The authors concluded that health care workers and policy makers need to be aware that immigrants who arrive in the host country at higher ages and/or have lived in the host country for a shorter period of time might need special attention as they are more likely to suffer from poor SRH, which a valid health status indicator that can be used in population health monitoring (Beaton, et al., 2000).

Therefore, in hindsight the lack of this item in the questionnaire is regarded as a limitation of this study. However, it should be noted that the studies performed by researchers in Sweden on Iranian Immigrants in Sweden compared with Swedes indicated that that length of time since migration to Sweden was not associated with poorer health among elderly Iranians (Koochek, et al., 2007; Mousavi, et al., 2011). Another study examining 202 Russian immigrants and 100 Iranian immigrants in Germany found no significant association between acculturation and length of residency, although it was found to have an impact on the immigrants mental well-being (Haasen, Demiralay, & Reimer, 2008). The lack of a correlation between acculturation and length of time since immigration seriously questions the conclusions by Khuwaja and colleagues (2007), who found a reduction in acculturation stress over time, and indicates the need for a much more active policy of migrant health care to overcome the stress related to acculturation.

7.2.1 Validity and Generalizability

The question whether or not the results of the study are valid speaks to the "truthfulness" of the information. The evidence that supports the validity or truthfulness of the information is found primarily in the study methodology. In the following sections questions regarding issues of bias, both conscious and unconscious, randomization etc. will be discussed.

It often occurs that many of the questionnaires intended to be used in a new context are uncritically translated and transferred to new cultural contexts. However, the reliability and validity of a questionnaire, and its conceptual equivalence, must be examined after translation in order to ensure that the process has been done accurately. Furthermore, as validity is context bound, it is impossible to guarantee that use of the questionnaire in a new context will in fact measure that which it was originally intended to measure (Beaton, et al., 2000; Maneesriwongul & Dixon, 2004). The use of pilot testing and interviewing participants allowed us to further test the face validity of the translated questionnaire by uncovering the various meanings that participants ascribed to specific words included in both the items and the response choices. The purpose of this adaption was to translate the questionnaire and use the questions as a foundation to then build upon, replicate the original constructs, and eliminate the misinterpretation of items that affect the instrument's measurement properties.

The goal for the research group was to ensure that the sample was as truly representative of the whole population as possible. The sample size of the Iranian immigrant group in Stockholm (n=105) was small in comparison to the other two groups, making it difficult to adequately represent this group. Although this small sample size restricts the generalizability of the findings, it was included as the potential knowledge gained would be of value to the existing literature on this group.

Systematic under-representation of immigrants in survey studies is a serious methodological issue causing difficulties in generalizing the results due to bias. Addressing the issue of under-representation in surveys, the language barriers are often cited as major obstacles for participation (Mladovsky, 2009; Powell, Fleming, Walker-McGill, & Lenoir, 2008). Sweden being a multi-ethnic society with 1.2 million foreign born (www.scb.se). In 2008, 13% of the Swedish population were born abroad and together with persons having "foreign background" (i.e. both parents born in another country) they accounted for 17% of the Swedish population (Björngren, 2010; www.scb.se). The corresponding figures for Stockholm County are around 20% and 30 % respectively. To monitor the health status of the residents in Stockholm County, the Stockholm County Council repeatedly conducts questionnaire-based Public Health Surveys (PHS) as a part of planning of their work tasks (Report, 2007). The survey is based on self-reported data and has been carried out every fourth year since 1990. To overcome the problem of under-representation of migrant groups and to increase the generalizability of the survey results to the multi-ethnic and multicultural population of Stockholm County, in 2006, for the first time in the history of the PHS, the questionnaire was translated into the six most spoken languages among Swedish immigrants among those Farsi. The aim of this report was to analyze the effects of this effort to increase participation rate. The results showed a substantial increase in participation rates among

immigrants receiving a translated questionnaire in addition to the Swedish one. The response rate increased in the Iranian Immigrant group from 48% back in 2002 receiving the Swedish version, to 56% when receiving the Farsi version (Moradi, Sidorchuk, & Hallqvist, 2010). In the development of the questionnaire used for this thesis, despite the fact that the Iranian immigrants received the Farsi version response rates were low, but compared to other studies conducted with immigrant groups in Sweden, the response was still acceptable (at 54%).

Also viewing other studies on Iranian Immigrants these have been carried out with similar amount of participants, sometimes even less (Khavarpour & Rissel, 1997; Koochek, Jonansson, et al., 2008; Mathias, et al., 2010; Tinghog, et al., 2010). The exclusion of this group due to low sample size would result in the loss of important information that could be used for further studies in future research.

In this study, we limited the sampling of participants to two urban cities, therefor important to keep in mind that the results gathered in Tehran and Stockholm cannot be generalized to Iranians and Swedes in other parts of the countries. In Iran more so than in Sweden, there is a big difference in socio-economic factors depending not only on which city you live in, but also what part of that particular city. In Tehran, there are areas that are very well off in terms of the residents' financial situation, status, degree of education and occupation. However, parts of Tehran suffer from poverty and financial challenges. The contrast is much big and more noticeable in Tehran than in Stockholm. Therefore, caution should be taken when generalizing the results to other geographical areas of Iran and Sweden.

7.2.2 Cross-sectional studies

A cross-sectional study is a descriptive study providing what is often referred to as a "snapshot" of the frequency and characteristics of a phenomena (SRH in this case), in a population at a particular point in time. Like all methods, cross-sectional studies have advantages and disadvantages. One advantages of this method is that it is relatively inexpensive and takes little time to conduct. As a representative sample is usually taken from the whole population, it can estimate the prevalence of an outcome of interest. Also, many outcomes and risk factors can be assessed at the same time, and its usefulness for public health planning is a great advantage. Many cross-sectional studies contribute to the understanding of disease etiology and generate hypotheses for future research. Among the advantages one also counts that there is no loss to follow-up which other methods sometime encounter.

Among the disadvantages is the difficulty in making causal inference. Furthermore, as cross-sectional studies only provide a snapshot, it is possible that the situation could provide differing results if another time-frame was selected (Bland, 2001). In this study, the choice of conducting a cross-sectional study was discussed in the early meetings between the research groups in both countries. The choice was based upon what type of method could best answer the research questions that the research team was interested in exploring. The option of performing a longitudinal study was discussed but later dismissed, as the cost of a longitudinal study including three different sample groups would have been

prohibitive. Also, follow up with these individuals, especially elderly Iranians, would have been difficult, as Iranian immigrants frequently move back to Iran and elderly Iranians in Iran often migrate to live with their children, resulting in a large drop out of the study.

7.2.3 Bias

In this section, the issue of bias is discussed: firstly, a definition of bias is provided and different types of bias are described, and secondly, the ways in which the studies included in this thesis could have been affected by bias are discussed.

