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Master Thesis

Determinants of self-perceived health in two socially deprived neighborhoods in Denmark: Consequences for community interventions

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ABSTRACT

This study aims at revealing associations between self-perceived health and a range of factors in two socially deprived neighborhoods in Denmark. Since self-perceived health has been proven as a reliable and valid indicator of overall health and premature death, it serves as the central variable in this study. A secondary analysis was carried out concerning two socially deprived Danish neighborhoods (*N*=1160 and *N*=404), which were investigated by means of structured survey interviews concerning demographic, socioeconomic, psychological, illness-related, health risk as well as social and community network factors. It emerged that residents of both disadvantaged neighborhoods perceived their health to a considerable amount worse, in comparison with people, living in whole Denmark. Further on, multiple adjusted logistic regression analyses were conducted adjusting for gender, age, civil status, ethnicity and education with self-perceived health as outcome variable, dichotomized into very good, good and fair as well as very bad and bad self-perceived health. In both samples, the analyses resulted in significant associations between self-perceived health and the following variables: age, occupational status, occupation, education, economic situation, economic deprivation, sick leave, loneliness, stress, general physical activity, pain or discomfort in the last 14 days and long-term illness. Based on these results, implications for community interventions for both areas were generated. They aimed at reducing health inequalities in these disadvantaged neighborhoods. Most notably, people with a lower socioeconomic status, older people as well as ill and lonely people should especially be targeted by community interventions. Additionally, interventions should contain objectives to reduce stress, enhance physical activity and finally contribute to the building of social capital.

Keywords: socially deprived neighborhood, self-perceived health, health inequalities, community interventions

ZUSAMMENFASSUNG

Diese Studie zielt darauf ab, Zusammenhänge zwischen selbst eingeschätzter Gesundheit und einer Reihe von Faktoren in zwei sozial benachteiligten Nachbarschaften in Dänemark zu erschließen. Da selbst eingeschätzte Gesundheit sich als reliabler und valider Indikator von allgemeiner Gesundheit sowie vorzeitigem Tod bewiesen hat, stellt selbst eingeschätzte Gesundheit die zentrale Variable dieser Studie dar. In dieser These wurde eine Sekundäranalyse von strukturierten Interviews (*N*=1160 und *N*=404) in den zwei sozial benachteiligten dänischen Nachbarschaften durchgeführt. Diese Interviews betrafen demografische, sozioökonomische, psychologische, soziale und krankheitsbezogene Faktoren, sowie Risikofaktoren und Faktoren, die die sozialen Netzwerke in der Nachbarschaft betreffen. Es stellte sich heraus, dass die Bewohner der sozial benachteiligten Nachbarschaften, im Vergleich zu den Bewohnern von ganz Dänemark, ihre Gesundheit wesentlich schlechter einschätzten. Es wurde eine multiple adjustierte logistische Regressionsanalyse durchgeführt, korrigiert für Geschlecht, Alter, Familienstand, Ethnizität und Bildung. Die abhängige Variable, selbst eingeschätzte Gesundheit, diente dabei als Zielvariable, dichotomisiert in sehr gute und gute selbst eingeschätzte Gesundheit, sowie mittelmäßige, schlechte und sehr schlechte selbst eingeschätzte Gesundheit. In beiden Stichproben stellten sich signifikante Zusammenhänge zwischen den folgenden Variablen und selbst eingeschätzter Gesundheit heraus: Alter, beruflicher Status, Beruf, Bildung, ökonomische Situation, ökonomische Deprivation, Krankenstand, Einsamkeit, Stress, generelle physische Aktivität, Schmerz und Unbehagen in den letzten 14 Tagen, sowie langfristige Krankheit. Auf Basis dieser Ergebnisse wurden Vorschläge für Gemeindeinterventionen entwickelt, mit dem Ziel gesundheitliche Ungleichheiten in den sozial benachteiligten Nachbarschaften zu reduzieren. Es stellte sich heraus, dass besonders Menschen mit niedrigerem sozialökonomischem Status, höherem Alter sowie einsame und kranke Menschen, durch Gemeindeinterventionen erreicht werden sollten. Des Weiteren sollten Ziele von Interventionen die Reduktion von Stress, das Steigern physischer Aktivität, sowie schließlich das Bilden von sozialem Kapital beinhalten.

***Schlüsselwörter**:* sozial benachteiligte Nachbarschaft, selbst eingeschätzte Gesundheit, gesundheitliche Ungleichheiten, Gemeindeinterventionen

1. INTRODUCTION

Antonovsky (1987, in Bengel, Strittmatter & Willmann, 1999) compares life with a river, whose stream is rapid and involves danger in some parts and an even or easy stream in other parts. The question which is most important to him is: "Wherever one is in the stream – whose nature is determined by historical, social-cultural, and physical environmental conditions – what shapes one's ability to swim well?" (Antonovksy, 1987, p.90, quoted by Bengel et al., 1999, p.23). Whereas the ability to swim well depends strongly on the health status of the swimmer, a powerful physical and mental condition has a great impact on the life course. However, not alone objective health plays an important role, but also subjective health, the way people feel about themselves, has a major influence. Self-perceived health is the central concept of this study. It has been proven as a reliable and valid indicator of overall health and premature mortality (e.g. in Gilmore, McKee & Rose, 2002; Idler & Benyamini, 1997). This has highly practical advantages, because the seemingly simple question, "How do you perceive your current general health status?", can be asked quite fast during an interview and reveals vital information. Therefore, this study is of great importance and contributes to a growing body of research about self-perceived health with a special focus on disadvantaged areas. Further on, the insight about the self-perceived health status of individuals and populations can have a life-changing impact, whilst premature deaths can be prevented and specific target-directed interventions can be developed to enhance overall health and reduce health inequalities.

Health is not an item, which one can buy. People have to care for themselves to stay healthy and practice a healthy lifestyle. Depending on economic, political and cultural influences, differences in self-perceived health can be ascertained between and within countries. Hence, looking at self-perceived health from an international perspective, the European social survey 2003 revealed that Denmark, together with Switzerland, Austria, Greece, Ireland and Iceland, displayed one of the countries, where most people perceived a good health status (Delaney, Wall & O'hAodha, 2007). Swiss male residents rated their health at best, indicating that 86.3% perceived their health as very good or good (Knesebeck & Geyer, 2007). The percentage declined slightly for Danish men (78.7%) and Danish women (75.6%), but was still quite high (ibid.). In 2005, the Danish national health survey, called SUSY[1], gained similar results, displaying that 79.5% of all Danish respondents rated their health as very good or good (Eriksen, 2006). The Danish national survey distinguished between the five regions of Denmark: the Capital Region, Zealand, Southern Denmark, Middle Jutland and North Jutland, showing that

[1] Sundheds- og sygelighedsundersøgelsen (SUSY) = Health and illness survey

in the two municipalities of interest for this thesis, Esbjerg and Fredericia – both located in Southern Denmark - 78.1% indicated to have a very good or good health (Eriksen, 2006). However, this study revealed that only about 60% of the people, who live in the targeted deprived areas - Kvaglund and Korskærparken - perceived their health as very good or good, which is nearly 20% less than the Danish average. Since both areas, Kvaglund in Esbjerg and Korskærparken in Fredericia, are known as socially deprived neighborhoods (Nue Møller et al., 2008; OECD, 2006), these first findings raise the question, whether living in a socially deprived area influences self-perceived health and otherwise, which factors are associated with the perception of the health status in disadvantaged neighborhoods.

Data of this study was gathered by Esbjerg and Fredericia municipality, which are both members of a bigger project called *Flerstrengede Evidensbaserede Lokale Indsatser for Sundhedsfremme* (FELIS) (=multilevel evidence-based local interventions for health promotion). Within the framework of this project, the FELIS research group[2] and both municipalities initiated structured survey interviews with the long-term goal of reducing social inequalities (Andersen & Kronborg Bak, 2009; Skipper Hansen, 2010). A range of topics were examined, in particular social and community network factors, health risk, demographic, socioeconomic, psychological and illness-related factors. Since a major part of the population, living in the two areas, has an ethnic background (more than 25% in both samples), a special focus in this project was on ethnic minorities (Andersen & Kronborg Bak, 2009; Skipper Hansen, 2010).

This study sets itself apart from other studies by investigating self-perceived health in two disadvantaged areas (Nue Møller et al., 2008; OECD, 2006). Hence, the aim is to identify which factors are associated with self-rated health in each neighborhood. As the knowledge of the determinants of self-perceived health is needed to develop appropriate health and social interventions, this study is also intended to serve as a milestone in a process of approaching health inequalities in socially deprived neighborhoods in Denmark.

Outline of the thesis

First, I will introduce the theoretical background of this study, dealing with health in a broader sense, health inequalities and health promotion. Furthermore, I will go into the research questions, generate hypotheses based on the current state of research and introduce a research model, containing factors, which are investigated in this study. After having described the methods thoroughly, I will present the results of the analyses. In the next chapter, I will discuss

[2] The contact person for the FELIS research project is Pernille Tanggaard Andersen at the University of Southern Denmark (ptandersen@health.sdu.dk).

my findings in relation to the theory, state of research and its limitations. At the end, I will make implications for community interventions regarding the two neighborhoods and close this thesis by drawing a conclusion.

2. THEORETICAL BACKGROUND

In this passage, I will give a brief introduction into concepts, theories and models about health and health promotion to provide the reader with a basic background understanding. First of all, I will deal with the different perspectives on health and factors, which can have an impact health. I will introduce a research model, which includes the factors examined in this thesis and generate hypotheses based on empirical findings. Beyond this, I will engage in the subject of health inequalities, as I am dealing with two socially deprived areas in this study. Further on, I will go into different methods of measuring health and deal with advantages and disadvantages of the outcome variable of this study: self-perceived health. Moreover, I will deal with health promotion, focusing on the settings approach, since later on in this thesis, I will derive suggestions for health promoting interventions in the two socially deprived neighborhoods.

2.1 Perspectives on health

Definitions of health

Several researchers and experts have tried to define health and illness. The most cited definition of *health* is probably the one developed by the World Health Organization (WHO) in 1948: "A state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity. Health is a resource for everyday life, not the object of living. It is a positive concept emphasizing social and personal resources as well as physical capabilities" (WHO, 1986, p.1). Other experts feel that health contains furthermore emotional, spiritual and sexual aspects (e.g. Aggleton & Homans, 1987 in Naidoo & Wills, 2003), and accordingly being capable to express feelings and sexuality in a healthy way as well as moral and religious principles. Bengel et al. (1999) mention additional factors like self-realization and sense of meaningfulness trying to complete a holistic perspective on health. According to Labonte (1993 in Laverack, 2004) health can be defined from three different perspectives: the medical, behavioral and socio-environmental perspective. Firstly, health can be defined as the absence of disease, which is related to the biomedical or pathogenetic viewpoint of health (ibid.). Secondly, health can be regarded as functional ability and personal wellness, while thirdly, health can be identified as quality of life, also referring to the value of social relationships (ibid.).

Taking the medical definition of health as absence of disease into account (e.g. in Labonte, 1993 in Laverack, 2004), I shortly want to define the concept of *disease*. Three different words exist in the English language to name the state of being ill: illness, disease and

sickness (e.g. in Faltermaier, 2005). These terms are often used as synonyms, although different meanings are associated with the three concepts (ibid.). Whereas *illness* refers to the subjective experience, *disease* relates to the medical diagnosis and *sickness* to the social role, which is related to this state (ibid.). In this thesis, I will mostly use the term illness, as I am dealing with two questionnaires, which serve as subjective measurements.

Returning to definitions of health, Hurrelmann (2006) describes health in its three dimensions, namely a physical, psychological and social dimension of health. Furthermore, he states that health is a result of succeeded coping behavior regarding internal and external challenges (ibid.). *Internal challenges* refer, for example, to personality structure, dispositional factors and the physical constitution, while e*xternal challenges* consist, for instance, of the social and ecological environment (Hurrelmann, 2006). Hurrelmann's (2006) explanation describes health in a dynamic and changing way, which is also done by Antonovsky, who claims, that health is an "unstable, active and dynamic self-regulation process" (Bengel et al., 1999, p.23).

Further on, Seedhouse (1986, e.g. in Naidoo & Wills, 2003) tried to generate a uniform understanding of health by integrating different definitions and theories. In his perspective, health is defined as a state of complete well-being, contains mental and physical fitness, represents a personal strength and at the same time a product, which can be bought or given. He suggests that these four features of health help humans to self-actualize themselves (ibid.). Although Seedhouse (ibid.) tried to incorporate different dimensions of health in his definition, there are still aspects, which he did not consider. For example Laverack and Labonte (2008) looked at health from a global perspective defining health as security, a development, a global public good, as commodity or human right.

All in all, looking at the different attempts of defining health, which are mentioned in this paragraph, the complexity and multidimensionality of the concept *health* becomes obvious.

The pathogenetic and salutogenetic perspective

In the West, the widespread *biomedical perspective* on health looks at health in a negative way, rather concentrating on what health is not, compared to what it is (e.g. in Naidoo & Wills, 2003). The biomedical model is pathologically oriented. It is focused on disease and describes the body as a natural object, which follows natural scientific laws (e.g. in Faltermaier, 2005). In this perspective, the body is regarded as a machine and disease is considered as a disorder of the organism and as deviation from the norm. Naidoo and Wills (2003) claim that this perspective is taught in most health-related educations. Therefore this model is mainly being applied in practice to date.

Engel (1979, e.g. in Faltermaier, 2005), an American physician, criticized the biomedical model, because a social, mental and behavioral dimension of health is missing. He also describes the model as reductionistic considering that only physical principles are regarded (ibid.). Consequently, he suggests to incorporate a psycho-social dimension into the biomedical model. More specifically he proposes a *bio-psycho-social model* of disease with a distinction between body and soul, plus the inclusion of environmental and social factors (ibid.). He argues that illness has to be regarded as individual experience, and that behavior influences this illness-related experience as well as the curing progress resulting from treatments (ibid.).

Further on, the *risk factor model*, which belongs to the pathologically oriented theories, explains which factors increase the probability for getting certain diseases (e.g. in Naidoo & Wills, 2003). *Risk factors* are factors, which increase the risk of getting a disease (e.g. Schneeweiß, 1997 in Faltermaier, 2005), and are empirically proven through social epidemiological research (Faltermaier, 2005). Moreover, *risk behavior* refers to certain kinds of behavior, which increase the susceptibility to certain diseases (e.g. in WHO, 1998). The risk factor model was developed in the 1950's by taking empirical studies and statistical data from life insurance agencies and looking at the correlations between risk behavior, like smoking, in association with the development of diseases (e.g. in Bengel et al., 1999). All in all, the model contains more behavior-related risk factors, like high blood pressure as a risk factor for coronary heart disease, than context or circumstantially-related risk factors, like shift work (ibid.).

Since all three models, which I described above, are pathologically oriented (Naidoo & Wills, 2003), they deal with the question of why people are getting sick. Another perspective, which focuses on why people stay healthy is the *salutogenetic perspective* (Antonovsky, 1997). The word *salutogenesis* is derived from the Latin word *salus*, which means well-being, and the Greek word *genesis,* meaning origin (Bengel et al., 1999). Antonovsky, a medical sociologist, considers humans to never achieve a passive state of balance concerning their health (Antonovsky 1993, in Bengel et al., 1999). He introduces a *health continuum,* which displays *health-ease* on the positive end and *dis-ease* on the negative end of the continuum (Antonovsky 1979, in Faltermaier, 2005). This continuum stands in contrast to the pathological perspective, which dichotomizes between health and illness. Although Antonovsky's view on salutogenesis began to spread and got popular after the publication of his two main books in 1987 and 1997 (Bengel et al., 1999), it is hard to convince politicians and bureaucrats of social long-term interventions focusing on salutogenesis (Prinja & Kumar, 2009). Most politicians and bureaucrats are focused on biomedical interventions (ibid.).

Lay perspectives on health

Differences in the perception of health and theories about health have been noticed between lay people and experts (e.g. in Naidoo & Wills, 2003). Since I described professional and expert views on health in the previous paragraphs, I now want to take a closer look at the lay perspective on health, as the participants of this study are most probably lay people. *Lay people* are those, who do not study or work in the health sector and have developed their own theories and beliefs about health based on their own experiences (Faltermaier, 2005). They are competent individuals, who reflect on themselves and their world, possessing mental representations about the condition of their health (ibid.). Faltermaier (2005) states that *lay health theories* deal with positive and negative influences on health and furthermore how to stay healthy or improve health. In the broader context, lay concepts of health are imbedded in lay theories of health and illness. Beyond that, the social and subjective context, which surrounds the individual, like social networks or the work environment influence lay concepts and theories of health (Faltermaier & Kühnlein, 2000 in Faltermaier, 2005).

Herzlich (1973, e.g. in Faltermaier, 2005) conducted research on lay concepts and social representations of health in the middle class of Paris and Normandy and found three perceptions of health to be dominant. The first concept, *health as vacuum*, emerged to contain health as absence of disease, whereas the second concept, *health as reservoir*, represents health as an inner strength or resistance capability against diseases (Herzlich 1973, in Faltermaier, 2005). The third concept, *health as balance*, incorporates the ideal health status, which involves being active and physically well, as well as maintaining good relations to others (Herzlich, 1973 in Faltermaier, 2005).

Later on, among other researchers, also Blaxter (1990 in Faltermaier, 2005) and Faltermaier and Kühnlein (1998, 2000 in Faltermaier, 2005) conducted research on subjective theories of health. Whereas Blaxter (1990 in e.g. Faltermaier, 2005) found that health was determined through the absence of disease, physical energy, functional fitness and mental well-being by the participants of his study, Faltermaier and Kühnlein (1998, 2000 in Faltermaier, 2005) found particularly four different perceptions of health. The first lay health concept, which they named *on-off "switch"*, presents health as absence of disease, which is also designated by Herzlich (1973 in e.g. Faltermaier, 2005) and Blaxter (1990 in e.g. Faltermaier, 2005). Further on, they describe the concept *reduction "battery",* which implies that people feel their health to decrease over time. The third concept *regeneration "accumulator"* stands for decreasing and increasing health as a dynamic state, while the fourth concept *expansion "generator"* involves the assumption that health can be enhanced under favorable conditions (Faltermaier & Kühnlein,

1998, 2000 in Faltermaier, 2005). These four subjective theories indicate that people perceive their health as rather dynamic instead of static (Faltermaier, 2005), which is in line with Antonovsky's (1997) view on health.

Since this research is quantitative, the health perceptions of the residents in the two socially deprived neighborhoods cannot be assessed in depth. However, an overall impression of how a major part of the residents perceive their health can be ascertained.

This paragraph made clear that the lay perspective reflects on health in another way than professionals and experts. When considering the development of an intervention, an approach regarding the lay perspective can help to reach the target group. In this regard, Laverack (2004) points out that health promotion strategies are differently generated and inspired depending on how health is defined.

2.2 Factors influencing health

According to the World Health Organization (WHO) (1998, p.6), *determinants of health* comprise "the range of personal, social, economic and environmental factors which determine the health status of individuals or population". As I will focus in this thesis on associations between a range of factors and self-perceived health in two socially deprived neighborhoods, I will deal with theories and findings about general determinants of health in this paragraph.