The main sources of error found in relation to the use of self-reports among the elderly are relevance, social desirability, inhibition of response, anxiety, and understanding (Huppert, Pasupuleti, Foa, & Mathews, 2007; Nederhof, 1985). In statistical usage, bias merely represents a mathematical property, no matter if it is deliberate or either unconscious or due to imperfections in the instruments used for observation. A biased sample is just a reflection of the difficulty in obtaining a truly representative sample. Regarding the issue of bias often in statistics, sampling bias is mostly classified as a subtype of selection bias (Fadem, 2008) This is when the sample is collected in such a way that some members of the intended population are less likely to be included than others. This result in a non-random sample (Ards, Chung, & Myers, 1998) meaning all individuals are not equally likely to be selected.

Sample bias affects the external validity of a test (the ability of its results to be generalized to the rest of the population), while selection bias mainly addresses internal validity for differences or similarities found in the sample. Selection bias may be introduced when there are systematic errors in the procedures used to select a study person from the study population or if there are any factors influencing the participation (Rothman KJ, 2008). In this sense, errors occurring in the process of gathering the sample or cohort cause sampling bias, while errors in any process thereafter cause selection bias. In this study the sample has been selected based on the exclusion criteria. Participants were to be living in their own homes and to be between the ages of 60-75 years of age living in either Stockholm or Tehran to be included in the study.

7.2.4 Social desirability and different modes of administration

The term ‘social desirability’ is used in scientific research to describe the tendency of respondents to reply in a manner that will be viewed favorably by others. This generally takes the form of over-reporting good behavior or under-reporting bad behavior. The effect is common within the fields of medicine, psychology and the social sciences. In this study, the author believes that the participants in the Iranian group in Tehran could have been affected by social desirability. In the Iranian culture people tend to have great respect for authorities such as doctors and researchers. Because researchers and nurses collected data and performed the interviews in their homes, participants could have had difficulties in giving an accurate response to some of the items presented to them. For example when presented with the question “Marital status” respondent may be influenced by the societal taboo of divorce (falsely claiming not to be divorced). Respondents may also have had difficulties answering when confronted with the questions, "Are you satisfied with your income?" and “Do you

receive financial help from the government?” Another item the author thinks could have been difficult to answer was that regarding religion and ethnic group belonging. Iran has different ethnic groups, each with a certain status in the society. It would have been very hard for the respondent to answer that they were not religious, and therefore would likely have answered what they thought the interviewer wanted to hear. The last question that may have caused problems in the Iranian groups in both countries is that concerning intellectual achievements, an item that is often inflated. Education is regarded very highly in Persian society. A high degree earns you a certain status and respect, and for the generation of people included in this study, answering this question could have been a challenge. There are indications that questions regarding physical health are often answered more honestly, because physical problems are more socially accepted than mental health problems (Endres et al., 2007; Hawthorne, 2003; Weinberger, et al., 1996).

A study by Crossley and Kennedy (2002b) used a natural experiment in which a random subsample of respondents participating in a health survey was asked the same SRH questions twice. They first answered the questions as part of a self-completed questionnaire and then the same questions in a personal interview. The study showed that of those asked the question twice, 28 % of respondents changed their assessment of their health status. The distributions of responses to both questions were significantly different from each other and from a ‘control group’ who were asked the SRH question only once in the personal interview. Individuals who changed their responses were a non-random group; they tended to be older, unemployed and from low income and social background groups. More individuals reported their health to be ‘excellent’ or ‘poor’ in their (second) interview response than in their (first) self-completed response. The distributions from responses were all statistically significantly different from one another. The authors concluded that the mode of administration influenced SRH responses. However, other phenomena may explain this result, such as an anchoring effect, whereby an individual recalls and feels bound by their earlier response (Crossley & Kennedy, 2002b). They identified three possible explanations for individuals changing their assessments: individual uncertainty or measurement error, different modes of questionnaire administration, and the individual having learned about their health status between the first and second self-assessments. Factors such as mood, health, pain, activity, ability, and sleep patterns are factors that generally tend to change over time, and how a person feels when he or she wakes up today can be completely different a week from now, let alone next month.

A study by Clarke and Ryan (2006) concluded that the most likely explanation for these discrepancies is a mode of administration effect that makes people less likely to choose the extreme categories in a self-completion questionnaire, but not a personal interview. The psychology literature provides insights about the way individuals answer questions in different settings. Individuals responding to an interviewer may be less likely to be candid in answers to sensitive questions, and may attempt to provide what they perceive to be ‘socially desirable’ responses (Tourangeau & Smith, 1996). This study served as an initial step towards appropriate cultural and linguistic adaptation and translation of health assessment questionnaires.

7.2.5 Random and systematic errors

There is always the possibility of random error in quantitative research. Precision is defined as the lack of random error; in a study, precision depends mostly on the sample size, as well as the classification quality of exposure and outcome (Rothman KJ, 2008). To provide information about the precision of the association estimates, 95 % confidence intervals are commonly used. This means that if the data collection and analysis could be replicated many times, the confidence interval should include the correct value of the measure 95% of the time (K. F. Geisinger, 1992).

Systematic error is usually referred to as bias. It does not depend on study size or chance; instead it is a methodological error that is introduced when selecting study participants (as discussed above), defining or assessing exposure or the outcome under study. An estimate that has little systematic error may be described as valid. Both types of errors can be subdivided into categories such as information bias, selection bias and confounding (K. F. Geisinger, 1992)

7.2.6 Attrition bias

If the participants who drop out of a study systematically differ from those who remain, this attrition of the original sample poses a threat to both the internal and external validity in a study, which is usually referred to as attrition bias. In this study, non-response is a potential problem, particularly the considerably higher non-response rate in the Iranian immigrant group, of which a majority reported a non-response due to factors bad health, participants not being in the country or unwillingness to participate. The non-response rate was measured when a phone call reminder was conducted by one of the authors to the immigrant group only. In addition, previous studies have shown that there are some difficulties in recruiting immigrants, especially the elders, for research studies (Maneesriwongul & Dixon, 2004). Studies show that mental health problems are more common among the non-respondents, which is usually the case in population studies (Gray, Campanelli, Deepchand, & Clarke, 1996; Lundberg, Damstrom Thakker, Hallstrom, & Forsell, 2005). Lundberg and colleagues reported the same challenges in their study on Iranian and Iraqi immigrants and believed that those individuals who have experienced persecution from the state in their home country would be less inclined to participate in this study, as they might feel uncomfortable about disclosing private matters to strangers (Lundberg, et al., 2005). This may be linked to Kaldenberg's study (1994) that suggested a general trend towards decreasing participation in this type of study, especially amongst the oldest (Kaldenberg, et al., 1994). Many reasons have been proposed to explain the low participation among ethnic minorities in research studies, such as socio-economic constraints (Temple & Geisinger, 1990), language and literacy barriers, as well as a mistrust of the scientific community. Several researchers have explored the effect of distributing the same questions through both a questionnaire and interview and have noticed a difference in the response rate and the actual responses themselves (Clarke & Ryan, 2006; Crossley & Kennedy, 2002b; Tourangeau & Smith, 1996).