Factors influencing health and illness can be classified into different categories, like personal, behavioral and structural conditions (Hurrelmann, 2006). Hurrelmann (2006) subsumes genetic disposition, the physical-psychological constitution and ethnicity under the heading *personal factors*, whereas eating patterns, physical activity, psychological coping behavior and preventive health behavior are taken together to *behavioral factors*. Lastly, *structural factors* encompass, for instance, socioeconomic status (SES), living conditions, the general economy and health care services (ibid.). Hurrelmann (2006) claims that mainly these three categories determine the health status in the population. Also Dahlgren and Whitehead (1991 in Naidoo & Wills, 2005) developed a model incorporating main determinants of health. In comparison with Hurrelmann (2006), they incorporated one additional level. They point out, that each level can be influenced and serves as a starting point for health interventions (ibid.). The levels are illustrated as layers incorporating the individual with his or her *constitutional traits, age and sex* (Dahlgren & Whitehead, 1991 in Naidoo & Wills, 2005), which is comparable to the personal factors of Hurrelmann (2006). According to Dahlgren and Whitehead (1991 in Naidoo & Wills, 2005), the individual is surrounded by *individual lifestyle factors*, which are comparable to the behavioral factors of Hurrelmann (2006), including physical activity, diet, smoking and so on. A next layer,

which is not included in Hurrelmann's (2006) classification comprises *social and community network factors,* which refer to social support from friends and family (ibid.). The last level of Dahlgren and Whitehead's model (1991 in Naidoo & Wills, 2005) encompasses Hurrelmann's structural factors, including *general socioeconomic, cultural and environmental conditions*. It is stressed that this layer shapes the life context of the individual from a greater distance and is often out of the individual's control (ibid.).

Apart from Hurrelmann (2006) and Dahlgren and Whitehead (1991 in Naidoo & Wills, 2005), there are more experts, who investigated the relationship between a range of factors and health. These authors also strive to discover, if being healthy is a choice or if it is determined by certain factors (Taylor, Smith & van Teijlingen, 2003), which is a fundamental question when contemplating what kind of intervention would be appropriate. Taking Hurrelmann's (2006) classification into account, an intervention on the political level would be more important, if it emerges that health is primarily influenced by economic factors, while an intervention on the individual level would be more effective, if it appears that a good health status is mainly a result of healthy behavior. Nevertheless, in this thesis, the model of Dahlgren and Whitehead (1991 in Naidoo & Wills, 2005) is most applicable as social and community network factors play an important role.

Certain determinants of health can be detrimental to health. These determinants are so-called *risk factors*, which are factors that enhance the probability to develop diseases (Schneeweiß, 1997 in Faltermaier, 2005). When conducting research to identify risk factors, researchers adopt a pathological oriented perspective, which has been described in the previous paragraph. One well known example for risk behavior is smoking, which is associated with developing cancer (Sarafino, 2002). Moreover, a lot of research on risk factors focuses on a low *socioeconomic status* (SES), which is defined by the accumulation of three factors: a low level of education, low occupational status and a low amount of income (e.g. in Nocon, Keil & Willich, 2007).

Risk factors are often analyzed as isolated variables regardless of the individual person and his or her contextual environment, which influences the person (Faltermaier, 2005). As a consequence, additive effects of risk factors associated with these factors cannot be taken into account (Faltermaier, 2005). The investigation of accumulative effects of single risk factors is referred to as the examination of *compositional effects* (e.g. in Cummins et al., 2005). Despite that risk factors are analyzed as isolated variables in this thesis, the whole analyses are associated with the contextual environments of socially deprived areas.

Furthermore, certain determinants can be protective for health. The research on *protective factors* focuses on what protects people from getting a disease (e.g. in Faltermaier, 2005). The term *resource is* closely related to the concept of protective factors, although resources refer to positive forces and are defined from a salutogenetic perspective (Faltermaier, 2005). One example for a protective factor is optimism, which has been proven to have a protective effect on physical health, psychological well-being and general satisfaction in life, coping behavior as well as preventive health behavior (e.g. in Bengel et al., 1999). In comparison, a personal trait, like self-efficacy is an example for a resource (Faltermaier, 2005). Antonovsky (1997) contemplated the influence and function of resources and looked at different variables and factors in correlation with the health status. He named those variables, which appeared to be protective for health, *general resistance resources*, because they are effective in every situation and make the individual resistant against external influence (ibid.). He furthermore claims that general resistance resources contribute to meaningful and coherent experiences in life (Bengel at al., 1999) and facilitate effective coping (Antonovsky, 1979 in Faltermaier, 2005), specifically with stressors (Faltermaier, 2005). In this regard, Faltermaier (2005) points out that health resources, as general forces, help the individual to cope with, overcome and grow with challenging situations. Taking into consideration that individuals might possess resources, without knowing how to mobilize them (Faltermaier, 2005), it was clarified in the Jakarta Declaration (WHO, 1997), that empowering the individual is one important aim to achieve a better health. Moreover, in the Ottawa Charter it is demonstrated that helping the individual to develop personal skills is conducive to health maintaining and improving health in the world (WHO, 1986).

2.3 Factors influencing health in this research

In this thesis, I will focus on the relationship between self-perceived health and a range of factors, which are depicted in Figure 1: demographic, socioeconomic, psychological, illness-related, health risk as well as social and community factors in the context of two socially deprived neighborhoods.

In this paragraph, I will generate hypotheses with respect to the factors, which have appeared to be relevant in my study. First of all, I will refer to the state of research, which is associated with my results, since I started this study in a reversed way compared to the normal sequence of conducting a research (Neuman, 2006), meaning that I started by analyzing the data and examining associations between a range of factors (see Figure 1.) and self-perceived health. Thus, in this paragraph, I will only deal with a selection of factors influencing health and take the

state of research as a basis for the generation of the hypotheses, which will be presented in the next chapter.

Demographic factors

Looking at demographic factors, age, gender, civil status, living situation, ethnicity, height, weight and having children were taken into account in this research. Regarding the variable gender, Gilmore et al. (2002) found an increased risk of poor self-perceived health for women in comparison with men. Beyond that, Lindström (2009) established, that never married and divorced people perceive their health worse than the ones, who are married. Considering ethnicity, it is well known that ethnic minority groups suffer more often from diseases (e.g. in Naidoo and Wills, 2003). Further on, White and Borrell (2006) found that poor self-perceived health was more prevalent in neighborhoods with a high concentration of ethnic minorities, in their case, black minorities in New York. These findings demonstrate why I suppose that, in this study, people with an ethnic background perceived their health as worse, than Danish

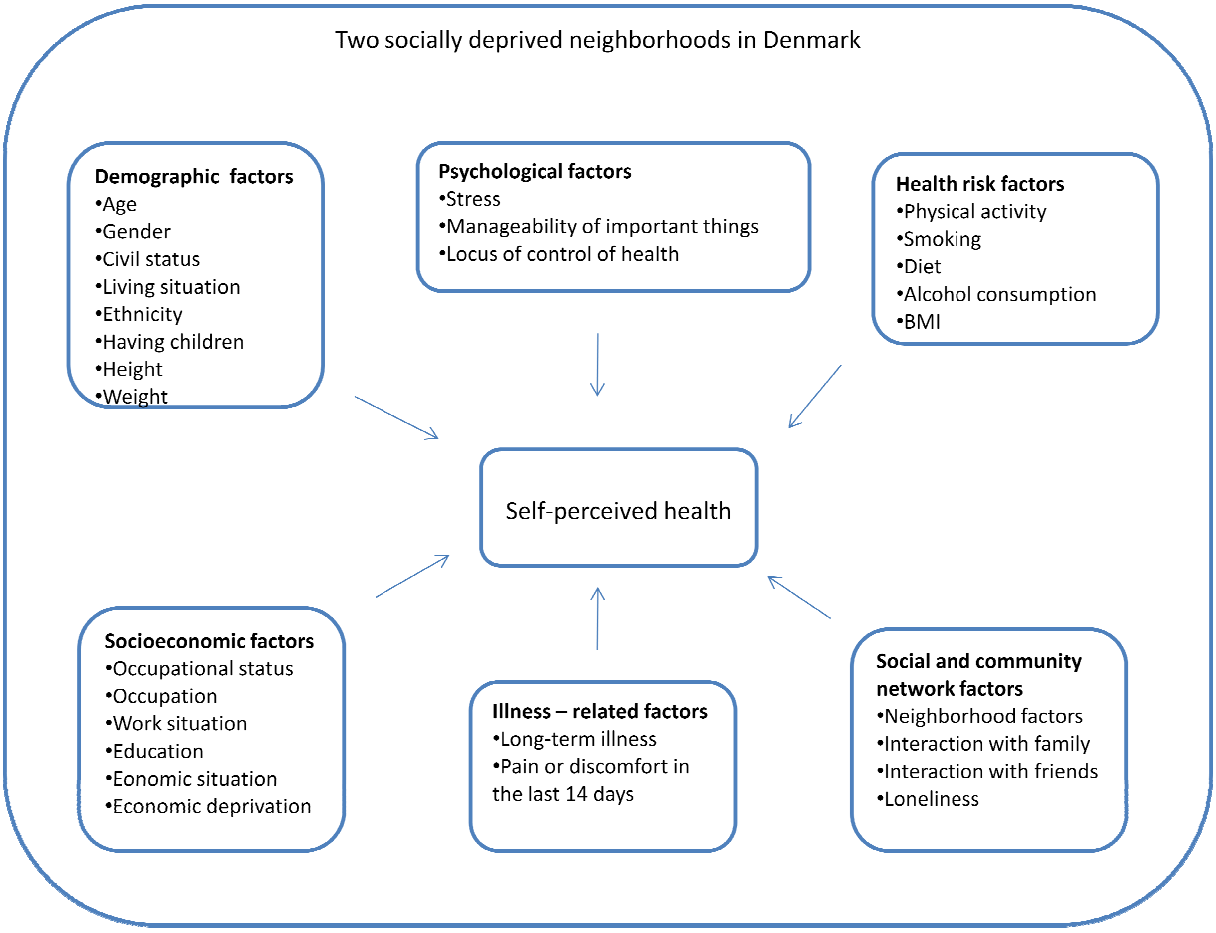

Figure 1. Factors potentially influencing self-perceived health in this study. (Source: Adapted from Davidsen, 2006, p. 18).

participants.Taking age into account, Rakowski and Cryan (1990 in Idler & Benyamini, 1997) found that older people rated their health better than younger participants. Finally, having children was associated with poor self-perceived health in a recent Swedish study (Floderus et al., 2009).

Socioeconomic factors

The following socioeconomic factors were taken into account in this research: education, occupation, occupational status, economic situation and deprivation, sick leave and unemployment. Amongst other researchers, Pärna and Ringmets (2010) state that individuals with a lower socioeconomic status (SES) perceive their health poorer than individuals with a higher SES. In their research on self-perceived health in Finland and Estonia, the authors measured the SES by education, economic activity and self-rated financial situation using less-than-good health as their independent variable (ibid.). The results show that individuals, who were less educated, economically not active and had little financial resources, scored higher on less-than-good health than individuals, who were better off (ibid.).

Kondo et al. (2009), who conducted a meta-analysis of multilevel studies focusing on income inequality, mortality and self-rated health, analyzed the association between income inequality and poor health. After their holistic analysis, they found that people, who live in regions with high income inequality, have a higher risk for premature mortality and poor self-rated health (ibid.).

In addition, unemployment was identified as a risk factor for self-rated poor health (Luo et al., 2010). Short-term unemployment turned out to be less detrimental to self-rated health than long-term unemployment (Martikainen & Valkonen, 1996 in Luo, 2010). Cummins et al. (2005) also found stronger associations between poor self-rated health and non-employed residents. Regarding the physical and psychosocial work demands, another study found, that those demands served as independent predictors of reduced self-rated health (Bauer et al., 2009). The gender aspect was stressed by Bauer et al. (2009) underlining that health inequalities due to workplace conditions were more distinct for men than for women (ibid.). Furthermore, Wilkinson and Marmot (2004) argue that bad working conditions, as for example monotony or unemployment and fear to lose the work place increase the risk of developing diseases. Moreover, Brocklehurst and Costello (2003) report about residents, who did nothing but work to make a living. For them, a job loss due to bad health, resulted in an even greater experience of deprivation and lead, in the worst case, to death (ibid.).

Psychological factors

Psychological factors and their association with self-perceived health were furthermore taken into consideration: stress, manageability of important things and health locus of control. First of all, people who perceive more stress than others were identified as being more susceptible to diseases (e.g. in Adler & Matthews, 1994). Cannon (1932 in Morrison & Bennett, 2006) outlined that stress can invoke harmful effects on the emotional and physiological functioning of a person. Selye (1974 in Morrison & Bennett, 2006) distinguished between two contrarious forms of stress: *distress,* which is detrimental to health, and *eustress,* which is conducive to health. However, Thommasen et al. (2005) found that higher stress levels, as well as a poorer self-esteem and a lower satisfaction with the own health status were associated with poorer self-rated health. These findings refer to distress rather than eustress. In addition, people, who felt low control over their life, were more likely to perceive their health as poor (Gilmore et al., 2002). Wolinsky et al. (1993 in Idler & Benyamini, 1997) found additionally, that loss of control emerged to have a negative impact on the immune system, and serves as an indicator for a declining health status. In contrast, emotional support was positively associated with self-rated health (Knesebeck & Geyer, 2007). Further on, Blazer (2009) ascertained that elderly, physically healthy individuals, who perceived their health as poor, showed more symptoms of depression and were more dissatisfied with their lives. Hence, Blazer's (2009) findings indicate an association between poor self-rated health and depression or dissatisfaction with someone's life.

Illness-related factors

Two variables were investigated in this study: pain or discomfort in the last 14 days and the experience of one or more long-term illnesses. In regard to self-perceived health, it can be assumed that people who experience discomfort, pain or illness perceive their health as worse than healthy people.

Health risk factors

In this study, it was dealt with physical and behavioral health risk factors: Body Mass Index (BMI), physical activity, smoking, diet and alcohol consumption. In general, research has shown that people, who come from poorer social groups, are predisposed for an unhealthy lifestyle (e.g. in Brocklehurst & Costello, 2003). Behavior concerning alcohol consumption has been found to affect subjective health, although the impact appeared differently for women and men (e.g. in Stranges et al., 2006). Heavy drinking patterns were associated with poorer self-perceived health than a moderate consumption of alcohol (ibid.). Moreover, smoking was

associated with a poor self-rated health status (e.g. in Hirdes & Frobes 1993 in Idler & Benyamini, 1997). Likewise, Thommasen et al. (2005) found that an increasing weight contributed to a poorer self-perceived health status in a Canadian sample. Taking physical activity into account, Tsai et al. (2010) ascertained that people, who practiced physical activity regularly, perceived their health as better than people, who had a sedentary lifestyle. Beyond this, a poor rated health status was associated with less engagement in preventive health behavior or self-care (Idler & Benyamini, 1997).

Social and community network factors

Dealing with social and community network factors, the following factors were taken into account: meeting friends and family, loneliness and neighborhood factors. *Social support*, in terms of a feeling of being cared for, being valued and socially integrated, influences the health status of an individual (e.g. in Morrison & Bennett, 2006). Cultivating friendships, meeting family members regularly and having strong social ties can serve as a resource for every person (ibid.). Social support is a concept, which has been investigated by several researchers and shown protective effects on health (ibid.). The *buffering hypothesis* (Cohen & Wills, 1985 in Morrison & Bennett, 2006) states that social support protects individuals from negative effects of stress, which is conducive to health (Morrison & Bennett, 2006). Especially for people, who are affected by material deprivation, it is important to be socially supported by their family or friends (Brocklehurst & Costello, 2003). Nevertheless, some research has shown that adverse effects took place, when families suffer from material deprivation: social bonds and self-esteem of family members decreased (e.g. in Wilkinson & Kawachi, 1998 in Brocklehurst & Costello, 2003). In neighborhoods with a higher SES, Elliott (2000) found that social support had a protective effect on health. In low-income neighborhoods, social cohesion, measured by trust and reciprocity, was found to contribute to a higher self-rated health status (Sapag et al., 2008). Finally, regardless of the SES, Gilmore et al. (2002) found that family relations protected against poor self-rated health.

Socially deprived neighborhood

Several researchers tried to define neighborhood, while two aspects are identified as part of every definition: a limited geographical area and the social interaction, which takes place in that certain geographical area (Richter & Wächter, 2009). Wilkinson and Marmot (2004) stress that behavior is affected by environmental conditions and suggest to approach these conditions to generate healthy behavior and achieve a better health in the society. Bernard et al. (2007) point

out that neighborhoods always offer resources, which either imply positive values like green areas and active neighborhood organizations, or negative values like pollution, liquor stores or a low level of trust among the residents. Researchers have been studying the effects, which living in a deprived neighborhood induces on individuals. They debate, whether it is the relationship between neighborhood and health, which is decisive, referred to as *contextual effects*, or if it is the accumulation of risk factors concerning every single individual and health, that is crucial, called *compositional effects* (Cummins et al., 2005). Figure 2 shows the difference between the two approaches graphically.

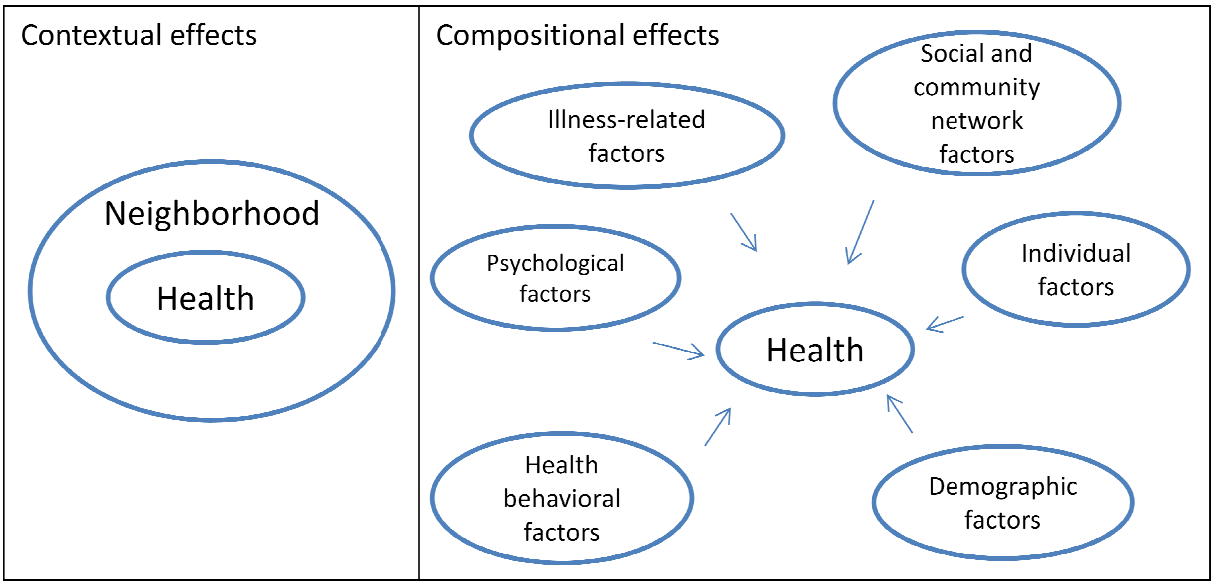

Figure 2. Influences on health: Contextual and compositional effects. (Source: Adapted from Cummins et al., 2005).

In this thesis, I will mainly focus on compositional effects and look at how different factors influence self-perceived health in the socially deprived areas. Since compositional effects of risk factors are already introduced in paragraph 2.2, I will here deal with contextual effects in regard to the influence of neighborhood on health.

Generally, in deprived neighborhoods, a poor health status and harmful health behavior occur more frequently (Reijneveld, 2002). Socioeconomically disadvantaged areas may suffer particularly from having poor material and social infrastructure, such as low quality and quantity of leisure facilities, transport, housing, physical environment as well as primary and secondary health services (Macintyre, Ellaway & Cummins, 2002 in Cummins, 2005). Stafford and Marmot (2003) found that individual and neighborhood deprivation increases the risk for poor general and mental health. They state that living in a deprived neighborhood may have the most negative health effects on poorer individuals, since those are more often dependent on collective

resources in the neighborhood (ibid.). Bond Huie (2001) claims that neighborhood has an impact on health, in particular an indirect impact through factors like smoking, diet, exercise and stress as well as access to health insurance and medical providers. Cummins et al. (2005) also examined the relationship between neighborhood environment and self-perceived health, finding less-than-good health to be associated with poor physical quality of the residential environment, low political engagement and high unemployment. The findings of Cummins and his colleagues (2005) imply that neighborhood has a major impact on self-perceived health. Further on, the American institute of medicine (IOM) reported in 2001 that people, who live in low-income areas, are often less able to meet their need for healthy food (IOM, 2001). Wilkinson and Marmot (2004) stress that the availability of certain groceries determines eating patterns and hence the health of the individual. Since buying healthy food depends also on the price, low-income families, older or unemployed people can often not afford to buy healthy food, which results in unhealthy eating patterns (ibid.).

While these explanations are mainly contextual, other researchers found compositional effects as well. Pickett & Pearl (2001) conducted a critical review on the association between the socioeconomic context of a neighborhood and health outcomes. They state that the socioeconomic context of a neighborhood can directly influence the health status of individuals (Krieger, Rowley & Herman, 1993 in Picket & Pearl, 2001). They explain that direct influences on health can derive from structural conditions like the availability and accessibility of health services, recreational facilities, environmental factors, normative attitudes towards health and social support (Picket & Pearl, 2001). Therefore, they suggest that innovative approaches to community level interventions should consider risk factors, social structure and the ecology of neighborhoods (ibid.). In addition, Poortinga, Dunstan and Fone (2008) found an association between neighborhood deprivation and poor self-rated health, also after adjusting for individual socioeconomic factors. They furthermore claim that health effects of neighborhood deprivation are not completely compositional, but partly contextual as well (ibid.). Nevertheless, Poortinga et al. (2008) stress that neighborhood effects are small compared to the individual health effects. They believe that place-based approaches are most effective in complementation with individual-based interventions (ibid.). Another study, which investigated neighborhood effects on health, found that perceived neighborhood safety was associated with physical and mental health (Ziersch et al., 2004). In addition, a higher income level and educational achievement was related to better physical and mental health (ibid.). Physical health was lower and mental health higher within older age groups (Ziersch et al., 2004). In accordance with other researchers, the

findings of Ziersch et al. (2004) imply that both contextual and compositional effects determine the health status.

Beyond this, Iphofen (2003) claims that subjective perceptions of social differences of individuals, who reside in deprived areas, have a greater impact on their own health, than objective measures of structural location. Accordingly, he finds it important to pay attention to individual responses to social influences (ibid.). In this context, a study of Macintyre, McKay & Ellaway (2005) investigated how poor and rich people judged their chance of getting sick in relation to their perception of differences in SES. They found that people from lower social classes estimated that rich and poor people were equally likely to get sick (ibid.). No evidence was found that socially deprived people assume that poor people have a worse health status than rich people (ibid.). This implies that poor people do not feel a disadvantage concerning the risk of getting a disease (ibid.). Malmström, Sundquist and Johansson (1999) argue that living in a deprived neighborhood may make people feel bad in general. They claim that these people are consequently more likely to feel in poor health regardless of their physical state. Macintyre, MacIver and Sooman (1993 in Malmström et al., 1999) found another explanation stating that the bad health status in deprived areas results from the bad reputation of the areas, which influences the self-esteem and morale of the people residing in those neighborhoods. Wilkinson (1992 in Morrison & Bennett, 2006) states that the simple knowledge of being worse-off than other neighbors may lead to the perception of poorer health.

All in all, this paragraph has shown that the findings concerning subjective perceptions of differences in social status and neighborhood deprivation are inconsistent in relation to the likelihood of getting sick and the perception of health.

2.4 Health inequalities

The *Health for All strategy*, introduced by the WHO, aims at the achievement of a certain level of health for everyone in the world, in order to be able to live a socially and economically productive life (WHO, 1998). Nevertheless, health inequalities exist - both between and within countries (Morrison & Bennett, 2006). Naidoo and Wills (2005) point out different types of inequalities in health, which all contribute to a lot of ill health and premature death. They refer to socially caused differences, inequalities in access to the health care system, regional and geographical differences and differences in treatment outcomes (ibid.).

In this paragraph, I will focus on health inequalities caused by social and geographical differences, as I am dealing with social and health inequalities in two Danish neighborhoods. Social differences result in social inequalities, which are associated with advantages and

disadvantages in regard to the health status (Mielk, 2000). Social inequalities a substantial problem in the society to date (Richter & Hurrelmann, 2007). Mielk (2000) states that publications about the increase of health inequalities became more frequent in the last decades in several European countries, including Denmark, and in other parts of the world, like Russia and the US. He furthermore claims that health inequalities result from unfavorable life conditions and detrimental health behavior, which are both closely related to social inequalities (ibid.). Often, social inequalities are associated with differences in education, occupation and income, which are embraced in the term socioeconomic status (SES) (ibid.). Accordingly, a person can be classified into a hierarchical scale equivalent to his or her SES (ibid.). Later in this paragraph, I will deal with influences that the SES has on health. It has to be noticed that regardless the objective SES, the subjective perception and interpretation has an impact (Richter & Hurrelmann, 2007). Richter and Hurrelmann (2007) argue by means of, for example, data from Lampert et al. (2005 in Hurrelmann & Richter, 2007), that people with a higher SES have a lower risk for morbidity or mortality. The so-called *social gradient,* a normal linear pattern of health and sickness, which appears in the entire social structure of society, means that a certain decrease in the social hierarchy implicates an increase in the risk of morbidity and mortality (Richter & Hurrelmann, 2007). Research has shown that more socially integrated societies, which have a lower social gradient emerged to have lower rates of crime, suicide, mortality from all causes and a higher level of quality of life (Kawachi & Berkman, 2000 in IOM, 2001). In their paper on social determinants of health, Wilkinson and Marmot (2004) talk about the *social gap* in society emphasizing that life expectancy decreases with decreasing social status. They furthermore state that social exclusion affects the health of especially unemployed people, ethnic minorities or homeless in a negative way (ibid.). Marmot (2004) has found a term for this development in society and calls it the *status syndrome*. Dragano (2007) focuses mainly on the life career. He stresses that babies, children and adolescence from socially deprived families are predisposed to have a worse health status, compared to those, growing up in families, who have more resources (ibid.). This is also underlined by Wilkinson and Marmot (2004), who argue that experiences in the early childhood, like an unhealthy diet or stress experienced by a mother, influences health in a damaging way throughout life years.

To reduce health inequalities, interventions have to be planned and implemented focusing on the causes of these inequalities. Until now, no definite explanation concerning the causes and the association between social inequality and health exists (Richter & Hurrelmann, 2007). However, several theories were developed to find applicable explanations. First of all, the *selection theory* assumes that a bad health status leads to social deprivation and a low SES -

which consequently involves a higher risk of morbidity and mortality (e.g. in Richter & Hurrelmann, 2007). This theory refers to the motto "Survival of the fittest" implying a social advancement of healthy individuals and a social decline of people suffering from diseases (ibid.). The *materialistic theory* explains health inequalities through the financial deprivation of people suffering from poverty and their poor living conditions, which are often detrimental to health (e.g. Laaksonen et al., 2005 in Richter & Hurrelmann, 2007). Furthermore, the *cultural and behavioral theory* stresses differences in health and risk behavior, resulting from the SES of an individual (e.g. in Richter & Hurrelmann, 2007). Research has, for example, shown that people who come from poorer social groups are predisposed for an unhealthy lifestyle (Brocklehurst & Costello, 2003). Taylor et al. (2003) argue that people in lower social classes are more likely to smoke and thus develop more diseases resulting from smoking. Further on, some people seek refuge in alcohol, drugs or tobacco use and suffer from the consequences of their addiction, which can lead to a decline of physical and psychological health (Wilkinson & Marmot, 2004). Moreover, there are *psychosocial theories*, which try to explain health inequalities referring to stress, coping concepts, social support and other psychological research areas like critical life events or daily hassles (e.g. in Richter & Hurrelmann, 2007). In that way, stress resulting from straining life circumstances, has emerged to be detrimental to health and can lead to premature death (Wilkinson & Marmot, 2004). Richter and Hurrelmann (2007) claim that people from lower social classes have less resources and suffer more often from psychosocial strain. In contrast, social support, like friendships, good family relations, a supporting atmosphere between colleagues at the workplace and at home, strengthen the individual and affect health in a positive way (Wilkinson & Marmot, 2004). Finally, the *health care system* and the availability as well as the access to it, have an impact on health inequalities (e.g. in Richter & Hurrelmann, 2007).

In this paragraph, many theories were discussed. Mielk (2000) was able to integrate different explanations of health inequalities in one model. In this model, he shows, that differences in knowledge, power and money resulting in social inequalities, have an impact on health burdens, coping resources, recovery possibilities, health behavior and the access to the health care system. It emerges that all theories, mentioned by e.g. Richter and Hurrelmann (2007) are integrated in the model of Mielk (2000).

In general, the single theories (e.g. in Richter & Hurrelmann, 2007) and the model of Mielk (2000) cannot completely explain the causes of health inequalities. Nevertheless, they contribute to get a step closer to the bigger picture of how health inequalities emerge.

2.5 Measuring health

Maintaining and improving health as well as pursuing policies and practices to promote and protect health are *social responsibilities* reflected by actions of decision makers in the public and private sector (WHO, 1997). In order to take this responsibility and improve health, policy makers need the knowledge about the health status in the population. The measurement of health can thus serve as a first step in the process of planning action and implementing interventions. In this relation, Naidoo and Wills (2003) point out four additional reasons why measuring health is important. First of all, gathering information about health and health problems is useful to assess needs in a population (ibid.). Secondly, it is important to measure health when evaluating health promotion programs, or to support health promotion planning (ibid.). Outcome variables can be compared with baseline measurements to assess the influence of a program (ibid.). In the third place, the allocation of external funding often requires scientifically proven facts in terms of numbers or other good reasons (ibid.). Finally, Naidoo and Wills (2003) emphasize the measurement of health gains to be very important for the further development of the occupational image of health promotion workers. Only if people trust the occupation of health workers and recognize the importance of this job, financial support and other resources are and will be provided (ibid.).

There are several ways how health can be measured and quantified (Cottrell & McKenzie, 2010). Depending on the purpose, different methods can be used (Naidoo & Wills, 2003). Mortality and morbidity rates from epidemiological statistics can help researchers to identify health problems or risk groups in certain regions or populations (ibid.). Based on these rates, prevention and health promotion activities can be planned (ibid.). One advantage of mortality and morbidity statistics comprises the fact that they are often accessible, at least in the developed countries, and provide a broad overview (ibid.). Health can also be measured by looking at other objective factors, like health data of individuals, indicators of health behavior, the physical and social environment or socioeconomic indicators (ibid.). Cottrell & McKenzie (2010) mention, for example, physical screenings, like blood pressure measurements. Concerning the measurement of objective factors, Wills and Naidoo (2003) argue that indicators of health behavior, like eating patterns, the frequency and length of physical activity and so on, can be measured by observation. They also consider indicators of the physical and social environment as measurements of health, which can be gathered by for example air and water measurements. Lastly, when measuring health, socioeconomic factors can be taken into consideration. Research has shown, that the socioeconomic context influences health to a high

degree (Wilkinson & Marmot, 2004). Moreover, social deprivation can be measured by, for example, indices like the Townsend Index (Townsend et al., 1988 in e.g. Tones & Tilford, 2001).

Further on, subjective measures, like self-reported health can be applied to assess the current health status of a person (e.g. in Cottrell & McKenzie, 2010). Naidoo and Wills (2003) differentiate in this regard between four dimensions of subjective health, which can be measured using different methods: physical health, psychological health, social health and quality of life. One method of measuring physical health represents the Body Mass Index (BMI) (Morrison & Bennett, 2006). It is calculated by dividing mass in kilogram through body height in meters squared[3]. Results lower than 20 indicate underweight, whereas results between 20 and 25 imply that the person is in a healthy weight range. Moreover, a BMI between 25 and 30 indicates overweight, and a result higher than 30 means that a person has a lot of overweight and is moderately obese (Morrison & Bennett, 2006). Further on, people can receive an impression of their physical condition by, for example, making use of tables published by the German Olympic Sports Federation (DOSB)[4], which show the norm for running, swimming or biking over certain distances for people at every age (DOSB, 2010). There are more indicators of health, which can be measured by every person his- or herself, like getting seven to eight hours of sleep (Ern & Fischbach, 2008), or drinking less than 15 units (women) and less than 21 units (men) of alcohol per week (Sundhedsstyrelsen, 2000).

In this thesis, a general subjective measurement of health is used by asking the question, "How do you perceive your current general health status?", which I call the *self-perceived health status*. No distinction could be made between physical, psychological or social health, as a secondary analysis is conducted and the questionnaires, used in this thesis, contained only one general question about health. Other studies make as well distinctions, like Perera, Østbye and Jayawardana (2009), who investigated differences in physical and mental health. Considering the interrelation of objective and subjective measurements of health, thought has to be given to influencing factors like gender or age. Research has shown that women evaluate their subjective health status worse than men, when the same objective health status information is reported to them (Angel & Thoits, 1987 in Idler & Benyamini, 1997).

Idler and Benyamini (1997) conducted a review, including 27 studies focusing on self-rated health and mortality, and found in almost all of the studies global self-rated health to be an independent predictor of mortality. Therefore, they argue that a self-perceived health status, is proven to be a predictor for premature death (ibid.), which is a substantial reason why studying

[3] BMI = mass (kg)/(height (m))².
[4] Deutscher Olympischer Sport Bund

the self-perceived health status is of great importance. Although Antonovsky (1997) states that health is a rather dynamic than static state, further research has shown that a self-rated health status can serve as a valid and reliable measure of overall health (e.g. in Gilmore et al., 2002).

It seems as if the simple question about subjective health, which takes only seconds during an interview survey (Idler & Benyamini, 1997), contains a major significance. Regarding the actual meaning and content of the question, Miilunpalo et al. (1997, p.517) state that "the subjective health assessment reflects a person's integrated perception of personal health, including its biological, psychological and social dimensions", meaning that a holistic impression of health can be ascertained.

2.6 Health promotion

"Health promotion is the process of enabling people to increase control over, and to improve their health" (WHO, 1998, p.1). Waller (2002) stresses that the word *enable* is crucial in this definition, as health promotion aims at teaching people to help themselves and each other to preserve sustainable effects on health. He also points out the salutogenetic perspective, fostering positive health, developing resources and life skills to achieve better health (ibid.).

The WHO (1998) describes five principles of health promotion, which help to realize societal, personal and physical resources to improve health. First, health promotion should be targeted at the whole population, rather than only on risk groups (ibid.). Secondly, conditions and causes of health should be examined to find out how they can be influenced, whereas thirdly, different but complementary approaches and interventions should be applied (ibid.). In the fourth place, the participation of populations should be a desirable and required goal to reach concrete and life-changing aims (ibid.). Fifth, health promotion should mainly be a task in the health and social work field rather than a medical service (ibid.).

Health promotion is often confused with *health education*, which is why I will briefly clarify the difference between the two disciplines. In the 80s, activities, which are now associated with health promotion, were then known as health education. To date, health promotion involves health education (Naidoo & Wills, 2003), which is mainly practiced by health care personnel, aiming to improve health literacy, knowledge about health and the development of life skills to enhance health (WHO, 1998). Health promotion, in contrast, aims to change the environment and considers socioeconomic influences (Tones, 1990, in Naidoo & Wills, 2003). To promote health, people need to have basic knowledge about how their health is generated and how they can influence their health (Faltermaier, 2005). This knowledge serves as precondition to enable individuals to strengthen their health (ibid.). That is why health education

is an essential field and a precursor of health promotion. Tones (2001) goes one step further, stating that health promotion can be understood as a combination of health education and the creation of a healthy public policy. However, more than one definition of health promotion exists, and therefore the term *health promotion* "remains open and a somewhat contested term" (Labonte, 1994 in Laverack & Labonte, 2000, p.255).

Health promotion stands in a close relation to *disease prevention*. The terms are often confused and used in a similar manner. In differentiation to health promotion, disease prevention tries to prevent the occurrences of diseases, to reduce risk factors and to prevent the progress of consequences resulting from diseases (e.g. in Waller, 2002). Prevention is a decisive work field and important for the society as it (a) reduces suffering from diseases, (b) lowers costs for treatments and rehabilitation and (c) diminishes the loss of work force (Faltermaier, 2005).

Returning to health promotion, a milestone was set on the first international conference on health promotion in Ottawa, Canada, in 1986, when experts developed the well-known *Ottawa Charter for Health Promotion* (WHO, 1998). In that conference, experts tried to shift the focus from dealing with individual risk factors to the living context of people and to the determinants that keep people healthy (Kickbusch, 2003). Three basic strategies were found to be important for health promoters (WHO, 1986): advocacy, enabling and mediating. Whereas *advocacy* concerns the active support of interests like political, economic, social, cultural, biological, environmental and health behavioral factors, *enabling* stands for the promotion of competencies and empowerment of individuals and communities to achieve their full health potential (ibid.). The third strategy *mediating* refers to the active and sustainable cooperation of all actors within and outside the health sector to pursuit health (ibid.). In addition, five priority action areas were declared to support the application of the three strategies (ibid.) to achieve better health. The first action area comprises the building of a healthy public policy, which requires joint action to ensure safer, healthier services and enjoyable environments (ibid.). Furthermore, supportive environments are mentioned, implying that stimulating, satisfying and safe living and working conditions should be created (ibid.). Community action for health should be fostered to improve health of the population and personal skills should be strengthened (ibid.). Finally, health services should be reoriented in a way that health promotion and prevention actions can increasingly be applied (ibid.). All in all, the Ottawa Charter focuses on the generation and improvement of health as a dynamic exchange between people and their environments, implying that every individual is a social actor, who can bring about a change (Kickbusch, 2003).

2.7 Approaches in prevention and health promotion

There are various approaches in prevention and health promotion, which all aim at the achievement of a better health status. First of all, *the preventive approach*, based on the biomedical model, is differentiated into three types of prevention (e.g. in Waller, 2002). *Primary prevention* tries to prevent diseases in general, through, for example, vaccinations. *Secondary prevention* deals with the prevention of the progress of a disease by means of, for instance, an early diagnosis gained by a preventive check-up (ibid.). Finally, *tertiary prevention* aims to prevent a decrease of health, when people suffer from a disease. Rehabilitation or palliative care are examples of this kind of prevention (ibid.).

Further on, another approach to achieve a better health status is the *health behavioral approach.* This approach aims at helping people to get conscious about their behavior and accordingly to change (Naidoo & Wills, 2003). It is closely linked to the *health educational approach,* which aims at gaining further knowledge and capabilities to facilitate decision-making about their health behavior (ibid.). Well-known German national campaigns, which aspire to change behavior are for example "Everyday 3000 steps extra"[5] (BMG[6], 2008) to promote physical activity and "Don't give AIDS a chance"[7] (Müller & Töppich, 1999) to promote safer sex. To develop and plan such campaigns, models of behavior change can help. One of the oldest models of behavior change is the *health belief model* (Rosenstock, 1960 in e.g. Champion & Skinner, 2008), which has been developed to explain change and maintenance of behavior. Elements of this model often serve as a guiding framework for the development of interventions (Champion & Skinner, 2008). Champion and Skinner (2008) describe six main concepts of the health belief model, which have an influence on whether a person eventually takes action. A first factor influencing this process is *perceived susceptibility* (ibid.). This concept implies that only those, who feel to be susceptible for a disease, are prone to change their behavior (ibid.). A second decisive factor is *perceived severity*, implying that persons, who feel that getting a disease is severe, are more likely to change their behavior (ibid.). Further on, *benefits* of the new behavior play an important role and *barriers,* like financial costs or side effects of a treatment (ibid.). People, who perceive low barriers and high benefits concerning the new behavior, are more likely to take action (ibid.). Additionally, *cues to action*, which help to trigger the new behavior, are of importance, as well as *self-efficacy* (ibid.), which refers to a person's conviction that a he or she can execute a behavior (Badura, 1997 in Champion & Skinner, 2008). All in all, the health belief model states that a behavior change takes place, when people experience cues to

[5]German original title of the campaign: "Jeden Tag 3.000 Schritte extra"
[6] German ministery for health
[7] German original title of the campaign: "Gib AIDS keine Chance"

action, feel threatened by their actual behavior, are convinced that a health behavior change is beneficial to them, and finally feel capable of taking action and change their behavior in practice (ibid.).