7.3 DISCUSSION OF THE MAIN FINDINGS

The results of the study indicate that the three study groups were more dissimilar than was originally expected. The research group anticipated a high degree of similarity between the two Iranian groups, but was surprised to find quite the opposite. The Iranian group in Tehran was, in many cases, more similar to the Swedes in Stockholm than to the Iranian immigrants, a finding that was surprising. In order to discuss the main findings, the discussion section is divided into sub-sections corresponding to each of the sub-studies included in the thesis, with the exception of the sub-study I, as it has already been discussed in previous section (method, and methodological discussion).

7.4 SUB-STUDY II, SELF-RATED HEALTH

In terms of general health, the results showed that trouble walking was associated with SRH in only the Swedish group. A recent Swedish study including 1,128 individuals aged 60 and older found that functional ability was associated with both physical and mental HRQOL. Mobility factors were found to have a stronger negative influence on the respondents' physical and mental health than functional ability in itself. The authors of that study concluded that one factor alone - the ability to walk – affected both physical and mental HRQOL (Fagerstrom & Borglin, 2010). The findings were later confirmed by a longitudinal study published this year in which 681 Swedish individuals aged 78–98 years took part of a national survey (SNAC), which explored factors important for their sense of life satisfaction and revealed that independence in physical functioning was very important (Enkvist A, 2011).

7.4.1 Socio-economic factors

In Sweden, the role of socio-economic factors like education, occupational position, and income, as well as the association between SRH and mortality, remain relatively unexplored. Previous research from other countries has suggested that socio-economic variables influence SRH (Borg & Kristensen, 2000; Kunst et al., 2005; Power, Matthews, & Manor, 1998). However, whether the association between SRH and mortality varies as a function of socio-economic variables has been examined in only two published studies (Burstrom & Fredlund, 2001; van Doorslaer & Gerdtham, 2003), both of which use Swedish data. The first study concluded that occupational position did not moderate the association between SRH and mortality (Burstrom & Fredlund, 2001) and the second study drew a similar conclusion for income and education (van Doorslaer & Gerdtham, 2003).

However, a recent study conducted in Iran, including a sample of 400 participants in Tehran interviewed in their homes, found that economic status was the most significant predictor of HRQOL among the elderly (Tajvar, et al., 2008). That study concluded that elderly people living in Tehran suffer from relatively poor HRQOL; particularly elderly women and those with lower education. Indeed, in order to improve health among elderly Iranians, much more attention should be paid to all aspects of their lives, including their health and economic status. In the present study, Iranians in Iran represented the only group in which income

satisfaction was found to be an important predictor of SRH. Tajvar (2008) also writes that the economic status of this age group is one of the reasons that elderly Iranians have considerably lower HRQOL scores as compared with the scores of the elderly in high income countries. Moore and colleagues studied a group of 1,139 participants in Michigan, USA with an average age of 49 and reported that higher education was associated with higher income, and that higher income was associated with better physical and psychological health (Moore, Adler, Williams, & Jackson, 2002). In our study, the Iranian groups exhibited a strong association between education and SRH. According to Lasheras and colleagues (2001), lower educational level was associated with unhappiness, poor social relationships, poorer SRH, and sensory problems among the elderly in a Spanish population (Lasheras, Patterson, Casado, & Fernandez, 2001). Education is therefore an important indicator that may directly or indirectly influence health status through its association with higher social class and economic status.

7.4.2 Age

Age seemed to influence SHR among only Iranians in Iran. A similar study by Tajvar and colleagues also observed that age affected the HRQOL (2008). However, it has been suggested that if the elderly have satisfactory living conditions, increasing age may result in a slower deterioration of health (Hellstrom & Hallberg, 2004). The fact that health in general tends to deteriorate as people get older is not a new finding. Marmot suggested that there may be social inequalities in the trajectories of age-related health decline (Marmot, 2003). Cross-sectional evidence from the English population suggested that the prevalence of ill health in people aged 50-59 from low income classes is greater than that in professional and managerial social classes. This could indicate that people from disadvantaged social classes age faster in terms of declining health as compared with professional classes. Another well-known study, known as The Gazel cohort, explored SRH in 14,879 men and 5,525 and concluded that the association between SRH and mortality was weaker in the higher income groups. The results for education were similar but generally weaker than for the other socio-economic measures (Singh-Manoux et al., 2007).

Although it is difficult to make similar statements based on our study, the results of these sub-studies could be transferrable to the Iranian situation and suggest that reductions in inequalities in health is an important policy target in Iran. With Iran's ageing population, the question of whether socio-economic impacts on health persist, increase, or decrease with age becomes an important health issue for the country to deal with.

7.4.3 Social life and activity

A few studies have focused on exploring the association between SRH and leisure activities among elderly (Morrow-Howell, et al., 2003; Pollack & von dem Knesebeck, 2004; Zunzunegui, et al., 2004). Although some studies have found that better SRH is associated with leisure participation (Idler & Benyamini, 1997), the results are often conflicting and show that socio-demographic factors such as age, education and income can be confounders that should be controlled for. A recent study in Finland with a total of 2,815 participants (segregated into three cohorts; birth year 1926–30, 1936–40 and 1946–50) aimed to examine

the associations between SRH and specific forms of leisure activities. They found partial support for the assumption that leisure activities are related with better SRH among older people (Nummela, et al., 2008). In our study, leisure time was only associated with SRH in the Swedish group, indicating that there could in fact be differences in the conceptual meaning of leisure time between the groups. More research is needed to understand the cultural differences in the definitions of leisure time and activity, though this could be interpreted differently in the Swedish and Iranian groups.

In the two Iranian groups, satisfaction with social life was associated with SRH, though not the Swedish group, and this finding was confirmed in a recent study on “successful ageing” among Iranian immigrants (Torres, 2009). In Iran, the elderly possess a high socio-cultural position among family members and relatives, with good social relationship between young and old members of the family (Tajvar, et al., 2008). This could possibly explain why the results of this study showed that satisfaction with social life was an important predictor of SRH in both the Iranian groups, though not for the Swedish group.

7.5 SUB-STUDY III, SELF-RATED MENTAL HEALTH AND DEPRESSIVE SYMPTOMS

7.5.1 Social support

The results of this study show that both Iranian immigrants and Iranians residing in Iran reported depressive symptoms to a greater extent than the native Swedes aged 60 to 75 years, and the two Iranian groups resembled one another in their reporting of depressive symptoms. As mentioned above in the previous section, social life was found to be an important factor influencing self-reported mental health. Social support is a protective factor that acts as a buffer in psychosocial crisis situations and when under strain. Although successful ageing is often seen as time free from disability, older adults themselves more commonly endorse social engagement than physical health when describing successful ageing (Depp & Jeste, 2006).

In recent years, systematic reviews using cross-sectional data have found that a high level of social capital may be useful in the prevention of mental illness (De Silva, McKenzie, Harpham, & Huttly, 2005). In addition, a prospective study showed that a low level of social capital is associated with depression (Fujiwara & Kawachi, 2008). Due to the fact that the social networks of those who migrated late in life tend to be very limited, it is no surprise that senior Iranian immigrants in Sweden reported being dissatisfied with social networks (A Emami & Ekman, 1998; Hajighasemi, 1994). To reduce this isolation, one should concentrate on assisting seniors to integrate into their own ethnic community by providing a setting and opportunities for them to meet on a regular basis (A. Emami, et al., 2000).

7.5.2 Smoking

The authors of this study were not surprised to find a link between smoking and mental health, since previous researchers tied active smoking to different types of mood disorders

(Kassel, Stroud, & Paronis, 2003). Even second hand smoke exposure has now been associated with depressive symptoms in never smokers (Bandiera et al., 2010). The association found in our study between smoke and mental health is biologically plausible, as nicotine is known to affect psycho-physiological pathways that are relevant to mental health (al'Absi, Wittmers, Erickson, Hatsukami, & Crouse, 2003; Brody et al., 2006; Howren, Lamkin, & Suls, 2009).

7.5.3 Sex (gender) and age

We found a high prevalence of self-reported depressive symptoms in both men and women, with higher numbers in women, which is in line with previous studies (Blazer, 2003; Steffens et al., 2000). However, the results of a study conducted in Norway pointed in a different direction, showing only minimal prevalence differences between genders (Stordal et al., 2001). In this present sub study regarding mental health, sex was found to be a significant factor for mental health. In general, women live longer, which in turn increases their risk of experiencing the negative consequences of ageing. However, it has also been suggested that depression might be under-diagnosed to a greater extent among men (Courtenay, 2000). The Swedish group reported symptoms to a lower degree than the Iranian groups, although age was not found to be significant in the linear regression. This might be partly explained by life expectancy rates being higher among the Swedes (www.un.org), indicating that Swedes tend to be “healthier” than their Iranian counterparts in the age range we explored (60 to 75 years). The results of this study also showed that while over 40% of both the Iranian groups reported being depressed, only 9% of the Swedes reported the same condition. For example, in a study examining an older age category of Swedes (85 years of age), with 494 participants in the city of Gothenburg, Sweden found that the prevalence of major depression (melancholia) was 13.6% and the prevalence of mild depression 5.9% in this population (Skoog, 1993). This would indicate that Swedes are surprisingly healthy at old age.

Regarding mental health, our results show that the Iranian immigrants were comparable to the Iranians in Iran, which surprised the research team as they had assumed that migration would have a negative effect on their mental health (A Emami & Ekman, 1998; A. Emami, et al., 2000; Hajighasemi, 1994). A study investigating the mental health of a total of 720 Iranian, Iraqi and Finnish immigrants in Sweden showed similar results to the present study (Tinghog, et al., 2010). Of the three groups, Iranians in both countries were more prone to depression/anxiety symptoms. The study also concluded that mental ill health among immigrants was due to non-immigrant specific factors, meaning factors not directly related to migration (e.g., high number of traumatic episodes, divorced/widowed, poor social network, economic insecurity and being female), as well as immigrant-specific factors (e.g., low level of socio-cultural adaptation) (Tinghog, et al., 2010). The authors of a study performed on Iranian immigrants in Germany concluded that the high levels of mental distress in the Iranian sample indicated the need to increase access to care. The high level of mental distress points to an under-utilization of psychiatric services and the need for prevention in this field (Haasen, et al., 2008).

In Iran studies have been conducted and reported in national scientific journals investigating depression in old age. Because these are published in Farsi, they pose a challenge for the

international scientific community to engage with due to language. However, as three of the co-authors are fluent in Farsi, we were able to review these publications in order to examine the relationships between the findings of our study with the ones that have been presented from studies conducted and published in Iran. These studies showed similar results as ours and were carried out using the GDS short form scale. A study rating 120 elderly persons aged 55 and above in Kashan, Iran, showed that the prevalence of severe depression was found to be over 35 % (Joghataei & Nejati, 2007), and in a second study that followed, the authors examined 100 elderly persons aged 55 and above in Tehran, Iran, and found the prevalence of severe depression to be over 50 % (Foroughan, Farahani, & Kamrani, 2006). A study carried out in Iran among participants 60 years old and above, found that the rate of depression was over 50% in both men and women, though higher for the female participants (Sohrabi et al., 2008). In the small city of Shahrood, Iran, a study of 90 persons in nursing homes showed that the rate of severe depression was over 40% (Ashaiari & Nejati, 2006)

Our observation that the Iranian immigrants reported poorer mental health than Swedes is consistent with earlier results from studies confirming that foreign-born elderly individuals report poorer health than native-born elderly individuals (Pudaric, Sundquist, & Johansson, 2003; Silveira, Skoog, Sundh, Allebeck, & Steen, 2002). However, our study showed that Iranians in Sweden had similar self-reported mental health compared to those who reside in Iran. This disagrees in part with Bentham's theory (Bentham, 1988), which identified poor health as a reason for migration to a new country among elderly people in order to be closer to their families to receive care from them.

As a final note it is important to state even if no formal depression diagnoses were applied in this study, due to the study specific questionnaire measured depressive symptoms only. However, it is also important to add that the presence of depressive symptoms appear to be as important as a formal depression diagnosis with regards to impacting morbidity (A. T. Beekman et al., 2002; Penninx et al., 2001; Penninx et al., 1999).

7.5.4 Sub-study IV, Self-rated sleep quality

The aim of the present study was to explore sleep quality in this age group. The single strongest factor impacting sleep quality was SRH. Other significant factors included mental health and nighttime urination (nocturia). Factors important for self-rated sleep were examined in a recently published doctoral thesis showing that SRH was the strongest factor determining a person's perception of sleep (Andreasson, 2010). The participants in that study who reported poor sleep had higher levels of certain cytokines, substances important for the human immune system that can induce sickness behavior and sleepiness. Even those not suffering from any disease had increased levels of cytokines, and the older participants exhibited a stronger association between the level of cytokines and perceived ill health (Andreasson, 2010).