Another theory of behavior change is the *theory of planned behavior* (Ajzen, 1991 in e.g. Montano & Kasprzyk, 2008). Three factors influence the intention to perform a certain behavior: the *attitude* towards the behavior, the *social norm* - what other people think about the behavior - and finally internal and external *control factors*, meaning the conviction to what extent one can control one's own behavior (ibid.).

Further on, Prochaska and DiClemente (1984 in e.g. Faltermaier, 2005) developed a model of behavior change, differentiating between five stages, which represent the progress of behavior change: *the transtheoretical model.* In the first stage of *precontemplation*, individuals do not have an intention to change their behavior, whereas in the second stage *contemplation*, they are conscious about the benefits of a behavior change, but not yet ready to start (ibid.). In the third stage, called *preparation*, individuals prepare to change, while they finally take the action in the fourth stage, named *action* (ibid.). In the last stage of *maintenance*, the behavior has been successfully changed (ibid.). When people relapse, they go back to previous stages (Prochaska, Redding & Evers, 2008). Hence, someone, who wants to quit smoking can fail and start over again until he or she finally quits for a longer period of time (ibid.). Concerning this model, the task of health promoters is to help to motivate people to move from one stage to the next by, for example, assertiveness training (ibid.).

In general, health behavioral models can be criticized since, for example, only cognitive aspects of behavior are explained, regardless of emotions or structural influences like SES or gender (Faltermaier, 2005).

Beyond this, the *stress prevention or coping approach*, strives for promoting health through fostering the individual's resources and strategies to successfully cope with stress and reduce its negative consequences (Faltermaier, 2005). As stress can influence health in a negative way, leading to vulnerability, sleep or eating disturbances (Morrison & Bennett, 2006), it is important to strengthen coping resources of individuals to protect health. According to Lazarus and Folkman (1984, e.g. in Faltermaier, 2005), stress emerges, when individuals feel overstrained with situations or events, meaning that the challenge, which individuals face requires more resources than people actually have available (ibid.). They underline that stress can be positive or negative depending on the individual's appraisal of the stressor (ibid.). Thus, if the individual has enough resources to cope with situations or more specifically stressors, stress can have a positive effects (ibid.). This positive kind of stress is called e*ustress* by Selye (1974,

e.g. in Morrison & Bennett, 2006) in contrast to *distress*, which is associated with negative feelings and a bad impact on health (ibid.). In this thesis, stress is measured by means of the commonly employed (Morrison & Bennett, 2006) *Perceived Stress Scale* (PSS) developed by Cohen, Kamarck and Mermelstein (1983). This scale contains ten questions concerning coping resources and feelings of control, for example, "In the last month, how often have you felt that you were unable to control the important things in your life?" (ibid.) (For further details see Appendix E). Since a higher score on the scale indicates a higher perceived stress, the scale can help to identify individuals, who perceive a lot of stress and who are consequently more susceptible to diseases.

Another approach to trigger behavior change, is the *empowerment approach*, which is a *bottom-up approach*, since health promotion workers are only supporting individuals or communities to enable them to develop own strategies and methods to solve issues, instead of deciding for them what to do (*top-down approach*) (Laverack & Labonte, 2000). *Empowerment* is defined as the process to help people to gain control over their lives and their health (WHO, 2000 in e.g. Tones, 2001). Consequently, the program design and management is negotiated with individuals or a community, depending on the purpose (Laverack & Labonte, 2000). The goal of this approach is to empower individuals by teaching them to help themselves, so that they gain control over their lives and the environment surrounding them, to take social and political action and consequently reduce inequalities and enhance their quality of life (Rappaport, 1984 in Minkler, Wallerstein & Wilson, 2008). Not only individuals should be empowered, but also communities to encourage cooperation and collaboration to bring about changes and solve health problems (Israel, 1985 in Minkler et al., 2008). An empowered community tends to have greater equality in the social relations of power, a more equal allocation of resources, joint authority and shared influence (Laverack & Labonte, 2000).

Tones (2001) underlines certain characteristics, which health promoters should care for to empower people. First of all, beliefs about control have a great influence on the empowerment process (ibid.). This is why people, who have the feeling to control their life, are easier to be empowered (ibid.). Health promotion workers need to work especially with those people, who feel externally controlled by for example politics or religious views (ibid.). Otherwise those people might take things as they come and accept, for example, discomforts and pain without trying to change their situation (ibid.). Further on, *self-efficacy* plays an important role as the belief of succeeding in actions, which people would like to take (Badura 1997 in Champion & Skinner, 2008). In this regard, Tones (2001) suggests to influence self-efficacy beliefs with experiences of success to support their self-esteem and promote the belief that "they can do it".

A training that deals with the acquisition of action competences like life skills, health skills and self-regulatory skills can help to empower people (Tones, 2001).

Further on, I will introduce the *top-down approach*, which follows a predetermined cycle and is conducted by an external authority exerting power over an individual or a community to invoke changes towards a better health (Laverack & Labonte, 2000). Targeted individuals or groups are not actively involved in the planning of the program, but are expected to participate (Laverack, 2004). Socioeconomic determinants of health are tackled from a higher political level and structural changes are intended to ameliorate living and working conditions (Naidoo & Wills, 2003). Changes concerning the access to the health care system or the availability of healthy food to a fair price, are examples of structural changes through the top-down approach (ibid.). Other methods represent the introduction of new laws, guidelines in public health and the financial support through subventions for organic farmers (ibid.).

The integration of bottom-up and top-down programming in health promotion, is often accompanied by a tension between the two approaches (Laverack & Labonte, 2000). When the funding for health promotion programs comes from third parties, who would like to enforce a certain interest, their 'top-down perspective' can clash with the interest of the community. It also represents a challenge for health promotion workers not to exert power over individuals or a community in order to help them to make lifestyle changes or prevent diseases (ibid.). Laverack and Labonte (2000) claim that bottom-up and top-down approaches achieve the best health outcomes, if they are applied in a complementary way. Therefore, they developed a planning framework for community empowerment goals within health promotion involving elements of both approaches (ibid.). This framework is applied later in this thesis in chapter 6.

2.8 Settings approach

One main approach and strategy in health promotion, resulting from the application of the three strategies and five priority action areas, which are formulated in the Ottawa Charter, is the settings approach (Kickbusch 1996, in Dooris, 2006). The *settings approach* aims at reaching a total population of individuals in their *setting*, which comprises their living and working environment (Dooris et al., 1998). Through this approach, it is ensured that health promotion programs include environmental factors of the living and working environment, which people encounter in their everyday life, rather than only focusing on individual behavior (Kickbusch, 2003). Main settings, in which health promotion programs are applied are schools, companies, hospitals, cities, municipalities (Wills & Naidoo, 2003), prisons, universities, islands and marketplaces (Dooris, 2006). The settings approach gained popularity in the last two decades and

can contribute to health promotion planning to achieve a better health, particularly because of its complex approach (Dooris, 2006), trying to reach people on an individual and structural level (e.g. Rosenbrock & Gerlinger, 2004 in Faltermaier, 2005).

To increase the influence of the settings approach, Dooris (2006) faces three challenges, which have to be met. First of all, he claims that the theoretical base for the work in health promoting settings has to be clarified and defined (ibid.). Terms like *health promoting settings* or *healthy settings* have so far been used interchangeably without differentiating between method or context, which leads to confusion or misunderstandings (ibid.). Secondly, he finds it important to stay with the bigger picture when defining and working in a certain settings (ibid.). This means that health promotion programs, which are applied, for example, in the setting school, have to consider the neighborhood or community in which the school is located (ibid.). Finally, Dooris (2006) stresses the importance of producing evidence of effectiveness of setting-based health promotion.

In this thesis, the setting *neighborhood* stands central, as I will deal with two socially deprived neighborhoods in Denmark. The English Department of Health (DoH) (1999 in Naidoo & Wills, 2003) emphasizes that the social living environment has emerged as an important setting, since health problems can be solved by making a better use of social energies and local infrastructure. Furthermore, the living environment itself, can make major contributions to the health status (DoH, 1999 in Naidoo & Wills, 2003). Although several attempts have been made, the operationalizing of the term *neighborhood* represents a challenge (Stafford & McCarthy, 2006). According to Hillmann (1994 in Richter & Wächter, 2009), neighborhood refers to a geographically enclosed living environment and social relations, which result from the ecological condition of residing in the same place. In this thesis, two neighborhoods are taken into account, which can be identified as geographically defined areas. *Kvaglund* and *Korskærparken* are the names of those city districts characterized by, for example, social housing (Nue Møller et al., 2008; OECD, 2006).

There are several possibilities of starting points for health promotion workers, who want to achieve healthier conditions in neighborhoods (Naidoo & Wills, 2003). The improvement of the physical environment represents one field (ibid.). Air pollution, the level of noise, living quality, traffic and existent green areas can be regarded as action areas (ibid.). Furthermore, the social environment, social interactions, associations, groups, organizations and self-help activities can be assessed and taken into account (ibid.). Wilkinson (1996) has investigated several healthy communities and found that social cohesion, the presence of social networks and the active participation of citizens contributed to a better quality of life. A neighborhood with

good networks between people is known to be more likely to cooperate and achieve beneficial outcomes. This implies that a neighborhood has a good social capital (Baum, 2003). *Social capital* refers to the creation of alliances across differences (e.g. in Reid, 1997 in Baum, 2003) trust, acceptance, appreciation and respect for each other (Naidoo & Wills, 2003).

Several ethnic groups live in the investigated neighborhoods. In both areas, people with an ethnic background account for about 25%. That is why the creation of alliances across differences play an important role when developing interventions for the neighborhoods. Moreover, services offered in a neighborhood like grocery stores, a post office, health care services, churches, sport facilities, a community house, public transport and employees of social services, are of great importance in order to increase health and life quality (Baum, 2003).

3. RESEARCH QUESTIONS AND HYPOTHESES

Two explorative research questions serve as a guide through this study. Regarding the first research question, thirteen hypotheses were formulated based on the current state of research. To underpin the following research questions, I introduced and explained concepts, models and theories considering health and health promotion in the theoretical background. The theory has given the reader a basic understanding of perspectives on health and factors influencing health. Further on, different ways of measuring health were introduced and the subjective method used in this study was represented with its advantages and disadvantages. Moreover, the increasing problem of health inequalities was demonstrated, because two socially deprived neighborhoods are taken into account in this thesis. This first part of the theoretical background serves as general basis for the first research question:

1. *Which factors are associated with self-perceived health in the two socially deprived neighborhoods?*

Furthermore, hypotheses were formulated based on the state of research outlined above, in regard to the first research question, illustrated in Figure 3.

Hypothesis 1: Women perceive their health worse than men.

Hypothesis 2: People with an ethnic background perceive their health worse than people with a Danish background.

Hypothesis 3: Older people rate their health better than younger people.

Hypothesis 4: People with a lower education perceive their health worse than people with a higher education.

Hypothesis 5: People, who are not economically active, perceive their health worse than people, who are economically active.

Hypothesis 6: People, who experience economic deprivation, perceive their health as poor.

Hypothesis 7: Unemployment is a risk factor for poor self-perceived health.

Hypothesis 8: People, who perceive higher levels of stress, perceive their health as worse.

Hypothesis 9: People, who feel low control over their lives, perceive their health as poor.

Hypothesis 10: People with heavy drinking patterns perceive their health worse than people consuming a moderate amount of alcohol.

Hypothesis 11: Smokers have a poor self-perceived health status.

Hypothesis 12: A poor health status and harmful health behavior occur more frequently in deprived neighborhoods.

Hypothesis 13: Feeling safe in the neighborhood has a positive impact on self-rated health.

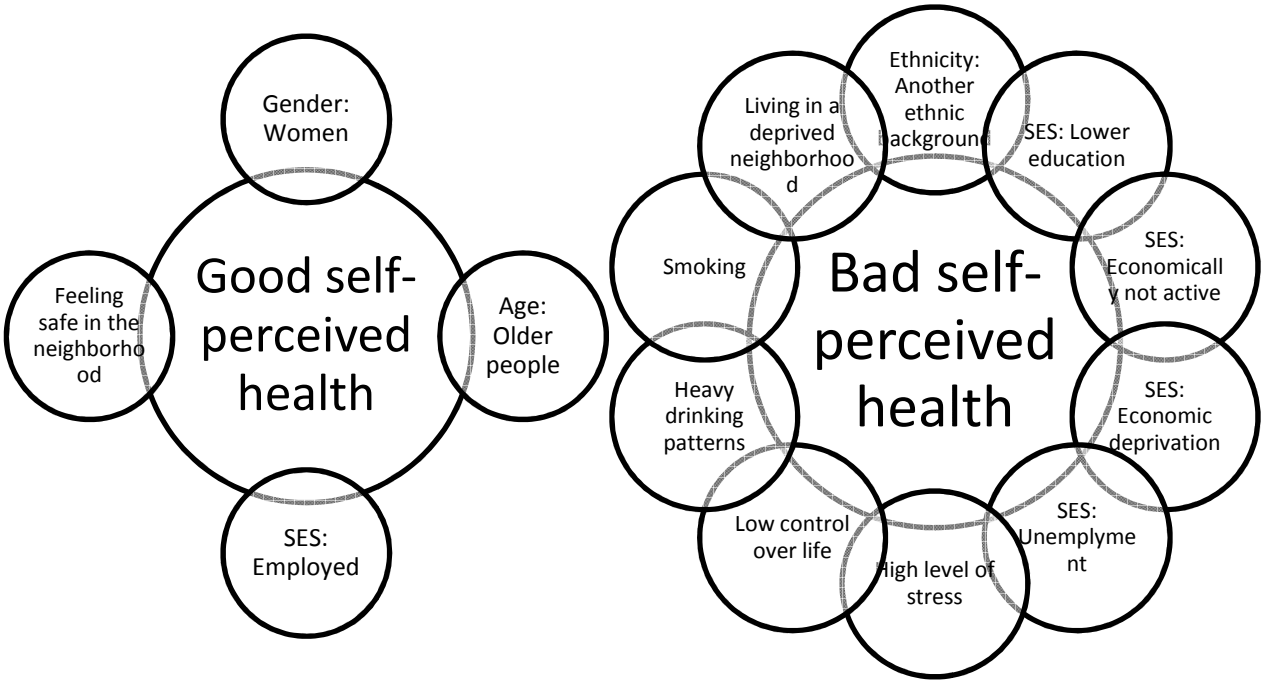

Figure 3. Factors influencing good and bad self-perceived health based on the generated hypotheses.

Moreover, concepts, theories and models in health promotion were considered in the theoretical background, with a special focus on the settings approach. This part of the theory provides the reader with a basic background understanding for the second research question:

2. *How can people, who perceive their health status as very bad or bad, be targeted through community interventions in the two socially deprived neighborhoods?*

4. METHODS

This study relies on two datasets of samples, which were gathered by Esbjerg and Fredericia municipality in two socially deprived neighborhoods. Both municipalities have an agreement with the University of Southern Denmark in Esbjerg to process the data.

Both researches, conducted in the neighborhoods, are imbedded in a comprehensive project called FELIS: Flerstrengede Evidensbaserede Lokale Indsatser for Sundhedsfremme (=multilevel evidence-based local interventions for health promotion), which started in 2008 and is supposed to run until 2013 (Andersen & Kronborg Bak, 2009). The survey questionnaires serve, first of all, as a pre-measurement in the FELIS project, and secondly, also as a fundament for the development of a health profile (ibid.). These health profiles are supposed to serve as a tool to plan, prioritize and implement interventions for prevention and health promotion (Skipper Hansen, 2010). It should provide a description of occurrences and distributions of health and illness leading to a broader picture of the current situation in both neighborhoods (ibid.).

Concerning the research in Esbjerg municipality, the preparation and planning of the examination, as well as first meetings of the different parties involved, took place in November 2008 (Skipper Hansen, 2010). A pilot test was conducted in January 2009, whereas the interviews were undertaken within four to five weeks in the time frame of March until April 2009. Finally, the insertion of the data into the SPSS matrix was finished in August 2009 (ibid.).In comparison, the preparation in Korskærparken began in February and March 2008, while the interviews were conducted in April until the end of June 2008 (Andersen & Kronborg Bak, 2009).

To get an impression of the extent of the study, Table 1 shows how many people reside in both municipalities and the deprived areas. Nearly half of all residents in Kvaglund were involved in the study, whereas in Korskærparken about every fifth person took part in the survey.

Tabel 1. Inhabitants in relation to participants in both areas. (Source: adapted from Statistics Denmark, 2010*; Andersen & Kronborg Bak, 2009**; Nue Møller et al., 2008***).

	Kvaglund (Esbjerg municipality)	**Korskærparken (Fredericia municipality)**
Inhabitants	2.420*** (115.129* residents)	1.842** residents (49.690** residents)
Number of people involved in the study	1160 (47.9%)	404 (21.9%)

To answer the first research question, the investigation of associations between self-perceived health and diverse factors, statistical analyses are conducted by the statistical program SPSS Version 18. Accordingly, the analyzed data and a literature research serve as a basis to answer the second research question, which comprises implications for appropriate community interventions (see Figure 4).

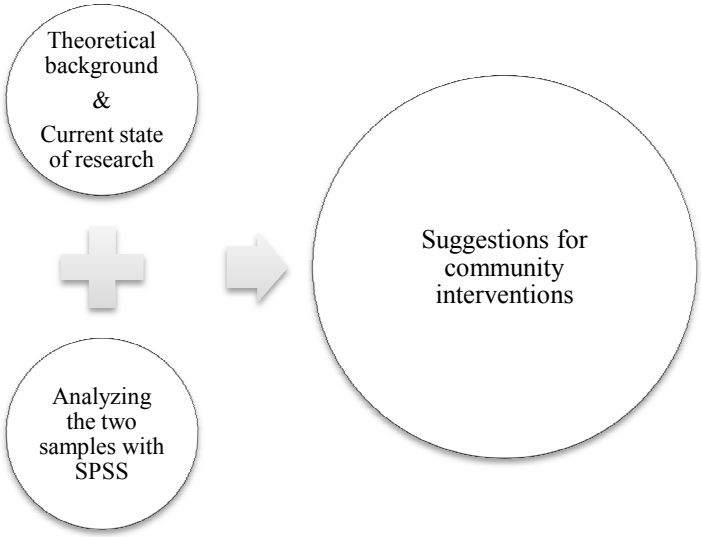

Figure 4. Steps of the research procedure in this thesis.

4.1 Dimensions of this research

The four dimensions and major types of social research described by Neuman (2006) will be addressed in this paragraph and applied to this thesis: audience for this research, use of this research, purpose, time dimension and finally data collection as well as analysis techniques.

Since, the first research question aims at understanding "the fundamental nature of social reality" (Neuman, 2006, p.24), it is referred to as *basic research*, which is primarily addressed to the scientific community as audience (Neuman, 2006). The second research question, in contrast, intends to tackle the improvement of the health status in the neighborhoods through community interventions, which is referred to as *applied research*, and is usually addressed to practitioners or decision makers (ibid.). The purpose of the research in this thesis is descriptive. *Descriptive research* aims at giving the reader a comprehensive impression of the research subject (Cottrell & McKenzie, 2010). In this thesis, descriptive measures about self-perceived health and its relations to other factors contribute to a detailed picture of the current situation in the two neighborhoods. Given that the information is gathered at a certain point of time, it is called

cross-sectional research (ibid.). The data collection technique is *quantitative,* using *surveys*, aiming at reaching a large number of people (Neuman, 2006) .