Possible explanations for the predictive power of SRH have been widely discussed in the literature (Hasson, et al., 2006). SRH might be an indicator of ill health that has not yet been detected by medical investigation, whereby the individual is able to detect signs of ill health

earlier than medical experts (Idler & Kasl, 1991). Another possible explanation is that self-rating of health has a significant impact on the condition itself. The consequences of specific diseases are directly affected by how the individual assesses and responds to his or her health situation. Perceived health may also reflect psychological orientation (optimism or pessimism) and therefore subsequent health status (Ferraro, Farmer, & Wybraniec, 1997).

7.5.5 Mental Health and sleep

Sleep complaints have previously been linked to risk factors such as anxiety (Fichten et al., 1995) and depression (Foley, Monjan, Simonsick, Wallace, & Blazer, 1999; McCrae et al., 2003; Ohayon, 2002). In this study, we also found that mental health influenced sleep quality. Psychological distress among immigrants in Sweden has been shown to be related to sleep problems. For example, Rosmond and colleagues demonstrated that the non-European group experienced frequent insomnia (Rosmond, Nilsson, & Bjorntorp, 2000). In another study, immigrants reported more frequent sleep problems compared with native Swedes (Rosmond, Lapidus, & Bjorntorp, 1996), a predictor of long-term disability (Eriksen, Natvig, & Bruusgaard, 2001). In Sweden, studies have shown that both Kurdish and Turkish immigrant groups experience poorer sleep quality (Steiner, Johansson, Sundquist, & Wandell, 2007; Taloyan, Johansson, Johansson, Sundquist, & Kocturk, 2006). Another study conducted on Iranians in Iran reported that poorer sleep was related to mental health problems, implying the necessity for more attention to sleep hygiene education and screening for psychiatric disorders in primary health care for this population (Malakouti, Foroughan, Nojomi, Ghalebandi, & Zandi, 2009a).

7.5.6 Demographic and socio-economic variables influencing sleep

This study showed that group belonging (Swedish vs. Iranian), education and marital status influenced self-rated sleep quality. Higher education was associated with better sleep quality, and married individuals reported less sleep complaints than singles. Both Iranian samples reported poorer sleep quality compared to their Swedish counterpart. This is not in line with a previous Iranian study conducted in Iran on 3600 randomly selected individuals between ages 18-85 showing that the prevalence of sleep problems is lower in Iran compared to many western countries, something the authors claim could be results of the young Iranian population. Although that same study did show that sleep problems did increase for subjects above the age of 50, something that could support the findings of this study as well (Amra, Farajzadegan, Golshan, Fietze, & Penzel, 2010). Another study conducted on elderly Iranians in Iran, with over four hundred participants exploring the prevalence of sleep disturbances and sleepiness. This was done by the use of instruments showing that the majority of respondents (82%) suffered from poor sleep with almost 30% experiencing sleepiness during the day (Malakouti, Foroughan, Nojomi, Ghalebandi, & Zandi, 2009b).

The incidence of the complaint of “having trouble with sleep” in the Swedish population has increased by 10% over the past ten years, and currently exceeds 25% (Stefansson, 2006). However, the reasons behind the high prevalence of sleep disturbances, which occur against the backdrop of advances in public health, are not clear. Studies have consistently shown that people with lower socioeconomic positions have higher burdens of sleep-related

complaints and that women experience more sleep complaints than men (Adams, 2006; Lauderdale, Knutson, Yan, Liu, & Rathouz, 2008). In other previous studies, self-rated sleep problems have been strongly linked with certain demographic characteristics and socio-economic factors, including ethnicity (Sanford et al., 2006), female gender, old age, and lower socio-economic status (in terms of income or educational attainment) (Ohayon & Hong, 2002; Sutton, Moldofsky, & Badley, 2001). A recent study was conducted using telephone interviews of 1000 households, and included participants between the ages of 15 and 65 years (or older). The aim was to examine aspects of self-rated sleep quality and daytime functioning ascribed to sleep in the Swedish population. The study found that lower education, gender (being female) and age (those above 65) shaped poor sleep quality for the participants and lead to experiences of shorter and disturbed sleep and excessive daytime sleepiness (Eder, Zou, Grote, & Hedner, 2011).

Moore and colleagues reported that a higher level of education was associated with higher income, and that higher income was associated with better physical and psychological health (Moore, et al., 2002). These demographic factors were therefore worthy of consideration when attempting to improve a person's rating of her/his sleep. However, the majority of these studies were conducted in western countries and appropriate empirical evidence is lacking for other regions, such as the Middle Eastern countries.

The analyses showed that all three groups were dissatisfied with income, highlighting the financial instability of this age group and also indicating a possible impact of income on self-rated sleep. In particular, the research suggesting that income and educational attainment significantly affect health has important implications on economic and educational policies (Lleras-Muney, 2005). In recent years, the association between income and individual health has been increasingly focused upon (Grandner et al., 2010; Kim & Ruger, 2010). Many economists have examined the factors that determine perceived happiness, given that individual well-being and social welfare are central issues to be addressed in economics. Since the late 1990s, economists have started to contribute large-scale empirical analyses of the determinants of perceived happiness in different countries and time periods, as surveyed by Frey and Stutter in 2002 (Frey & Stutter, 2002). For example, it has been shown that income increases the level of perceived happiness, and can impact other factors such as sleep and mental health (Blanchflower & Oswald, 2004; Easterlin, 2001). In the present study, the majority of the study group was retired and not working, and so there was not a big difference in income levels. This could be a possible explanation for why income was not significant in our regression.

7.5.7 Other items found to be significant

There was also a strong association between self-rated perception of appetite and self-rated sleep, which could mean that helping this age group to maintain a balanced diet and cope with nutritional issues may also lead to improved self-rated sleep. In one study, the authors identified a longitudinal association between sleep duration and future weight gain, as well as several metabolic functions including changes in hormones regulating appetite and energy expenditure. The study also demonstrated that disturbed sleep was associated with elevated

body mass index, and with reduced levels of leptin and elevated levels of ghrelin (Hasler et al., 2004). Such hormonal changes are known to increase appetite (Spiegel, Leproult, & Van Cauter, 1999; Spiegel, Tasali, Penev, & Van Cauter, 2004; Taheri, Lin, Austin, Young, & Mignot, 2004).

The present study showed a clear association of nighttime urination and sleep quality. It is well known that nocturia is an especially common complaint in elderly patients and a common symptom in a variety of medical disorders resulting in significant sleep disruption. For these reasons, nocturia was included in the analysis of our study. The diagnosis of a sleep disorder should be seriously considered whenever a patient reports frequent awakenings from sleep to urinate. Health care personnel should provide guidance for the appropriate usage of sleep medications and other methods to promote sleep (Ancoli-Israel, et al., 2010; Bing et al., 2006; van Dijk et al., 2004). We therefore recommend that health care personal always control whether or not the patients in this age group who contact them for sleep problems also have nocturia.