4.2 Data description

One dataset consists of 404 structured survey interviews conducted in Korskærparken (Fredericia) (Andersen & Kronborg Bak, 2009), while the other one relies on 1160 structured survey interviews conducted in Kvaglund (Esbjerg) (Skipper Hansen, 2010). The questionnaires were developed by the FELIS research group[8] in collaboration with the two municipalities (Andersen & Kronborg Bak, 2009). However, the health department of Esbjerg municipality also received comments from researchers of the University of Southern Denmark (Esbjerg) (ibid.). The questionnaires were used in structured interviews (ibid.). Both telephone and face-to-face interviews were conducted by Capacent[9], a Scandinavian consulting company (ibid.).

While 13.2% (153) of all interviews in Kvaglund were conducted as face-to-face interviews (Skipper Hansen, 2010), 9.9% (40) face-to-face interviews took place in Korskærparken (Andersen & Kronborg Bak, 2009). Most of the interviews took 20-25 minutes, whereas some participants needed more time (45-50 minutes) (Andersen & Kronborg Bak, 2009; Skipper Hansen, 2010). In both samples, participants with an ethnic background were asked if they preferred to conduct the interview in Danish or their mother tongue (ibid.). The questionnaire itself was not translated into other languages beforehand. If participants felt more comfortable with their mother tongue, bilingual interviewers or interpreters, translated the questionnaire during the interview (ibid.). For the purpose of this thesis, I translated the questionnaires into English[10] (see Appendix B and C).

In Kvaglund, face-to-face interviews were carried out by a health coach employed by Esbjerg municipality (Skipper Hansen, 2010). An interpreter assisted the health coach, if a translation was necessary (ibid.). Interpreters were recruited from the local environment, also by help of a local ethnic association called “Mosaikken”, which presents a meeting place for older ethnic residents (ibid.). That way, participants, who are normally hard to reach, could be acquired (ibid.). A pilot-test of the questionnaire was furthermore undertaken in Kvaglund with 25-30 non-western participants, by means of face-to-face interviews (ibid.). Some of them preferred to be interviewed at home, while others preferred the premises of “Mosaikken” (ibid.). The pilot-test focused, amongst others, on the effect and acceptance of sensitive subjects (for

[8] The contact person for the FELIS research project is Pernille Tanggaard Andersen at the University of Southern Denmark (ptandersen@health.sdu.dk).
[9] Read further about the company, available at http://www.capacent.dk/ (accessed August 20th 2010).
[10] Thank you, Mr. Kronborg Bak, for your help with the translation.

example the use of alcohol) (ibid.). In Korskærparken, no pilot test took place (Andersen & Kronborg Bak, 2009).

To make the data accessible for data analysis, it was inserted into a SPSS matrix. In this process, several parties concerning the Kvaglund sample were involved: Capacent was charged to type in the data of all telephone interviews, whereas the face-to-face interviews were keyed in by students from the University of Southern Denmark, who were employed by Esbjerg municipality, as well as other employees from Esbjerg municipality. Regarding Korskærparken, only Capacent was involved in the process of typing in the data (Andersen & Kronborg Bak, 2009).

4.3 The sample

Both research populations were selected by the respective municipality with the purpose of using the acquired data to develop interventions, which, in the long run aim at reducing social and health inequalities (Andersen & Kronborg Bak, 2009; Skipper Hansen, 2010).

Korskaerparken

The sample of this area (N=404) consists of 208 women (51.5%) and 196 men (48.5%). People between an age of 16 and 89 were included in the study. Further on, 167 persons (41.3%) indicate to live alone, whereas 237 indicated to live together with at least one person (58.7%). Regarding the whole sample, 286 people have a Danish background (70.8%), whereas 115 people have an ethnic background (28.5%): 103 with a non-western (89.6%) and 12 with a western background (10.4%). Moreover, 200 of all participants had a medium level of education (49.5%), whereas 148 have a high level (36.6%) and 56 a low level of education (13.9%).

Kvaglund

The sample size of the study population consists of 1160 people, 624 Women (53.8%) and 536 Men (46.2%), living in the neighborhood. The range of age is between 17 and 104. Furthermore, 735 people of the sample indicated to be living with a partner (63.4%), while 424 people indicate to be living alone (36.6%). A number of 851 people have a Danish background (73.4%), whereas 307 have an ethnic background (26.6%), 273 with a non-western (88.9%) and 34 with a western ethnic background (11.1%). A great amount of those people with an ethnic background come from Eastern Europe (n=82/26.7%), the Middle East (n=64/20.8%), Vietnam (n=41/13.4%) and Turkey (n=39/12.7%). Moreover, 1033 participants (89.1%) designated which

level of education they accomplished: 472 indicated to have a medium level (45.7%), while 218 participants designated to have a high level (21.1%) and 343 a low level of education (33.2%).

Tabel 2. Descriptive characteristics of the two neighborhoods.

Korskærparken	**N (Missing)**	**%**	**Kvaglund**	**N (Missing)**	**%**
Gender	404	100	**Gender**	1160	100
Men	196	49	Men	536	46
Women	208	51	Women	624	54
Age	399 (5)		**Age**	1160	
16-29	93	23	17-29	155	13
30-39	70	18	30-39	158	14
40-49	73	18	40-49	215	19
50-59	51	13	50-59	216	19
60-69	53	13	60-69	214	18
70+	59	15	70+	202	17
Living situation	404		**Civil status**	1159 (1)	
Living together	237	59	Married/Living together	735	63
Living alone	167	41	Single	424	37
Ethnicity	401		**Ethnicity**	1159	
Danish	286	71	Danish	851	73
Other background	115	29	Other background	308	27
Education	404		**Education**	1033	
High	148	37	High	218	21
Medium	200	50	Medium	472	46
Low	56	14	Low	343	33

4.4 Measurements

Two structured questionnaires served as the main tools in both research projects. *Structured* refers to the use of fixed questions during the interview with a participant, also meaning that the questionnaire is presented in the same manner to every participant - no matter whether the interview is conducted by telephone or face-to-face (Bowling, 2002). Both questionnaires were partly derived from the national health interview survey in 2005, called SUSY[11]: Sundheds- og sygelighedsundersøgelsen (Eriksen, 2006; Skipper Hansen, 2010; Andersen & Kronborg Bak, 2009), and furthermore supplemented with questions in regard to the deprived situation in both areas. The reason why a part of the questions was chosen from SUSY resulted from the opportunity to then make a comparison between the results (Skipper Hansen,

[11] Sundheds- og sygelighedsundersøgelsen (SUSY) = Health and illness survey

2010). Table 3 shows the structure of the questionnaire referring to the range of topics, which was investigated.

Tabel 3. Structure of the questionnaires. (Source: adapted from Davidsen, 2006, p.18).

Korskærparken	**Kvaglund**
Demographic factors	Demographic factors
Socioeconomic factors	Socioeconomic factors
Psychological factors	Psychological factors
Illness-related factors	Illness-related factors
Health risk factors	Health risk factors
Social and community network factors	Social and community network factors
	Health services and medication

Self-perceived health was measured by the question, "How do you perceive your current general health status?", on a five-point scale as very good, good, fair, bad, rather bad, which is illustrated in Figure 5. For binary logistic regression analyses, self-perceived health was dichotomized into (very) good and fair self-perceived health, plus (very) bad health.

Figure 5. Five-point scale of self-perceived health.

Table 4 shows further examples of questions asked, answer options and the manner of categorization. A complete table including all questions can be found in Appendix D and E.

Tabel 4. Examples of questions asked (Source: adapted from the questionnaires, see Appendix B-E)

Variable Label	**Question**	**Answer options**	**Categorized into**
Self-perceived health	How do you perceive your current general health status?	Really good, Good, Fair, Bad, Very bad	0 = (Very) good, Fair; 1 = (Very) bad
Gender	Are you male or female?		1 = Men; 2 = Women
Age	How old are you?		1 = 16**17*-29; 2 = 30-39; 3 = 40-49; 4 = 50-59; 5 = 60-

			69; 6 = 70+
Civil status*	What is your civil status?	Marriage, Living together, Alone, Widow, Divorced or separated, Stopped living together	1 = Married, Living together; 2 = Alone, Widow, Divorced or separated, stopped living together
Living situation**	What is your civil status?	Living alone, living with spouse/long-time partner, share a flat, living with parents, Don't want to answer	1 = Living with spouse/long-time partner, share a flat, live with parents; 2 = Living alone
Ethnicity	What is your ethnic background?		1 = Danish; 2 = An ethnic background
Education	What is your last completed education?	Primary school, Apprenticeship for adolescents, Apprenticeship, Short further education, Medium-long further education, Long further education, Other short education	1 (High education) = medium-long and long further education; 2 (Middle education) = Short further education, Apprenticeship, Apprenticeship for adolescents); 3 (Low education) = Primary school, Other short education
Occupational status**	What is your current occupation?	Self-employed, Skilled worker, Unskilled worker, Businessman, Physician Office assistant or Teacher, Early retired because of illness or handicap, Homekeeper or Housewife, People on benefit payment, Pensioner or Premature pensioner, Other	-
Economic situation	What do you and your family have left to live for, after you have paid all living expenses covering recurring costs /fixed costs referring to one month?	0-999 Danish Kroner (Kr.)12, 1000-1999 Kr., 2000-2999 Kr., 3000-3999 Kr., 4000-4999 Kr., 5000-5999 Kr., 6000-6999 Kr., 7000-7999 Kr., 8000-8999 Kr., 9000-9999 Kr., Over 10.000 Kr., I don't want to answer	1 = 0-2999 Kr.; 2 = 3000-5999 Kr.; 3 = 6000-9999 Kr., 4 = Over 10.000 Kr.
Economic deprivation	Were you or your family not able to do one of the following activities due to economic reasons during the last few months?	None of the things**, Paying bills, Paying for unpredictable expenses, Paying for leisure interests, Buying presents, Go to the dentist, Buying necessary medication, Buying clothes	A scale was computed. 0 = None; 1 = The person had ticked one of the questions; 2 = The person had ticked 2 or 3 of the questions; 3 = the person had ticked 4 or more of the questions
Unemployment	Have you been unemployed during the last 3 years?	No, Yes but less than 3 months, Yes 3 months to one year, Yes 1-2 years, Yes more than 2 years	1 = No; 2 = Yes less than 3 months to more than 2 years
Stressors	Did you feel stressed due to one or some of the following things in the last 12 months?	None of the things**, Your economic situation, Your living situation, Your work situation or unemployment, Relation to your partner or children, Your bad health, Sickness of your partner, family or close friends	A scale was computed. 0 = No stressor was ticked; 1 = 1 Stressor was ticked; 2 = 2-3 stressors were ticked; 4 = 4 and more stressors were ticked
Self-perceived	Perceived Stress Scale	0=Never, 1 = Almost never,	Questions are summed up

[12] 1 Danish Kroner is equivalent to 0,13 Euro; 1000 Kr. are equivalent to 134 Euro.
(Source: http://www.bankenverband.de/waehrungsrechner accessed on August 13th 2010)

stress*	(PSS) comprising 10 question	2=Sometimes, 3=Fairly often, 4= Very often	(0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often) while the scores of question 4,5,7 and 8 are reversely counted (0=4, 1=3, 2=2, 4=0) A score between 0 and 40 can be obtained.
Loneliness	Do you sometimes feel alone even though you would like to be with others?	Yes often, Yes every now and then, Yes but rarely, No	1 = Yes often and every now and then; 2 = Yes rarely and No
Interaction with family	How often do you meet with your family?	Daily or rather daily, Once or twice a week, Once or twice a month, Rarely, Never	1 = Daily or rather daily and once or twice a week; 2 = Once or twice a month, rarely and never
Health Locus of control**	Do you think you can do something to stay in good health?	Yes I think my own input is very important, Yes I think my own input is important, Yes I think my input is a bit important, No	1 = I think my own input is (very) important; 2 = My own input is a bit important and No

*Kvaglund **Korskærparken

4.5 Statistical Analysis

SPSS Version 18 was used for the statistical analysis with a maximum significance level set at 0.05. Before I started working with the datasets, I cleaned the datasets by checking the categories of all variables for impossible codes. *Cleaning data* involves, for example, to check whether any not logical numbers are entered in the dataset, for instance, finding a three as a code for gender, if men are coded one and women two (Neuman, 2006). Further on, I applied another technique called *contingency cleaning* (ibid.). By means of this technique, I controlled variables like occupation (being economically active/being economically not active) which are computed on the basis of another variable (occupational status: self-employed, skilled worker, pensioner etc.) (ibid.). Eventually, frequencies and descriptive analyses were conducted to get an impression of the data and basic patterns, as well as the relation between the independent variable of self-perceived health and other variables. Generally, the *independent variable* represents the effect or outcome of one or more variables, which are referred to as *dependent variables* (Cottrell & McKenzie, 2010). For the matter of descriptive analyses, the outcome variable self-perceived health was divided into three categories: (very) good, fair and (very) bad self-perceived health. In addition, correlations were computed to investigate the associations between the different factors and self-perceived health (see Appendix F and G). Further on, odds ratios (OR) for (very) good and fair as well as (very) poor self-perceived health were calculated using binary unadjusted logistic regression analyses as well as multiple adjusted logistic regression analyses, adjusting for gender, age, civil status, ethnicity and education. (Very) good and fair self-perceived health was coded 0, whereas (very) bad self-perceived health was coded

1. The analyses aimed at finding differences between those, who perceived their own health as better or worse regarding a range of variables available in the two datasets. In this research, an odds ratio of 1 implies that a (very) bad self-perceived health status is equally likely in all groups, whereas an odds ratio higher than 1.00 implies that a (very) bad self-perceived health status is more likely in the group than in the reference group (Field, 2009). In contrast, an odds ratio lower than 1.00 indicates that a (very) bad self-perceived health status is less likely in the group than in the reference group (ibid.). Please note that in some cases the OR could not be calculated resulting from the small number of people in the group (ibid.).

4.7 Quality of the data

In this thesis, secondary analysis is applied, which means that I was not involved in planning the research or collecting the data. In this respect, secondary analysis refers to the re-analysis of existing data, which was collected by another researcher or organization (De Vaus, 2002 in Allum & Arber, 2008). In my case, the University of Southern Denmark in Esbjerg placed the primary data at my disposal. The advantage of secondary analysis is, that it is relatively inexpensive and allows the researcher to analyze the existing dataset from a point of view, that the original researcher(s) did not consider (Neuman, 2006). Nevertheless, the data has to be considered with caution, as different parties were involved in preparing the examinations in both neighborhoods and processing the data, which might have lead to a loss of data and information. Finally, in every research, threats to reliability and validity have to be considered carefully (Field, 2009). While reliability refers to the consistency of the measuring tool, here the questionnaire, across different situations, validity indicates whether the measuring tool really measures what it is supposed to measure (ibid.).

Test-retest and inter-rater reliability as well as internal consistency need to be tested to make an assertion about the reliability of the questionnaire (Bowling, 2002). The test-retest reliability measures if the questionnaire is a stable instrument over a period of time, questioning if the responses to the scales can be reproduced (ibid.). This cannot be tested here, as the data is of cross-sectional design and a pilot test was only conducted in Kvaglund shortly before the actual examination started. Moreover, inter-rater reliability measures to what degree the results obtained by two or more interviewers resemble for the same samples (ibid.). As interviewing requires sensitive communication skills (ibid.), it has to be considered that interviewers have had different effects on the interviewees and consequently on their answers. This phenomenon is also referred to as interviewer bias (ibid.). Unfortunately, the company, which conducted the interviews, Capacent, did not mark which interviews were conducted by which interviewers, or

how many interviewers were involved, so the inter-rater reliability cannot be assessed. The third important indicator of reliability is internal consistency, which can be assessed when testing for homogeneity (ibid.). It can be tested with the statistical measure of Cronbach's alpha, which is the most common measure of scale reliability (Field, 2009). However, as far as I know, internal consistency was not tested for both questionnaires. Only the Perceived Stress Scale (Cohen, Kamarck & Mermelstein, 1983), which was included in the questionnaire in Kvaglund, is proven as a valid and reliable instrument on its own (Cohen et al., 1983). The PSS had a Cronbach's alpha of 0.82 in this research, which indicates good internal consistency. The scale has furthermore been translated into Danish and Cohen and his colleagues, accepted this translation (Olsen, Mortensen & Bech, 2004 in Nielsen et al., 2008).

Further on, the different types of validity are regarded. A distinction is made between internal and external validity. Internal validity is met if the instrument is repeatedly tested in the populations for which it was designed (Fink, 2003). As the questionnaires applied in the two neighborhoods are not identical, internal validity is not met. External validity refers to the generalizability of the findings to a broader context (Fink, 2003). In this respect, the results of this study can be generalized concerning other socially deprived areas in Denmark - not to other countries, or other areas in Denmark, which are better off. Finally, it has to be bore in mind, that some people did not answer all questions resulting in missing data and posing a threat to validity (Allum & Arber, 2008). For example, 297 participants (24.1%) in Kvaglund and 104 participants in Korskærparken (25.7%) did not indicate their economic situation. As I do not know if these participants are the ones, who have a low or a high amount of money, analyses including this variable have to be regarded with wariness. Beyond this, in the sample of Korskærparken, the answer option "No" was sometimes coded as a point instead of a number, which lead to the fact, that missing data, which was also coded with a point, could not be differentiated from the answer option "No". This is applicable for the following variables: long-term illness, pain or discomfort in the last 14 days, interaction with friends, interaction with family, loneliness, stressors, alcohol consumption, smoking, general physical activity and improve health. In conclusion, missing data cannot be identified and consequently bias the results.

Beyond this, there is no information about the response rate, which comprises the number of people who take part in the study divided by the number of people eligible for the study (Fink, 2003). Accordingly, the quality of data is threatened, as differences in the characteristics of responders and non-responders are not known.

Moreover, the advantages and disadvantages of using structured interviews by telephone and face-to face are considered. Conducting the surveys in the form of interviews has several

advantages: The interviewer makes sure that all questions are answered and that it is one interviewee, who answers the questions (Neuman, 2006). Interviews conducted on the telephone have the advantage that they are time saving (Bowling, 2002) and costs are moderate in comparison with face-to-face interviews, which are very expensive considering travel costs, training, supervision and personnel expenses (Neuman, 2006). Considering sources of bias, face-to-face interviews, bear a higher chance of an interviewer bias as well as a phenomenon called social desirability bias, in comparison to telephone interviews (Neuman, 2006). A social desirability bias happens, if participants aim at presenting themselves on their best behavior and answer the questions with keeping in mind to appear particularly advantageous (Bowling, 2002). In both researches, high costs for interpreters and bilingual interviewers have also to be bore in mind.

Concerning the translation of the questions by those interpreters or bilingual interviewers, it has to be noted, that words and phrases contain a cultural meaning (Angel & Guarnaccia, 1989 in Idler & Benyamini, 1997) and have to be thoroughly translated with regard to the adequate meaning. Angel and Guarnaccia (1989 in Idler & Benyamini, 1997) give an example illuminating this phenomenon concerning Spanish and English participants. They report about how participants, who followed an interview in Spanish rated their health more poorly than the ones, who conducted the interview in English (ibid.). Interestingly, this difference in self-reported health was attributed to cultural perceptions (ibid.). Of course, those differences also have to be taken into consideration in this research, as some interviews were conducted in other languages.