8 SUGGESTIONS FOR FURTHER RESEARCH

Previous research in general and studies on SRH in specific on elderly populations in both Sweden and Iran have mainly focused on particular aspects of health. Topics that have been widely explored among immigrants in Sweden are cardiovascular health and illness, as well as obesity (Gadd, Johansson, Sundquist, & Wandell, 2003b; Gadd, et al., 2005; Pudaric, et al., 2000; K. Sundquist & Li, 2006). This past decade in particular has produced several studies focusing on the cardiovascular health of Iranian immigrants in Sweden (Daryani, et al., 2005; Koochek, Jonansson, et al., 2008; Koochek, Mirmiran, et al., 2008) and the Iranian population in Iran (Aghasadeghi, Zarei-Nezhad, Keshavarzi, & Mehrabani, 2008; Azizi, Azadbakht, & Mirmiran, 2005; Azizi et al., 2002; Hajian-Tilaki & Heidari, 2007, 2010; Kelishadi et al., 2008; Kelishadi, et al., 2003; Maddah, et al., 2003; Malekzadeh et al., 2006; Marjani A, 2009). Research on those above mentioned areas is of great importance, but more attention should be directed towards other dimensions of SRH such as for example the impact of demographic factors, sleep quality, mental health but also activity and social life. This in order to fully understand how SRH is influenced by different groups in society and also to discover what type of care fits different groups best. Should the same type of care be given to all patients regardless of cultural belonging? These are questions that should be explored in future studies, in order to fully understand the variations among and between different cultural groups.

Inequalities in health among immigrants and ethnic minorities pose significant challenges to public health practitioners and policy makers all across Europe. Within the field of SRH, studies have compared the health of the native population to that of minorities. (Cooper, 2002; Iglesias, Robertson, Johansson, Engfeldt, & Sundquist, 2003; Lorant, Van Oyen, & Thomas, 2008; J. Sundquist, 1993; Wiking, et al., 2004). The studies performed on immigrant groups in Sweden so far including Iranian Immigrants have all conclude that older immigrants' health status is relatively poor compared to that of the Swedes. There is a need for further research exploring SRH in order to fully understand both the effect of migration, importance of length of stay on SRH, care needs and possible effect of discrimination. Another suggestion is to perform intervention studies based on the findings achieved by SRH studies. An example of such study would be the implementation of self-assessment scales for nurses when admitting patients to the ward, and also using SRH when following up a patient's current health status over time.

In Iran due to the recent ongoing political disturbances, one interesting and yet unexplored (*to our knowledge*) area of study is the impact of social trust on SRH, an area that has been explored extensively over the years in other countries. Wilkinson's hypothesis is that individuals are less healthy during times of decreased social cohesion in a country (Islam, Gerdtham, Gullberg, Lindstrom, & Merlo, 2008; Islam et al., 2006; Marmot, 2003; Marmot & Smith, 1989; Wilkinson, 1997, 1998; Wilkinson & Pickett, 2006, 2008; Wilkinson, Pickett, & De Vogli, 2010).. A recent study aimed to test this hypothesis by examining SRH in relation to social trust with data from the World Values Survey examining 69 countries with a total sample of 160,436 individuals. The results showed that SRH is positively linked to

social trust at both country and individual levels, after controlling for individual socio-demographic and income variables plus individual fluctuations in social trust; in short, increased trust is associated with better SRH. This could explain the results for the Soviet Bloc countries, which reported high levels of poor health in the World Value survey, as compared to the Scandinavian countries like Sweden, which scored high on levels of trust and better health situations. Therefore studies on SRH and aspects like social trust can be a suggestion for researchers in both Sweden and Iran to conduct.

Sweden having a comprehensive universal social welfare program, care for elderly is developed and far more advanced than many other countries of the world. Despite this fact there have been repeated reports indicating that elderly are still not receiving the adequate care that they are in need of. The care of elderly in Sweden has been under debate for a long time, and due to the growing number of elderly represents a major challenge to Swedish society. In the 2020s, care requirements among the elderly in Sweden will dramatically increase as the 80+ age group grows even larger. The cohort of retirees born in the 1940s, which will enter this age category in the 2020s, is thought to demand a higher quality of life than previous generations. In addition, those born in the 1960s will reach retirement age, meaning that pension costs will increase while at the same time the proportion of citizens in gainful employment will diminish. Furthermore, those providing care to the elderly will be fewer in number than those born in the 1940s (Maddah, et al., 2003), and this will cause much strain on the institutions and employees providing care. Many researchers believe that the relatives of elderly citizens will be increasingly obliged to care for them. This is highly relevant for the Iranian population in Iran as well. In Iran there has been a call by researchers to incorporate research into nursing education in order to improve the quality of care that is given to the elderly. A study that wanted to explore the impact of evidence-based education on the knowledge and attitude of nursing students was able to show that evidence-based approach should be used as a complementary approach to nursing education and in the long run help formulate programs to design and implement evidence-based nursing education (Jalali-Nia, et al., 2011). There is a need for both countries to start implementing existing knowledge into clinical settings, in order for elderly to receive appropriate care based on their health care needs and regardless of financial status.

9 RELEVANCE FOR NURSING

9.1 NURSING AND NURSES' ROLL

Irrespectively of which society a person comes from and what socio-cultural background she/he has, the role of nurses is crucial. Nurses are a part of patient recovery, health improvement and maintenance, as well as illness prevention. An individual's perception of health is related to his/her cultural beliefs and practices, which are in turn specific to a society. Nursing, as a profession, aims to help people in a way that is meaningful and built on the foundation of respect despite culture beliefs, ethnicity, sexual orientation, age or gender. Nurses are ideal healthcare professionals to perform risk reduction in hospital settings, outpatient clinics, and community-based facilities. Most importantly, a skilled nurse must have an interest in and commitment to the unique differences in patient populations based on age, ethnicity, culture, socio-demographics, and literacy. Researchers have described the role of nurses as essential to healthcare reform that aims to address the growing need to improve health for ill persons irrespectively of cultural background (Bodenheimer, MacGregor, & Stothart, 2005; Bodenheimer, Wagner, & Grumbach, 2002).

A mutual understanding between patients and healthcare workers is needed in order to prevent misunderstandings and provide the best possible. Nurses require more knowledge about other cultural values and lifestyles so that they can provide adequate care to patients from diverse cultural backgrounds. They must have a good level of knowledge in this area, so that they are able to consider the patient's cultural background during the caring process and therefore, deliver culturally appropriate care (Momeni, Jirwe, & Emami, 2008).

This should preferably start early in nursing education, in order for nurses to feel more confident in providing high quality care to a diverse population. This is particularly important in a globalized world, as nurses commonly treat patients from all parts of the world within the health care system. In both Iran and Sweden, nurses must deal with the changing structure in the world's population, which mean caring for a diverse population of elderly patients and meeting their demands and needs. The studies included in this thesis explore aspects of SRH and clearly indicate some of the particular health needs of these groups; for example, a better preventative mental health program to maintain a well-balanced mental health among the groups, especially the two Iranian groups. Nurses hold a great deal of power in patient recovery, and need to raise the issues concerning mental health, sleep quality and socio-economic aspects in order to improve the understanding their impact on health and human life.

Nurse's role is highlighted in a study on elderly diabetes patients in Iran, where there were many barriers for recovery. Interestingly, especially nurses were found to be part of the problem, hindering patients from efficient recovery. The study participants experienced the nurses as only providing clinical care, and not focusing on education and support. They also described the nurses being stressed due to time pressure and that work was performed in a mechanical way. The holistic idea of nursing where the patients are cared for was clearly missing and to be very limited and understood that the nurse are responsible in providing care

for many patients, and often falls into a routine state of work. The elderly also saw poverty and literacy as important barriers towards improving their health. The findings from this study also encourages nurses to ask questions regarding socio-demographic factors in order for nurses to understand the individual's world view and assist the individual to move forward in their improvement of health status (Abdoli, et al., 2011), something also being supported by the findings in this thesis.

Also in the study by Martin the elderly Iranian immigrants overwhelmingly expressed a desire for a more holistic approach to healthcare that fits within their definitions of health and illness and nearly all the participants expressed the importance of kindness and pleasant interactions with their care provider. The participants continued explaining that due to older Iranian immigrants not always having good English language skills for the health care personal to be able to greet the patient with a smile or what Iranians call a pleasant face and asking questions about their life and family suggest to them that their provider is interested in more than just their illness (Martin, 2009). Although that study was specific for elderly Iranian Immigrants, similar suggestions can be applied to the Swedish elderly population as well.

Researchers have long understood that people who age experience a special kind of “pride” or “triumph” of a sense of survival. They feel as if they have lived through different experiences and hardships and therefore know about life. Maybe in ways young people do not understand coming from all the years of physical and psychological ups and downs. But it is also important to note that only the factor of survival does not necessarily lead to the feeling of triumph, unless it is accompanied by physical and mental vitality that permits the old person to exercise a degree of independence (Markides & Machalek, 1984). This is a challenge facing our populations of elderly in both the Swedish and Iranian society today. Meaning it's not just the factor of surviving that needs to be celebrated, but the quality of their lives that must be improved in order to be able to celebrate their high age. In order to ensure that a good quality elderly care is being provided one must first realize the needs of the different groups of elderly, the recourses available but also highlight the recourses that are missing.

10 CONCLUSIONS

Based on the results of the sub-studies included in this thesis, in combination with the available scientific literature in the areas of study, the following conclusions can be drawn. In general women reported lower scores than men with regard to SRH and thereto related dimensions, e.g., sleep quality and mental health, something supported by the majority of research conducted within the field of self-ratings. Being an Iranian (Iranian Immigrant and Iranians in Iran) significantly increases the risks for poor self-reported health, sleeping problems and poor mental health to an extent that raises concern. Although researchers have repeatedly acknowledged the importance of SRH, being the strongest predictor of future morbidity and mortality, this recognition and awareness has not quite gained the attention it deserves from policy makers and healthcare workers.

These results gathered from this thesis with support from previous research within the field suggests that SRH should be tested as an assessment tool for nurses when admitting a patient or following up patients health status over time. In order for this implementation to occur, decision makers in the healthcare sector need to be aware of the extensive need for this knowledge, and its strengths as a method for evaluation. Nevertheless, these findings indicate a greater demand on the health care systems of both countries, and should be taken into consideration among politicians, health analysts, social workers, planners and providers when developing intervention programs for reducing inequalities in health between native-born Swedes and Iranian-born immigrants.

Sweden and Iran are fundamentally different in terms of the age distribution of their populations and their attitudes towards the elderly. Iran has one of the youngest populations in the world; however, its elderly population is now growing in numbers and placing greater demands on the health care sector. The Persian culture has long viewed ageing as something honorable, and a person often gains more respect in the community as he/she ages. In addition, Iranians are proud of being a group-oriented culture. For these reasons, it is common for family members to care for their elderly for as long as possible, whereas “leaving” their relatives in hands of elderly care institutions is still somewhat rare.

Sweden, on the other hand, has one of the oldest populations in the world. The “Swedish model”, for which the country is famous, refers to its economic and social models that are characterized by a generous welfare state with high living standards and placing great value on quality of life. Sweden is an individual-oriented culture and advocates the vision of a strong person living independently for as long as possible. When such living arrangements are no longer feasible, the elderly citizen is cared for by the advanced elderly care system, which focuses on providing individualized care.

Sweden’s “strong welfare program for the elderly” would naturally be expected to result in better SRH; indeed, SRH of Swedes was rated higher than both Iranian groups. However, the difference among the groups was not as large as expected, and these sub-optimal ratings

of SRH raise concerns about the welfare of these groups and merits further attention and study.

11 SUMMERY IN SWEDISH

Bakgrund: Självskattad hälsa (SSH) är ett subjektivt mått som mäter individens egen uppfattning om sin hälsa. Det är en av de mest använda mått som används tvärvetenskapligt för att utforska och förklara människors upplevda hälsa. SSH speglar ett samspel mellan fem breda hälsodimensioner: fysisk och funktionella hälsa, mental hälsa, attityder och förväntningar på hälsa och åldrande, socialt stöd och demografiska aspekter. Denna avhandling utforskar SSH inom tre växande äldre befolkningar mellan åldrarna 60 till 75 år. Dessa är: Iranier i Teheran samt iranska invandrare och infödda svenskar i Stockholm. Äldres hälsa är för närvarande på dagordningen för politiken och beslutsfattare, som syftar till att säkerställa en lämplig vård utifrån äldres behov. Ett mål med avhandlingen är att tillföra kunskap om denna grupp människor, så att både vårdpersonal och beslutsfattare står på fastare mark när de fattar beslut.

Syfte: (Delstudie I): Att beskriva processen med att utveckla och testa den studie specifika enkäten "Självrapporterad hälsa och vårdbehov bland äldre" (studie II) Att undersöka faktorer som påverkar SSH i de ovan nämnda grupperna (Studie III) Att undersöka och jämföra faktorer av betydelse för mentalhälsa och depressiva symtom. (Studie IV) Att undersöka variabler som kan förklara dålig sömnkvalitet bland grupperna.