In addition, different types of biases can jeopardize the results (Bowling, 2002). One bias, which can occur when investigators have a great interest in publishing significant results, a publication bias (ibid.), is counteracted by delegating the execution of the interviews to the consulting firm Capacent. Furthermore, when participants are aware of being studied, a bias can take place which is often referred to as Hawthorne effect (Bowling, 2002). This awareness can, for instance, evoke the reinforcement of a good or bad self-expression (ibid.). Concerning the research in Korskærparken, one example would be that people talk down their living situation because they expect action from local authorities. It is difficult to make assertions about the extent of this bias, as it seems to depend on the subjective assessment from the interviewer.

Regarding the outcome-variable self-perceived health in this thesis, the fixed five-point scale with the answer option very good, good, fair, bad, very bad, can also have an influence on the participants. This becomes more clear when considering that in other examinations, for example in a national survey in Canada (Statistics Canada, 2006) the following answer options

were used: Excellent, very good, good, fair, bad. It is obvious that answer options indicating a good health overweigh in this Canadian example.

Finally, the program used to analyze the datasets is taken into account. The Statistical Package for the Social Sciences (SPSS) was chosen, because it is the most popular for straightforward analyses (Norusis, 1993 in Bowling, 2002).

5. RESULTS

In the following section, the results will be presented. First, descriptive results about the two socially deprived neighborhoods, comprising of 1160 respectively 404 participants, will be illustrated, also in comparison to results from the Danish national health survey SUSY[13] (Eriksen, 2006). Moreover, the odds ratios potentially associated with self-perceived health are presented, showing which factors influence the self-rated health status, as well as to what degree. Both neighborhoods are taken into account separately, followed by a brief description of similarities and differences concerning the two socially deprived areas.

5.1 Descriptive results

As illustrated in Figure 6, very good and good self-perceived health was about 20% lower in the two socially deprived neighborhoods compared to the results of SUSY, which considered 14.566 people in whole Denmark (Eriksen, 2006). Further on, only 20.5% of the people, who participated in SUSY (ibid.) perceived their health as fair, bad and very bad, whereas about double of the participants in the two disadvantaged neighborhoods felt this way (Korskærparken 38.1% and Kvaglund 42.1%). In addition, 5-7% more of the people, who live in the two neighborhoods indicated to smoke, compared to the whole Danish population, in which about 30% indicated to be daily smokers (ibid.). Moreover, about 11% of Danes reported to have a lot of overweight (ibid.). In relation to the deprived areas, one area (Korskærparken) comprises a same percentage of 11%, while there are 18% of people, having a lot of overweight, in the other neighborhood (Kvaglund). Concerning the level of physical activity, 4% of the people residing in the socially deprived areas indicated to be physically less active than the Danes in general (ibid.). Accordingly, these findings support hypothesis 12, which states that a poor health status and harmful health behavior occurs more often in deprived neighborhoods.

Concerning gender, very good and good health was perceived more often by men than by women in both areas, supporting Hypothesis 1. Looking at Figure 7, it is noticeable that the differences within the neighborhoods were bigger in the one area of Korskærparken. Regarding civil status respectively the living situation in Figure 8, both samples show that the health status was perceived in a better way by married people or people living together, than by singles or people living alone. Nevertheless, it has to be bore in mind, that a lot of the people, who are single or live alone perceive their health as fair - and not as bad.

[13] Sundheds- og sygelighedsundersøgelsen (SUSY) = Health and illness survey

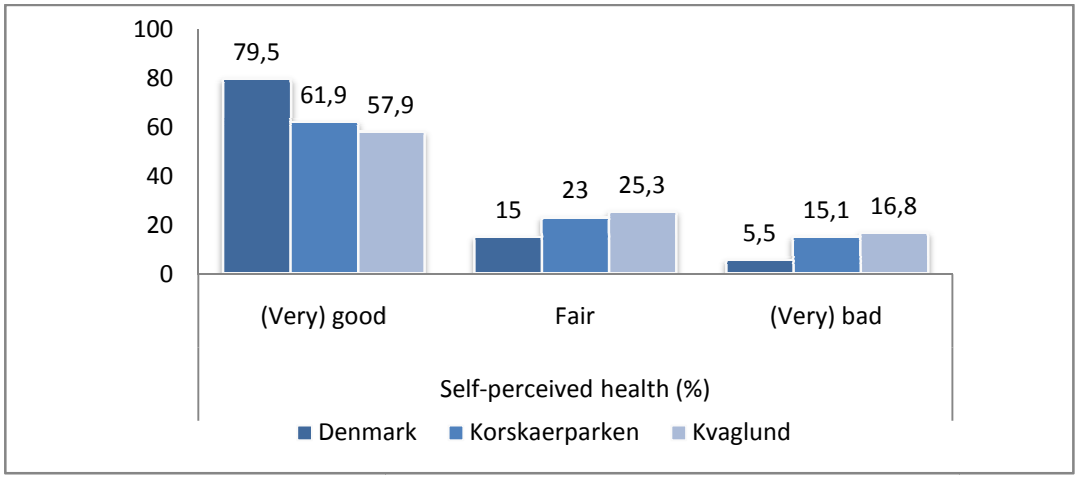

Figure 6. Self-perceived health in Denmark. (Source: adapted from Eriksen, 2006).

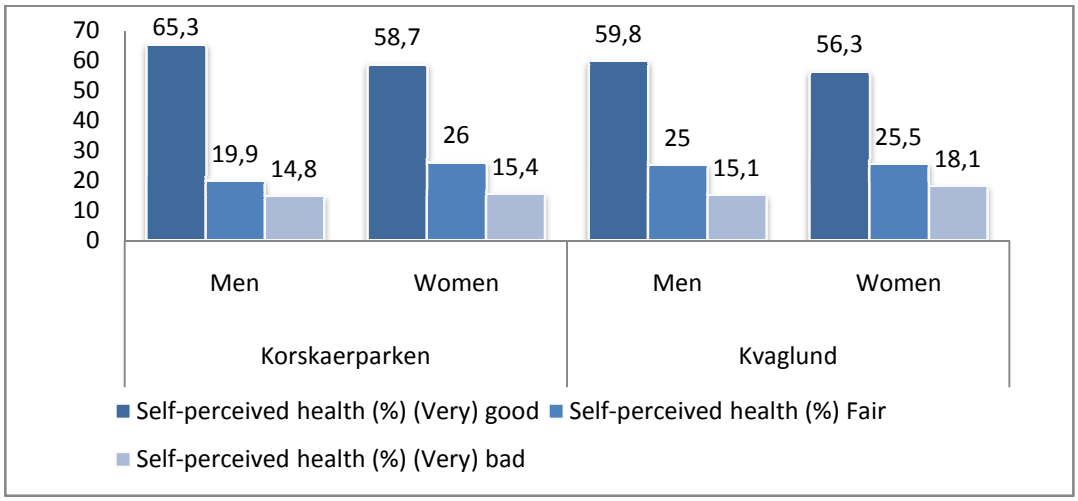

Figure 7. Self-perceived health in the two neighborhoods differentiated by gender.

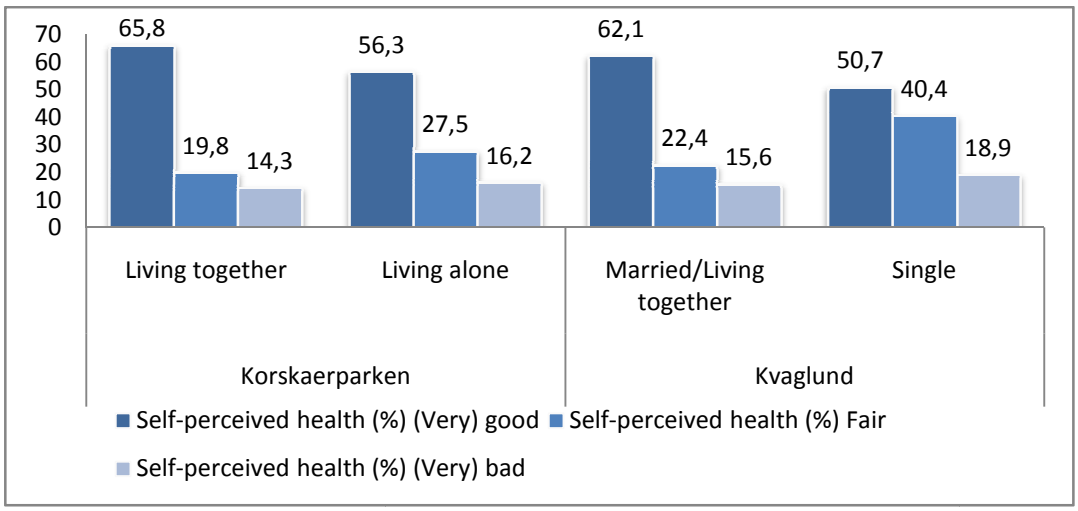

Figure 8. Self-perceived health in the two neighborhoods differentiated by civil status.

Taking Danish inhabitants and inhabitants with an ethnic background into account, two tendencies can be observed regarding Figure 9. Whereas in the one neighborhood, Korskærparken, people with an ethnic background perceived their health as better, in Kvaglund the opposite is the case. In both areas, it is surprising that there is a difference of about 9%, considering (very) good self-perceived health of Danish participants and people with an ethnic background. Hypothesis 2, which states that people with an ethnic background perceive their health better than people with a Danish background, can thus neither be supported nor disproved.

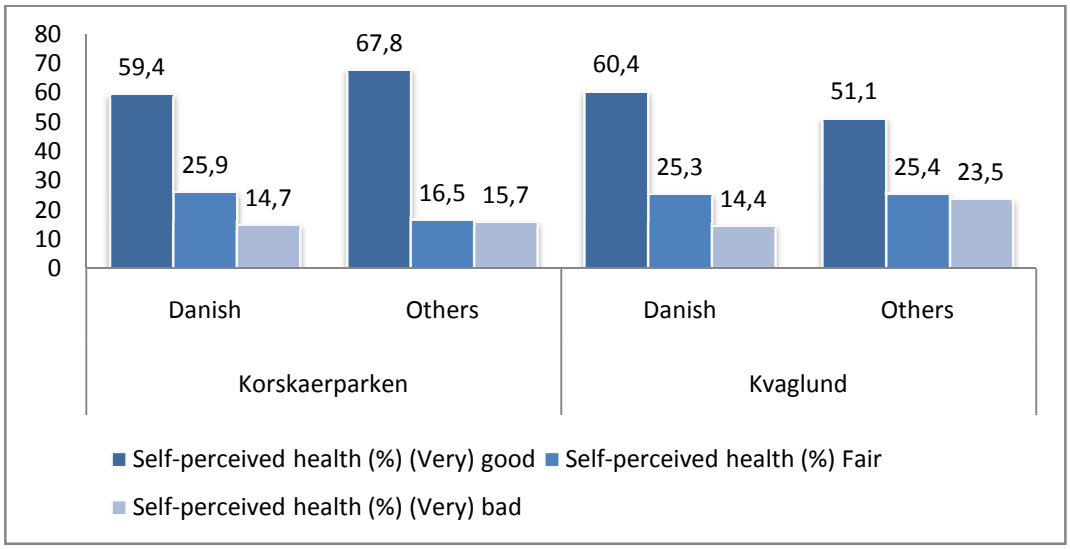

Figure 9. Self-perceived health in the two neighborhoods differentiated by ethnic background.

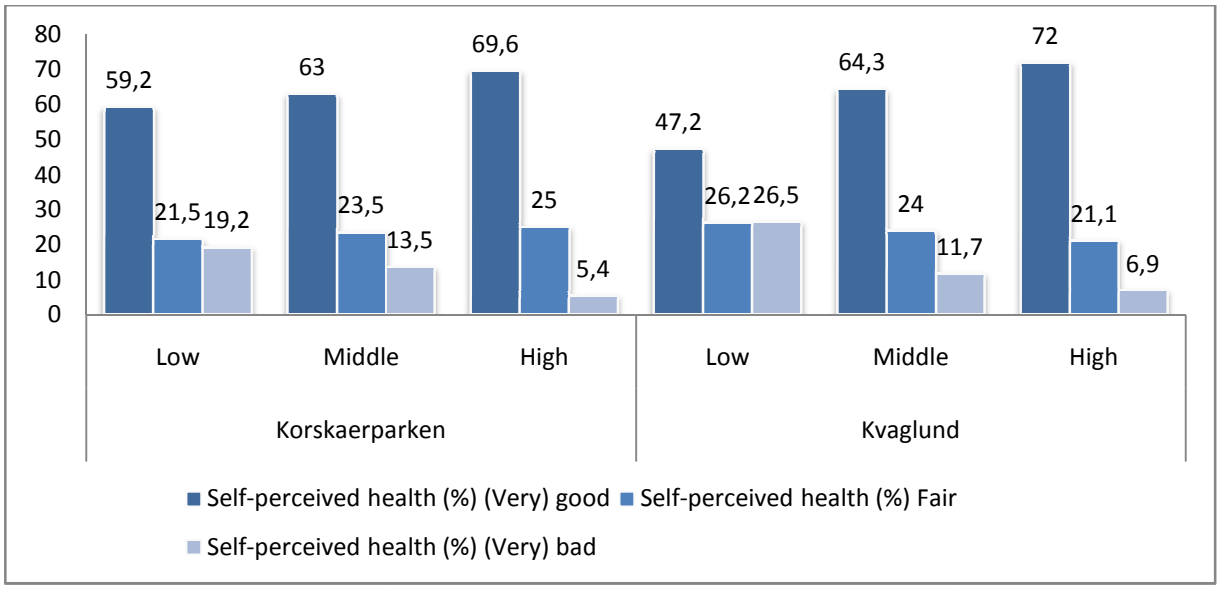

Figure 10. Self-perceived health in the two neighborhoods differentiated by education.

Concerning education, an increasing health status was associated with an increasing level of education, which is depicted in Figure 10, which is in line with Hypothesis 4. People, who

have a medium or high level of education had an almost similar perception of their health in both neighborhoods. It emerged that people with a low level of education are worst off in Kvaglund, since 27% of them perceived their health as very bad and bad compared to 19% in the other neighborhood and only 5.5% in whole Denmark.

Summary

The descriptive results show, that people, who live in the two deprived neighborhood perceived their health worse than people living in other parts of Denmark. It also emerged, that smoking and a low level of physical activity is more prevalent in the deprived areas than in Denmark. Additionally, a lot of overweight appeared to be much more frequent in one of the neighborhoods in comparison with Denmark. Furthermore, men perceived their health as better than women, and so did people, who were married or lived together. Concerning ethnicity, the findings indicate oppositional results about the perception of health regarding people with a Danish and people with an ethnic background. Finally, the data about education indicates that people with a high level of education perceived their health better than the ones with a low level of education.

5.2 Determinants of health in the neighborhoods

Kvaglund

The results of the multiple adjusted regression analyses, which were adjusted for gender, age, civil status, ethnicity and education showed significant associations between self-perceived health and the following variables: age, ethnicity, education, occupational status, occupation, economic situation, economic deprivation, unemployment, sick leave, perceived stress, stressors, loneliness, diet (sweets, chocolate, chips and cake), general physical activity, smoking, Body Mass Index (BMI), long-term illness, and finally pain or discomfort in the last 14 days.

Demographic factors

In total 83.2% of the whole sample perceived their health as very good, good and fair (see Table 5). This is 11% less in comparison with the population in whole Denmark. Regarding demographic factors, men perceived their health better than women, which approves Hypothesis 1. Further on, married people or people, who were living together, perceived their health better than singles, although no significant difference was found. However, significant differences were detected for age ($p=0.000$) and ethnicity ($p=0.006$). As self-perceived health decreased with

increasing age, people aged 30-39 had an almost three times higher chance (odds ratio (OR)=2.93) of perceiving their health worse (OR = 2.93). Moreover, people aged 70 and older had a nearly eight times higher chance (OR=7.75). These findings disprove Hypothesis 3, which states that older people rate their health better than younger persons. People with an ethnic background emerged to be at risk in this neighborhood and have an almost double chance of perceiving a (very) bad health status (OR=1.87), thus corroborating Hypothesis 2.

Tabel 5. Odds ratios for demographic factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR (95% CI)**
Total	1158(2)	83.2		
Gender	1158(2)			
Men	535	84.9	1.00 (Reference)	1.00 (Reference)
Women	623	81.9	1.24 (0.91-1.7)	1.13 (0.79-1.62)
p-value			0.174	0.5
Age	1158(2)			
17-29	155	95.5	1.00 (Reference)	1.00 (Reference)
30-39	158	89.9	2.38 (0.95-5.96)	2.93* (1.11-7.77)[14]
40-49	214	82.7	4.42* (1.91-10.21)	5.15* (2.13-12.43)
50-59	216	79.6	5.41* (2.37-12.37)	6.15* (2.54-14.85)
60-69	214	79.4	5.47* (2.39-12.52)	6.83* (2.83-16.5)
70+	201	77.1	6.28* (2.75-14.34)	7.75* (3.23-18.62)
p-value			0.000*	0.000*
Civil status	1157(3)			
Married/Living together	733	84.4	1.00 (Reference)	1.00 (Reference)
Single	424	81.1	1.26 (0.92-1.73)	1.3 (0.90-1.87)
p-value			0.348	0.158
Ethnicity	1157(3)			
Danish	850	85.6	1.00 (Reference)	1.00 (Reference)
Others	307	76.5	1.83* (1.32-2.53)	1.87* (1.19-2.94)
p-value			0.000*	0.006*

[14] Significant results are tagged with a star.

Socioeconomic factors

Taking socioeconomic factors into consideration (see Table 6), it is striking that all of them are significantly associated with self-perceived health (p=0.000/p=0.001). Having a low level of education compared to a high level of education, bore a fourfold risk of perceiving a (very) bad health status (OR=4.37), which corroborates Hypothesis 4. When looking at occupational status, the most salient results concern the early-retired because of handicap or illness (OR=19.73) and the unemployed people (OR=10.4). People, who were economically not active emerged to have a thirteen times higher risk (OR=12.82) of perceiving worse health in comparison to people, who were economically active, which approves Hypothesis 5. Regarding the economic situation, self-perceived health decreased with the decreasing amount of money, which people have at their disposal. Economic deprivation was overall significantly associated with self-perceived health: people, who indicated to be economically deprived perceived their health as worse, which approves Hypothesis 6. However, only a fairly economic deprivation bore a significantly higher risk of perceiving a worse self-perceived health status (OR=3.88). Considering the analyses of unemployment and sick leave in the last three years, only participants in the age range of 17-69 were included, trying to take pensioners into account, who are not working any more. As a result, both people who have been unemployed or were on sick leave in the last three years, appeared to have a significantly higher risk of perceiving their health as (very) bad (OR=4.87 and OR=3.47), supporting Hypothesis 7.

Tabel 6. Odds ratios for socioeconomic factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR (95% CI)**
Education	1031(129)			
Low	162	73.5	4.88* (2.7-8.7)	4.37* (2.42-7.89)
Middle	302	88.3	1.79 (0.99-3.25)	1.78 (0.98-3.26)
High	157	93.1	1.00 (Reference)	1.00 (Reference)
p-value			0.000*	0.000*
Occupational status	1093(67)			
Employee	409	96.1	1.00 (Reference)	1.00 (Reference)
Self-employed	20	100	0.000 (0.000 - .)	0.000 (0.000-.)
Houseman/woman	22	81.8	5.46* (1.66-18.0)	6.7* (1.77-25.42)
Parental leave	11	90.9	2.46 (0.3-20.37)	4.94 (0.53-45.77)
Studying	84	97.6	0.6 (0.24-2.66)	0.46 (0.05-3.83)

Pensioner	281	78.3	6.81* (3.83-12.1)	6.49* (2.61-16.11)
Early-retired	40	85	4.34* (1.59-11.8)	5.05* (1.53-16.67)
Early-retired because of handicap or illness	115	48.7	25.88* (13.9-48.07)	19.73* (9.58-40.64)
Unemployed	109	68.8	11.14* (5.85-21.19)	10.4* (4.75-22.75)
p-value			0.000*	0.000*
Occupation	1093(67)			
Economically active	429	96.3	1.00 (Reference)	1.00 (Reference)
Economically not active	664	74.8	8.71* (5.13-14.79)	10.60* (5.60-20.07)
p-value			0.000*	0.000*
Economic situation	863(279)			
0-2999 Kr.	178	70.2	1.00 (Reference)	1.00 (Reference)
3000-5999 Kr.	289	78.9	0.63* (0.41-0.97)	0.55* (0.33-0.93)
6000-9999 Kr.	223	88.8	0.3* (0.18-0.50)	0.29* (0.15-0.55)
Over 10.000 Kr.	173	96	1.00* (0.04-0.23)	0.11* (0.04-0.28)
p-value			0.000*	0.000*
Economic deprivation	1138(22)			
None	951	85.5	1.00 (Reference)	1.00 (Reference)
One	92	77.2	1.74* (1.04-2.93)	1.45 (0.74-2.85)
Fairly	66	68.2	2.75* (1.59-4.76)	3.88* (1.96-7.71)
A lot	29	65.5	3.10* (1.41-6.81)	1.92 (0.75-4.94)
p-value			0.000*	0.001*
Unemployment	906			
Never been unemployed	682	90.5	1.00 (Reference)	1.00 (Reference)
Unemployed for less than 3 months - more than 2 years	224	72.3	3.63* (2.46-5.36)	4.87* (3.00-7.99)
p-value			0.000*	0.000*
Sick leave	914			
Never been on sick leave	672	89.7	1.00 (Reference)	1.00 (Reference)
Having been on sick leave for less than 3 months - more than 1 year	242	76	2.76* (1.87-4.05)	3.47* (2.21-5.46)
p-value			0.000*	0.000*

Psychological factors

Self-perceived stress, which was measured by the Perceived Stress Scale (PSS) (Cohen et al., 1983), was significantly associated with self-perceived health (p=0.000), as demonstrated in Table 7. People, who scored between 13 and 16 points, had a two times higher risk of perceiving (very) bad health (OR=2.14), while people scoring between 17 and the highest score 40 bore a

six times higher risk (OR=6.1), approving Hypothesis 8. When considering another categorization of the PSS and taking the 20% of the sample, who scored the highest on the PSS, an OR of 4.09 could be ascertained. Regarding psychological factors, stressors were taken into consideration. A significant association between stressors and self-perceived health was found (p=0.000), which indicates that self-perceived health decreased with an increasing amount of stressors. Especially the last category of four and more stressors implied a much higher risk of perceiving bad health (OR=15.54).

Tabel 7. Odds ratios for psychological factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR (95% CI)**
Stress (PSS)	1082(78)			
High perceived stress (0-6 points)	301	89.7	1.00 (Reference)	1.00 (Reference)
High perceived stress (7-9 points)	216	91.2	0.84 (0.46-1.53)	1.04 (0.55-1.95)
High perceived stress (10-12 points)	201	88.1	1.18 (0.67-2.08)	1.51 (0.82-2.81)
High perceived stress (13-16 points)	172	85.5	1.48 (0.84-2.6)	2.14* (1.15-4.01)
High perceived stress (17-40 points)	192	65.6	4.56* (2.83-7.35)	6.1* (3.49-10.65)
p-value			0.000*	0.000*
Highest 20% Stress	227	68.3	3.81* (2.68-5.42)	4.09* (2.7-6.17)
Lower 80%	855	89.1	1.00 (Reference)	1.00 (Reference)
p-value			0.000*	0.000*
Stressors	1147(13)			
No Stressors	432	91.7	1.00 (Reference)	1.00 (Reference)
1 Stressor	310	80.6	2.64* (1.7-4.11)	3.48* (2.11-5.75)
2-3 Stressors	322	79.8	2.78* (1.8-4.3)	4.02* (2.36-6.84)
4 and more Stressors	83	63.9	6.23* (3.55-10.93)	15.54* (7.44-32.48)
p-value			0.000*	0.000*

Illness-related factors

As shown in Table 8, both illness-related variables included in the analyses were identified as significant determinants for self-perceived health (p=0.000). With an increased

number of pains or discomforts in the last 14 days and long-term illnesses, self-perceived health decreased. Only 44.1% of people, who experienced 9-14 pains or discomforts in the last 14 days perceived their health as (very) good and fair. This percentage is more than 50% lower than the one for people, who did not perceive any pain or discomfort in the last 14 days (96%). Concerning long-term illness, it is striking that people, who suffered from at least one, had an 11 times higher risk of perceiving their health as (very) bad (OR=11.08).

Tabel 8. Odds ratios for illness-related factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Pain or discomfort in the last 14 days	1149(11)			
No pain	150	96	1.00 (Reference)	1.00 (Reference)
1-2 pains or discomforts	371	94.6	1.37 (0.54-3.48)	1.11 (0.42-2.92)
3-4 pains or discomforts	280	86.1	3.88* (1.61-9.4)	3.62* (1.46-8.96)
5-8 pains or discomforts	255	71.4	9.63* (4.07-22.76)	8.51* (3.51-20.66)
9-14 pains or discomforts	93	44.1	30.44* (12.21-75.89)	24.72* (9.17-66.61)
p-value			0.000*	0.000*
Long-term illness	1119(41)			
No	340	97.6	1.00 (Reference)	1.00 (Reference)
One - 12	779	77.2	12.29* (5.98-25.28)	11.08* (4.76-25.8)
p-value			0.000*	0.000*

Health risk factors

Considering behavioral and physical health risk factors, significant associations were found for diet (sweets, cake, chips, chocolate) with an overall p-value of 0.027, smoking (p=0.001), alcohol consumption per occasion (p=0.000) and general physical activity (p=0.000), which is depicted in Table 9. Supporting Hypothesis 11, not smoking had a protective effect on self-perceived health, whereas the effect was slightly bigger for people, who had never smoked, compared to people, who had stopped smoking (Never smoked: OR=0.46 and Ex-smoker: OR=0.58). Drinking more than five glasses per occasion either rarely or never also had a positive impact on self-perceived health (Rarely: OR=0.27 and Never: =R=0.17), which is in line with Hypothesis 10. Regarding physical activity, participants, who practiced light physical activity or pursued a sedentary lifestyle had a 4.5 times higher risk of perceiving a (very) bad health status

(OR=4.48). No significant association was found for dietary factors and alcohol consumption per week, differentiated by gender. Looking at BMI, an overall effect was attenuated after adjusting for gender, age, civil status, ethnicity and education. Nevertheless, a significant association between self-perceived health and a lot of overweight remained (OR=1.68), meaning that these people had a higher risk of perceiving worse health compared to people, who had a normal weight.

Tabel 9. Odds ratios for health risk factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Diet				
Fruit and Vegetable	1157(3)			
Daily/Rather daily	946	83.2	1.00 (Reference)	1.00 (Reference)
A few times a week/Weekly	159	84.3	0.92 (0.58-1.46)	1.01 (0.61-1.69)
Every now and then/Rarely/Never	52	80.8	1.18 (0.58-2.4)	1.75 (0.79-3.87)
p-value			0.839	0.383
Fish and Fishpålæg	1156(4)			
Daily/Rather daily	187	82.4	1.00 (Reference)	1.00 (Reference)
A few times a week/Weekly	625	85	0.83 (0.54-1.28)	1.05 (0.63-1.75)
Every now and then/Rarely/Never	344	80.5	1.13 (0.71-1.79)	1.51 (0.87-2.61)
p-value			0.199	0.164
Sweets, cake, chips, chocolate	1156(4)			
Daily/Rather daily	193	82.9	1.00 (Reference)	1.00 (Reference)
A few times a week/Weekly	545	87.2	0.72 (0.46-1.12)	0.79 (0.46-1.36)
Every now and then/Rarely/Never	418	78.2	1.35 (0.87-2.1)	1.35 (0.79-2.3)
p-value			0.001*	0.027*
Sugar containing drinks	1157(3)			
Daily/Rather daily	277	82.7	1.00 (Reference)	1.00 (Reference)
A few times a week/Weekly	281	85.4	0.82 (0.52-1.28)	0.97 (0.57-1.65)

Every now and then/Rarely/Never	599	82.5	1.01 (0.7-1.48)	0.90 (0.58-1.42)
p-value			0.532	0.893
Fast-food	1156(4)			
Daily/Rather daily	17	76.5	1.00 (Reference)	1.00 (Reference)
A few times a week/Weekly	176	88.6	0.42 (0.12-1.40)	0.51 (0.12-2.17)
Every now and then/Rarely/Never	963	82.3	0.7 (0.22-2.16)	0.65 (0.16-2.62)
p-value			0.096	0.56
Coffee/Tea consumption	1156(4)			
No consumption of coffee/tea	132	87.9	1.00 (Reference)	1.00 (Reference)
1-4 Cups	551	83.1	1.47 (0.83-2.6)	0.69 (0.35-1.36)
5-9 Cups	333	84.4	1.34 (0.74-2.45)	0.62 (0.3-1.27)
10 Cups and more	140	76.4	2.24* (1.17-4.29)	1.13 (0.52-2.45)
p-value			0.76*	0.134
Smoking	1158(2)			
Smoker	424	80.4	1.00 (Reference)	1.00 (Reference)
Ex-smoker	288	83	0.84 (0.57-1.24)	0.58* (0.37-0.92)
Never smoked	446	86.1	0.66* (0.46-0.95)	0.46* (0.29-0.71)
p-value			0.082	0.001*
Alcohol consumption				
Women	623(1)			
Less than 14	611	81.7	1.00 (Reference)	1.00 (Reference)
15 - over 30	12	91.7	1.37 (0.73-2.59)	0.59 (0.07-5.19)
p-value			0.389	0.633
Men	534(2)			
Less than 21	500	85.4	1.00 (Reference)	1.00 (Reference)
22 - over 30	34	76.5	1.8 (0.78-4.13)	2.29 (0.94-5.58)
p-value			0.165	0.069
Alcohol consumption per occasion	1144(16)			
Rather daily/daily	18	66.7	1.00 (Reference)	1.00 (Reference)
Weekly	73	83.6	0.39 (0.12-1.25)	0.68 (0.22-2.16)
Monthly	201	95	0.11* (0.03-0.34)	0.29 (0.08-1.03)
Rarely	269	89.6	0.23* (0.08-0.67)	0.27* (0.08-0.89)

Never	121	86.8	0.31* (0.10-0.93)	0.17* (0.05-0.6)
Person does not drink	462	73.8	0.71 (0.26-1.93)	0.67 (0.18-2.43)
p-value			0.000*	0.000*
General physical activity	1157(3)			
Hard and middle	253	96.4	1.00 (Reference)	1.00 (Reference)
Light and sitting	904	79.5	6.98* (3.52-13.83)	4.48* (2.21-9.07)
p-value			0.000*	0.000*
BMI	1085(75)			
Underweight	30	90	0.74 (0.22-2.5)	0.89 (0.25-3.18)
Normal weight	492	87	1.00 (Reference)	1.00 (Reference)
Overweight	367	84.5	1.23 (0.84-1.81)	1.05 (0.67-1.64)
A lot overweight	196	76.5	2.05* (1.35-3.13)	1.68* (1.03-2.73)
p-value			0.007*	0.172

Social and community network factors

Looking at factors linked to social and community networks, depicted in Table 10, no significant association was found between interaction with family or friends and health. However, people, who met their family or friends more often perceived their health as slightly better. Even though, loneliness and self-perceived health were significantly associated (p=0.000), indicating that being never or rarely alone had a protective effect on the self-perceived health status (OR=0.41).

Tabel 10. Odds ratios for social and community network factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Interaction with family	1156(4)			
Daily or almost daily/1 or 2 per week	731	84.7	1.00 (Reference)	1.00 (Reference)
1 or 2 times a month/Seldom/Never	425	81.2	1.28 (0.94-1.76)	1.24 (0.86-1.79)
p-value			0.123	0.242
Interaction with friends	1156(4)			
Daily or almost daily/1 or 2 per week	842	84.3	1.00 (Reference)	1.00 (Reference)

1 or 2 times a month/Seldom/Never	314	80.9	1.27 (0.91-1.78)	1.25 (0.85-1.83)
p-value			0.164	0.261
Loneliness	1156(4)			
Yes. often and every once in a while	262	71.8	1.00 (Reference)	1.00 (Reference)
No and rarely	894	86.8	0.39* (0.28-0.54)	0.41* (0.27-0.63)
p-value			0.000*	0.000*

Summary

Figure 11. depicts all factors identified as being significantly associated with self-perceived health in one of the socially deprived neighborhoods (Kvaglund). The numbers in brackets indicate the odds ratios, which were represented in Tabel 5 to 10.

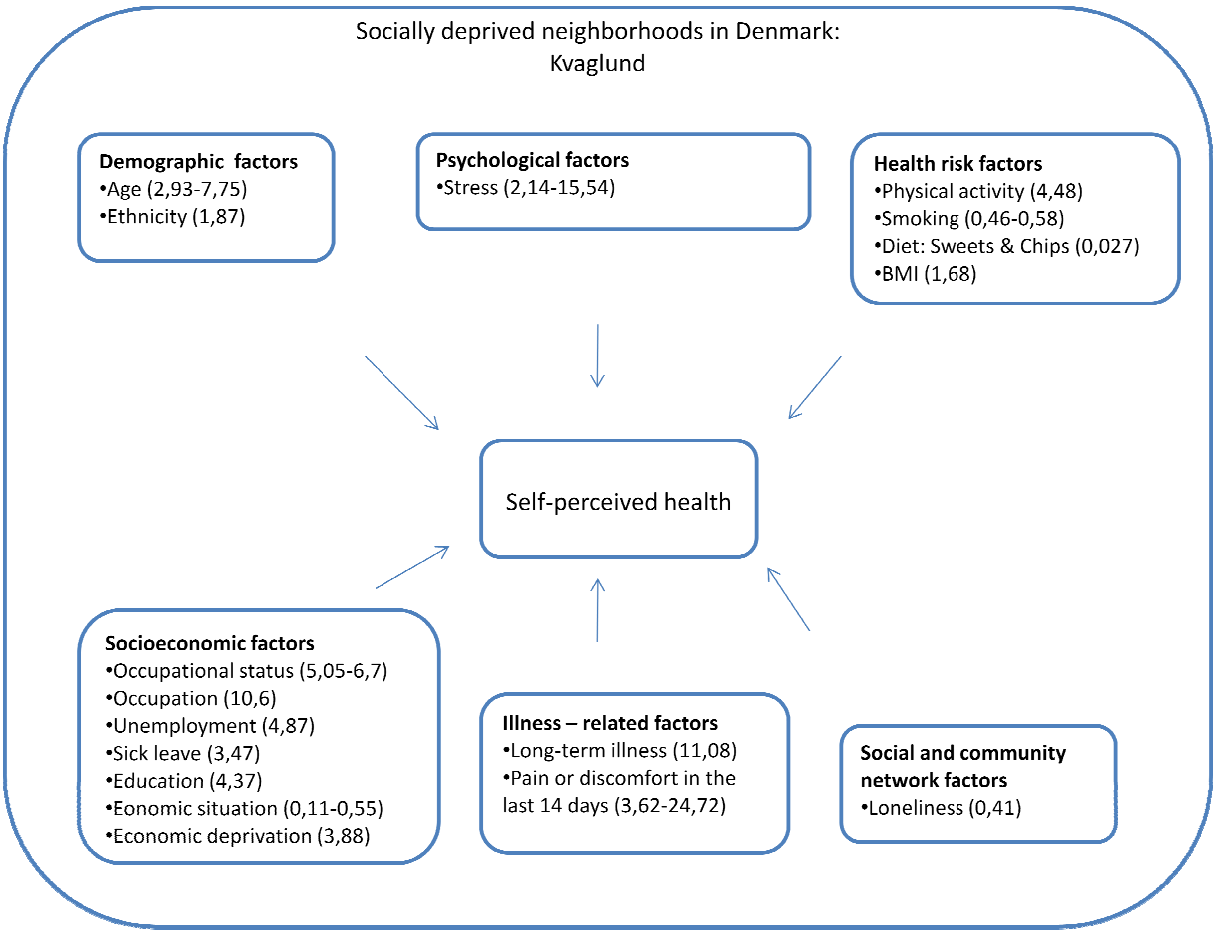

Figure 11. Factors identified as being significantly associated with self-perceived health in Kvaglund. (Source: adapted from Davidsen, 2006, p.18).

Korskærparken

Concerning the second socially deprived neighborhood, the results of the multiple adjusted regression analyses, which were adjusted for gender, age, living situation, ethnicity and education showed significant associations between self-perceived health and the following variables: age, education, occupational status, occupation, economic situation, economic deprivation, sick leave, loneliness, interaction with friends, stressors, health locus of control, general physical activity, physical activity per day, pain or discomfort in the last 14 days, long-term illness, satisfaction with living in Korskærparken and the feeling of safety in Korskærparken.

Demographic factors

Taking all 404 participants into consideration, 84.9% perceived their health as (very) good and fair, which is nearly 10% less in comparison with whole Denmark (Eriksen, 2006). As depicted in Table 11, only age was identified as being significantly associated with self-perceived health (p=0.005). First of all, men perceived their health slightly better than women, approving Hypothesis 1. The health status emerged to decrease with increasing age, except for the people aged 70 and older. While participants aged 60-69 appeared as having a 13 times higher risk of perceiving a (very) bad health status (OR=12.56), people aged 70+ showed an OR of 10.46, meaning that those have a 10 times higher risk of perceiving their health worse than participants aged 16-29, of which nearly everybody (96.8%) perceived their health as (very) good and fair. However, the tendency that older people perceive their health worse than younger people disproves Hypothesis 3. Furthermore, participants living alone perceived their health somewhat better than people living together. Considering ethnicity, Danes perceived their health slightly better than participants with an ethnic background, supporting Hypothesis 2. Finally, looking at participants without children, it emerged that those perceive their health worse compared to participants having one or more children in (pre)school-age.

Tabel 11. Odds ratios for demographic factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Total	404(0)	84.9		
Gender	404			
Men	196	85.2	1.00 (Reference)	1.00 (Reference)

Women	208	84.6	1.05 (0.61-1.81)	0.86 (0.46-1.63)
p-value			0.869	0.653
Age	399(5)			
16-29	93	96.8	1.00 (Reference)	1.00 (Reference)
30-39	70	90	3.33 (0.83-13.39)	3.24 (0.73-14.43)
40-49	73	80.8	7.12* (1.96-25.85)	8.02* (2.06-31.20)
50-59	51	80.4	7.32* (1.91-28.0)	12.4* (3.03-50.76)
60-69	53	75.5	9.75* (2.63-36.12)	12.56* (3.07-51.29)
70+	59	81.4	6.88* (1.83-25.83)	10.46* (2.48-44.07)
p-value			0.012*	0.005*
Living Situation	404(0)			
Living together	237	83.8	1.00 (Reference)	1.00 (Reference)
Living alone	167	85.7	1.15 (0.67-1.99)	0.98 (0.51-1.90)
p-value			0.615	0.962
Ethnicity	401(3)			
Danish	286	85.3	1.00 (Reference)	1.00 (Reference)
Others	115	84.3	1.08 (0.59-1.97)	1.36 (0.59-3.13)
p-value			0.806	0.465
Children in School-Age	403(1)			
No	270	84.4	1.00 (Reference)	1.00 (Reference)
1 or more	133	86.5	0.85 (0.47-1.54)	1.04 (0.39-2.75)
p-value			0.592	0.938
Children in Preschool- Age	403(2)			
No	326	83.1	1.00 (Reference)	1.00 (Reference)
1 or more	77	92.2	0.42 (0.17-1.01)	0.38 (0.11-1.29)
p-value			0.052	0.121

Socioeconomic factors

All socioeconomic factors included in the analyses are demonstrated in Table 12 and were significantly associated with self-perceived health (p=0.009, p=0.000, p=0.001). First of all, people with a medium and higher level of education reported a better health than people with a low level of education. In fact, having a low level of education was identified as having a six times higher risk of perceiving a (very) bad health status compared to having a high education (OR=6.47), which approves Hypothesis 4. Early-retired people, who were retired because of handicap or disease, and participants on benefit payment emerged to have a notably higher risk of perceiving their health as (very) bad (OR=15.33 and OR=17.24). Further on, only 77% of people, who were economically not active perceived their health as (very) good and fair, whereas a much higher percentage of 95.2% of people who were economically active, did so. This

finding accordingly supports Hypothesis 5. Looking at the economic situation, having more than 0-2999 Danish Kroner left at the end of the months appeared to have a protective on self-perceived health (OR=0.23 and OR=0.11). A strong influence was yielded by economic deprivation. People, who reported to be fairly deprived, had a 14 times higher risk of perceiving their health as (very) bad (OR=13.7), which corroborates Hypothesis 6. Regarding unemployment and sick leave, a significant association was found between self-perceived health and sick leave. People, who had been on sick leave in the last three years had a 11 times higher risk of perceiving a worse health status (OR=10.54). No significant association was found between unemployment and self-perceived health, although participants, who had never been unemployed perceived their health as better, than people, who had been unemployed in the last three years, which supports Hypothesis 7. In regard to the variables sick leave and unemployment, only people aged 16-69 were included in the analyses, trying to take pensioners into account, who are not working any more.