Metod: En kvantitativ metod som med hjälp av en studie specifik enkät ska utforska aspekter av SRH i ovan nämnda populationer. Den första versionen av enkäten konstruerades på persiska och sedan översattes av tvåspråkiga forskare från persiska till svenska. En oberoende professionell översättare översatte enkäten tillbaka till persiska för att jämföra överensstämmelse mellan versionerna. Datainsamlingen startade samtidigt i båda länderna, och blev klar under 2005. Det totala antalet respondenter i urvalet blev 1088, varav 515 (49 %) män och 542 (51 %) kvinnor, åldrarna 60 till 75 år (medelålder = 67). De tre grupperna skilde sig inte signifikant med hänsyn till ålder eller kön.

Resultat: I delstudie I, beskrivs utvecklingsfaserna av enkäten och bekräftar både validiteten och reliabiliteten av den slutliga versionen. I delstudie II, rapporterade kvinnorna generellt sett lägre SRH än män. Båda iranska grupperna uppgav att de hade lägre SRH jämfört med svenskar. De två iranska grupperna hade tre gemensamma faktorer som påverkar SRH, utbildning, tillfredsställelse med ens sociala liv och sömnkvalitet. Faktorer viktigt för SRH bland iranier i Iran var bland annat: nokturi (frekvent urinering nattetid), viktminskning, allmän svaghet(orkeslös) och nöjd över inkomst. Faktorer som depression och tillfredsställelse över fritidsaktiviteter visade sig vara viktigt endast i den svenska gruppen. I delstudie III studerades mental hälsa och depressiva symtom. Gällande könsskillnader så uppvisade den iranska gruppen i Iran skillnader i nästan varje aspekt av mental hälsa, medan svenskar och iranska invandrare endast uppvisade könsskillnader i tre av tio aspekter. SSH, rökning, nöjd med det socialt livet och känslan av tillhörighet för kulturella rötter och traditioner var signifikanta faktorer relaterade till mental hälsa. Demografiska variabler av betydelse var "grupp tillhörighet" (svenskar vs iranier), kön och nöjd över inkomst. I delstudie IV, undersöktes viktiga aspekter relaterat till sömnkvalitet. Analyserna visade att både iranska grupperna rapporterar sömnproblem i högre grad än den svenska gruppen. Sex visade sig vara

signifikant endast i den svenska gruppen. Nokturi visade sig vara viktigt bland alla tre grupperna. Andra faktorer viktiga för sömn kvalitet i den svenska gruppen var SSH, hur man ser på framtiden och att vara glad och på gott humör. Utbildning, civilstånd, depression och aptit var endast betydande i den iranska gruppen i Iran.

Slutsats: I allmänhet rapporterar kvinnor lägre både generell självskattad hälsa och tillhörande dimensioner så som sömnkvalité och mental hälsa. De olika delstudierna visar också på att mer uppmärksamhet bör ägnas åt de olika aspekter av SSH vilket kräver mer försiktighet och ökad medvetenhet av vårdpersonal inom alla nivåer och i båda länder. Detta så att vård av god kvalitet säkerställs till denna växande åldersgrupp i samhället. Resultaten visar också att den iranska befolkningen i både Teheran och Stockholm rapport sänkt SSH, mental hälsa och sömnkvalitet i en omfattning som är oroande, och som kräver vårdpersonalens uppmärksamhet. Trots att forskare har genom åren påpekat vikten av SRH, som den starkaste prediktorn för framtida sjuklighet och dödlighet har denna medvetenhet inte riktigt fått den uppmärksamhet den förtjänar från beslutsfattare och vårdpersonal.

Nyckelord: självskattad hälsa, äldre, Tvärsnitt, enkät utveckling Tvärkulturella jämförelser, mental hälsa, depression, sömn, Omvårdnad

12 EPILOGUE - MY ROLE IN THIS PROJECT

As a Swedish citizen of 25 years, my Iranian heritage and background has been of profound guidance in carrying on this project. My bilingual abilities in fluently speaking both Farsi English and Swedish has facilitated this project and been of great asset when meeting the Iranian research group for joint meetings. Although I come from a Persian culture, and was raised to value my Persian heritage and traditions, I live in Swedish society and have an understanding and sense of belonging to Swedish culture. This mix of the two cultures has helped me to understand both sides of this project and gained patience with the challenges facing the project along the way.

The questions explored within this project will not stop here; I strongly believe that one is never finished with a research project, and as there was a large amount of data gathered through this questionnaire, my hope is to continue with this line of research. I feel it is my obligation towards the participants who took their time and participated in this study to analyze all the data available. In order to get a better picture of the SRH of my study group, I will continue exploring the attitudes of care giving, leisure time, social context, culture and also functional ability.

Concerning the choice of conducting qualitative or quantitative research, I am firmly of the belief that they each have strong advantages, but that the study question should determine the method and not vice versa. The quantitative research I have performed has helped us to generate statistics through the use of this survey research method, and this type of research made it possible to reach many people at once. This type of quantitative research performed in this thesis has made it possible for me to see my study group in a different, broader way. However, to get a deeper understanding and to explore attitudes, behaviors and experiences, I believe one should conduct qualitative research.

When the participants in Sweden received the information letter, they were also asked to contact us if they were interested in participating in an interview by one of the researchers. Interviews were conducted with 20 volunteer participants (10 Iranian immigrants in Stockholm, and 10 Swedes), asking in-depth semi-structured questions. The questions used were derived from the same questionnaire they had completed earlier. The process of analyzing these interviews is currently taking place, and will shed a different light on the same subject through another perspective. Though these results are not presented in this thesis, their publication in upcoming papers will add to the body of knowledge regarding the ageing population of Sweden.

Traditionally, different stakeholders have valued certain types of outcomes and therefore, implicitly, particular research methods. There is increasing interest in combining qualitative and quantitative approaches to health and social research. Furthermore, there is increasing interest in the patient's experience as an outcome at the policy level (O'Cathain, Murphy, & Nicholl, 2007). Combining quantitative and qualitative methods in a mixed method approach can improve comprehensiveness and provide a greater knowledge yield (Barbour,

1999; Tashakkori, 2009; Tashakkori & Creswell, 2008). Indeed, the most recent update on the framework states that “wherever possible, evidence should be combined from a variety of sources that do not share the same weaknesses” (Craig et al., 2008). Mixed methods are particularly valuable in elderly care research, where the majority of interventions are often complex and the process of evaluation challenging.

A hope for this research is that by studying these groups using a survey design enables better future interventions within elderly care. This, together with the qualitative data, can add to the existing literature and contribute to appropriate intervention studies. This form of triangulation of different methods is being used in order to explore the same phenomenon and to be able to draw better conclusions in the future.

I’m devoted to continuing research on this age group during my research career. As it is, I’m currently ageing myself!

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