Tabel 12. Odds ratios for socioeconomic factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Education	386(18)			
Low	130	80.8	4.21* (1.22-14.57)	6.47* (1.78-23.57)
Middle	200	86.5	2.76 (0.80-9.45)	3.36 (0.95-11.92)
High	56	94.6	1.00 (Reference)	1.00 (Reference)
p-value			0.054	0.009*
Occupational status	385(19)			
Skilled worker	64	96.9	1.00 (Reference)	1.00 (Reference)
Self-employed	2	100	0 (0-.)	-
Unskilled worker	72	93.1	2.31 (0.43-12.36)	1.25 (0.20-7.80)
Businessman	30	96.7	1.07 (0.09-12.27)	1.12 (0.09-13.43)
Student or pupil	46	97.8	0.69 (0.06-7.83)	1.11 (0.08-16.40)
Early-retired because of handicap or illness	35	51.4	29.28* (6.18-138.81)	15.33* (2.85-82.49)
Housekeeper or housewife	2	100	0 (0-.)	0 (0-.)
On benefit payment	28	67.9	14.68* (2.92-73.91)	17.24* (3.04-97.67)
Pensioners	106	78.3	8.59* (1.95-37.8)	3.76 (0.57-24.9)
p-value			0.000*	0.000*

Occupation	385(19)			
Economically active	168	95.2	1.00 (Reference)	1.00 (Reference)
Economically not active	217	77	5.99* (2.75-13.03)	7.84* (3.01-20.41)
p-value			0.000*	0.000*
Economic situation	300(104)			
0-2999 Kr.	79	70.9	1.00 (Reference)	1.00 (Reference)
3000-5999 Kr.	130	84.6	0.44* (0.23-0.87)	0.23* (0.09-0.53)
6000-9999 Kr.	57	93	0.18* (0.06-0.57)	0.11* (0.03-0.45)
Over 10.000 Kr.	34	94.1	0.15* (0.03-0.69)	0.11* (0.02-0.59)
p-value			0.003*	0.001*
Economic deprivation	404(0)			
None	318	87.4	1.00 (Reference)	1.00 (Reference)
One	46	87	1.04 (0.42-2.62)	1.5 (0.54-4.15)
Fairly	29	62.1	4.25* (1.87-9.64)	13.7* (4.52-41.54)
A lot	11	63.6	3.97* (1.11-14.18)	4.69 (0.94-23.41)
p-value			0.002*	0.000*
Unemployment	340			
Never been unemployed	215	87.4	1.00 (Reference)	1.00 (Reference)
Unemployed for less than 3 months - more than 2 years	125	84	1.33 (0.71-2.48)	1.96 (0.9-4.27)
p-value			0.376	0.09
Sick leave	340			
Never been on sick leave	237	92	1.00 (Reference)	1.00 (Reference)
Having been on sick leave for less than 3 months - more than 2 years	103	72.8	4.28* (2.26-8.12)	10.54* (4.37-25.41)
p-value			0.000*	0.000*

Psychological factors

Significant association between self-perceived health and health locus of control (p=0.000), stressors (p=0.000), interaction with friends (p=0.012) and loneliness (p=0.044) were found, shown in Table 13. The feeling that one's own input in health is not very important bore a six times higher risk of perceiving a (very) bad health status (OR=5.69). Also self-perceived health decreased with an increasing number of stressors, which people perceived in their lives. Especially participants, who reported about four or more stressors had a 24 times higher risk of perceiving their health status as worse (OR=24.42). But also perceiving one stressor emerged to bear a three times higher risk (OR=3.11). Perceiving two to three stressors yielded a six times higher risk (OR=5.79). In addition, people, who felt more often stressed in their everyday life,

perceived their health slightly worse than participants, who felt less stressed. Both variables, stressors and stress, corroborate Hypothesis 8. Moreover, people who had the feeling of not being able to control important things in their lives, perceived their health as worse, supporting Hypothesis 9.

Tabel 13. Odds ratios for psychological factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Health locus of control	404(0)			
my own input is (very) important	349	89.1	1.00 (Reference)	1.00 (Reference)
my own input is a bit/not important	55	58.2	5.88* (3.12-11.08)	5.69* (2.69-12.06)
p-value			0.000*	0.000*
Manageability of important things	385(19)			
Very often/Often/Every now and then	135	83	1.00 (Reference)	1.00 (Reference)
Rather not/Never	250	87.2	0.72 (0.4-1.28)	0.64 (0.32-1.3)
p-value			0.258	0.217
Stress	401(3)			
Often/Every now and then	156	84	1.00 (Reference)	1.00 (Reference)
Rather not/Never	245	85.3	0.90 (0.52-1.57)	0.49 (0.23-1.02)
p-value			0.717	0.057
Stressors	404(0)			
No Stressors	138	92.8	1.00 (Reference)	1.00 (Reference)
1 Stressor	136	84.6	2.34* (1.06-5.17)	3.11* (1.21-7.96)
2-3 Stressors	100	80	3.4* (1.43-7.19)	5.79* (2.15-15.57)
4 and more Stressors	30	66.7	6.4* (2.37-17.31)	24.42* (6.79-87.86)
p-value			0.002*	0.000*

Illness-related factors

Both pain and discomfort in the last 14 days and long-term illness had a strong influence and were significantly associated with self-perceived health (p=0.000), as represented in Table 14. Experiencing one to two pains or discomforts bore a higher risk of perceiving a (very) bad health status (OR=4.11), while participants suffering from three to four pains had an 11 times

higher risk of perceiving their health as worse (OR=11.28). People experiencing one or more long-term illnesses had an even higher risk (OR=16.29). Compared to people, who indicated not to suffer from a long-term illness, people suffering from one or more long-term illnesses reported significantly less frequent (24.3%) about a (very) good or fair self-perceived health status.

Tabel 14. Odds ratios for illness-related factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Pain or discomfort in the last 14 days	404(0)			
No pains	182	94	1.00 (Reference)	1.00 (Reference)
1-2 pains	182	81.9	3.44* (1.68-7.05)	4.11* (1.78-9.52)
3-4 pains	33	57.6	11.46* (4.56-28.77)	11.28* (3.83-33.27)
5-8 pains	5	80	3.89 (0.4-37.79)	0 (0-.)
9-14 pains	2	0	-	-
p-value			0.000*	0.000*
Long-term illness	404(0)			
No	215	96.3	1.00 (Reference)	1.00 (Reference)
One or more	189	72	10.08 *(4.65-21.87)	16.29* (5.78-45.88)
p-value			0.000*	0.000*

Health risk factors

Amongst all behavioral and physical health risk factors, Table 15 shows that only general physical activity and physical activity per day could be identified as being significantly associated with self-perceived health. Regarding general physical activity, people, who pursued light activity or a rather sedentary lifestyle, had a four times higher risk of perceiving a (very) bad health status (OR=4.44) compared to participants, who practiced a hard or medium level of physical activity. Practicing physical activity one to three days per week (OR=0.22) and four to seven days per week (OR=0.17) emerged to have a protective effect on self-perceived health. Further on, people, who wanted to improve their health perceived their health as worse compared to people, who did not want to improve their health and participants, who tried, but gave up. Looking at diet-related factors, no tendency or pattern could be ascertained. Smoking, however, had a negative impact on self-perceived health, approving Hypothesis 11. Smokers perceived their health less often as (very) good and fair (81.6%) than ex-smokers (83%) and people, who had never smoked (89.9%). In regard to alcohol consumption per occasion, all ten participants,

who reported consuming five units and more daily or rather daily perceived their health surprisingly as (very) good and fair (100%), whereas the 180 participants, who reported to never consume more than 5 units per occasion, perceived their health as (very) good or fair the least often (80%). These findings disprove Hypothesis 10. Concerning BMI, people with underweight most rarely reported to perceive a (very) good or fair health status (76.7%), while people with overweight reported about it the most often (88.4%), followed by people with normal weight (87.1%) and people with a lot of overweight (84.4%).

Tabel 15. Odds ratios for health risk factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Improve health	404(0)			
No	82	89	1.00 (Reference)	1.00 (Reference)
tried but gave up	27	85.2	1.41 (0.4-5.01)	2.18 (0.52-9.06)
Yes	295	83.7	1.58 (0.74-3.37)	2.01 (0.78-5.15)
p-value			0.5	0.335
Diet				
Fruit and Vegetable	403(1)			
Daily/Rather daily	295	84.1	1.00 (Reference)	1.00 (Reference)
A few times a week/weekly	71	88.7	0.67 (0.30-1.49)	0.60 (0.23-1.54)
Less than once a week/Rarely	37	83.8	1.02 (0.4-2.58)	0.66 (0.20-2.18)
p-value			0.608	0.483
Fish and cold cut fish (Fiskepålæg)	403(1)			
Daily/Rather daily	39	94.9	1.00 (Reference)	1.00 (Reference)
A few times a week/weekly	222	83.3	3.7 (0.85-16.03)	3.54 (0.78-16.03)
Less than once a week/Rarely	142	84.5	3.39 (0.76-15.11)	3.81 (0.80-18.13)
p-value			0.216	0.233
Sweets. cake. chips. chocolate	403(1)			
Daily/Rather daily	71	85.9	1.00 (Reference)	1.00 (Reference)
A few times a week/weekly	166	91.6	0.56 (0.24-1.33)	0.53 (0.2-1.39)
Less than once a week/Rarely	166	77.7	1.75 (0.82-3.75)	0.99 (0.41-2.39)
p-value			0.003*	0.229
Sugar containing drinks	401(3)			
Daily/Rather daily	121	86	1.00 (Reference)	1.00 (Reference)
A few times a week/weekly	99	85.9	1.01 (0.47-2.16)	0.81 (0.34-1.9)

Less than once a week/Rarely	181	83.4	1.22 (0.64-2.32)	0.56 (0.26-1.21)
p-value			0.789	0.314
Fast-food	403(1)			
Daily/Rather daily	6	100	Logistic regression (LR) analysis cannot be	
A few times a week/weekly	81	92.6	conducted because of low number in one	
Less than once a week/Rarely	316	82.9	group	
p-value			0.109	0.953
Smoking	404(0)			
Smoker	163	81.6	1.00 (Reference)	1.00 (Reference)
Ex-smoker	94	83	0.91 (0.47-1.78)	0.52 (0.23-1.19)
Never smoked	147	89.8	0.50* (0.26-0.98)	0.55 (0.25-1.21)
p-value			0.116	0.19
Alcohol consumption				
Women	208(0)			
Less than 14	206	84.5	LR analysis cannot be conducted because of	
15 - over30	2	100	low number in one group	
p-value				
Men	196(0)		LR analysis cannot be conducted because of	
Less than 21	191	84.4	low number in one group	
22 - over 30	5	100		
p-value				
Alcohol consumption per occasion	404(0)			
Rather daily/daily	10	100	0 (0-.)	0 (0-.)
Weekly	22	86.4	0.63 (0.18-2.25)	0.77 (0.18-3.3)
Monthly	51	90.2	0.44 (0.16-1.17)	0.52 (0.17-1.6)
Rarely	141	87.9	0.55 (0.29-1.02)	0.67 (0.31-1.46)
Never	180	80	1.00 (Reference)	1.00 (Reference)
p-value			0.26	0.776
General physical activity	404(0)			
Hard and middle	91	95.6	1.00 (Reference)	1.00 (Reference)
Light and sitting	313	81.8	4.84* (1.71-13.74)	4.44* (1.29-15.24)
p-value			0.003*	0.018*
Physical activity per day	404(0)			
0 days per week	67	61.2	1.00 (Reference)	1.00 (Reference)
1-3 days per week	105	85.7	0.26* (0.13-0.55)	0.22* (0.9-0.55)
4-7 days per week	232	91.4	0.15* (0.08-0.29)	0.17* (0.08-0.37)
p-value			0.000*	0.000*
BMI	367(37)			
Underweight	30	76.7	2.06 (0.79-5.37)	2.52 (0.80-7.99)

Normal weight	171	87.1	1.00 (Reference)	1.00 (Reference)
Overweight	121	88.4	0.89 (0.43-1.81)	0.80 (0.36-1.77)
A lot overweight	45	84.4	1.25 (0.5-3.14)	0.96 (0.35-2.66)
p-value			0.398	0.305

Social and community network factors

Concerning social and community network factors, significant association were found for the following factors: interaction with friends (p=0.012), loneliness (p=0.044), feeling of safety in Korskærparken (p=0.006) and satisfaction with living in Korskærparken (p=0.014), as depicted in Table 16. First of all, people, who met their family and friends more often, perceived a better health status. Participants, who interacted with friends less often, had an almost three times higher risk of perceiving their health as (very) bad (OR=2.6). Considering loneliness, being not or rarely alone had a protective effect on self-perceived health (OR=0.51). Looking at neighborhood factors in Korskærparken, people, who reported to feel safe to a lower degree, had a three times higher risk of perceiving their health status as (very) bad (OR=2.92), which corroborates Hypothesis 13. Plus, people, who reported to be less satisfied with living in Korskærparken, bore a significantly higher risk of perceiving their health as worse (OR=3.14). Furthermore, people, who had been living in Korskærparken longer than 15 years, reported slightly more frequent about a (very) bad health status. Also participants, who felt that Korskærparken had a bad reputation, perceived a worse health, as well as people, who indicated not to speak to other neighbors in Korskærparken. Participants, who did not engage in activities in Korskærparken, and people, who did not speak to neighbors across ethnic categories, also perceived a worse health. However, concerning passive participation, meaning to what degree residents know about social activities in Korskærparken, no effect could be ascertained.

Tabel 16. Odds ratios for social and community network factors potentially associated with self-perceived health.

	N (Missing)	**% (very)good/fair health**	**Unadjusted OR (95%CI)**	**Multiple adjusted OR* (95% CI)**
Interaction with family	404(0)			
Daily or almost daily/1 or 2 per week	322	86.3	1.00 (Reference)	1.00 (Reference)
1 or 2 times a month/Seldom/Never	82	79.3	1.65 (0.89-3.08)	1.64 (0.75-3.59)
p-value			0.113	0.215
Interaction with friends	404(0)			
Daily or almost daily/1 or 2 per week	348	87.4	1.00 (Reference)	1.00 (Reference)

1 or 2 times a month/Seldom/Never	56	69.6	3.01* (1.57-5.78)	2.6* (1.24-5.48)
p-value			0.001*	0.012*
Loneliness	404(0)			
Yes. often or every once in a while	131	80.2	1.00 (Reference)	1.00 (Reference)
No and rarely	273	87.2	0.59 (0.34-1.04)	0.51* (0.27-0.98)
p-value			0.067	0.044*
Neighborhood factors				
Years living in Korskærparken	401(3)			
Less than 5 years	164	85.4	1.00 (Reference)	1.00 (Reference)
5-15 years	137	85.4	0.99 (0.53-1.9)	0.59 (0.27-1.29)
Over 15 years	100	83	1.2 (0.61-2.35)	0.64 (0.28-1.48)
p-value			0.848	0.363
Satisfaction with living in Korskaerparken	402(2)			
to a (very) high or little degree	358	86	1.00 (Reference)	1.00 (Reference)
to a lower degree/not at all	44	77.3	1.81 (0.84-3.89)	2.92* (1.24-6.87)
p-value			0.128	0.014*
Reputation of Korskaerparken very good/good/neither good or bad	351(53)			
	163	85.9	1.00 (Reference)	1.00 (Reference)
bad/very bad	188	87.2	0.89 (0.48-1.65)	1.29 (0.63-2.62)
p-value			0.712	0.489
Feeling of safety in Korskaerparken	402(2)			
to a (very) high or little degree	342	86.3	1.00 (Reference)	1.00 (Reference)
to a lower degree/not at all	60	76.7	1.91 (0.98-3.74)	3.14* (1.39-7.08)
p-value			0.059	0.006*
Speak to other neighbors in Korskaerparken	402(2)			
to a (very) high or little degree	272	86.8	1.00 (Reference)	1.00 (Reference)
to a lower degree/not at all	130	81.5	1.48 (0.84-2.61)	1.81 (0.93-3.50)
p-value			0.171	0.081
Passive participation in Korskaerparken	398(6)			
to a very high/high little degree	219	84.9	1.00 (Reference)	1.00 (Reference)
to a lower degree/not at all	179	84.9	1.00 (0.58-1.74)	1.4 (0.73-2.67)
p-value			0.997	0.309
Active participation in Korskaerparken	398(6)			
to a (very) high or little degree	103	86.4	1.00 (Reference)	1.00 (Reference)
to a lower degree/not at all	295	84.7	1.14 (0.6-2.19)	1.28 (0.6-2.74)
p-value			0.683	0.524
Speak to neighbors across ethnic categories	403(1)			
to a (very) high or little degree	235	86.4	1.00 (Reference)	1.00 (Reference)
to a lower degree/not at all	168	83.3	1.27 (0.73-2.2)	1.09 (0.57-2.09)
p-value			0.397	0.794

Improving health

Out of the 404 participants of Korskærparken, 73% indicated that they would like to improve their health, whereas 20% answered with 'no'. The remaining 7 % stated that they had tried to improve their health, but had given up on it. "What do you do or what have you done to stay healthy or improve your health?", was the question asked to explore whether and how participants improved their health status, represented in detail in Table 17. It is striking that 56.4% respectively 55.4% tried to make sure that they are physically active and eat a healthy diet. Furthermore, 19.8% reported to keep in touch with family and friends, followed by 18.8%, who indicated not to smoke, to keep their health status in a good condition. Additionally, 15.8% cared for less stress and enough sleep in their lives, followed by 12.4%, who reported to eat less.

Tabel 17. "What do you do or what have you done to perpetuate or improve your health?"

	N	%
Improve health	404	
Nothing	9	2.2
Physically active	228	56.4
Healthy diet	224	55.4
Eat less	50	12.4
Don't smoke	76	18.8
Smoke less	30	7.4
Don't drink alcohol	45	11.1
Reduce alcohol consumption	45	11.1
Care for less stress	64	15.8
Care for enough sleep	64	15.8
Keep in touch with family and friends	80	19.8

Summary

Figure 12 depicts all factors identified as being associated significantly with self-perceived health in one of the socially deprived neighborhoods (Korskærparken). The numbers in brackets indicate the odds ratios, which were shown in Table 11 to 16.

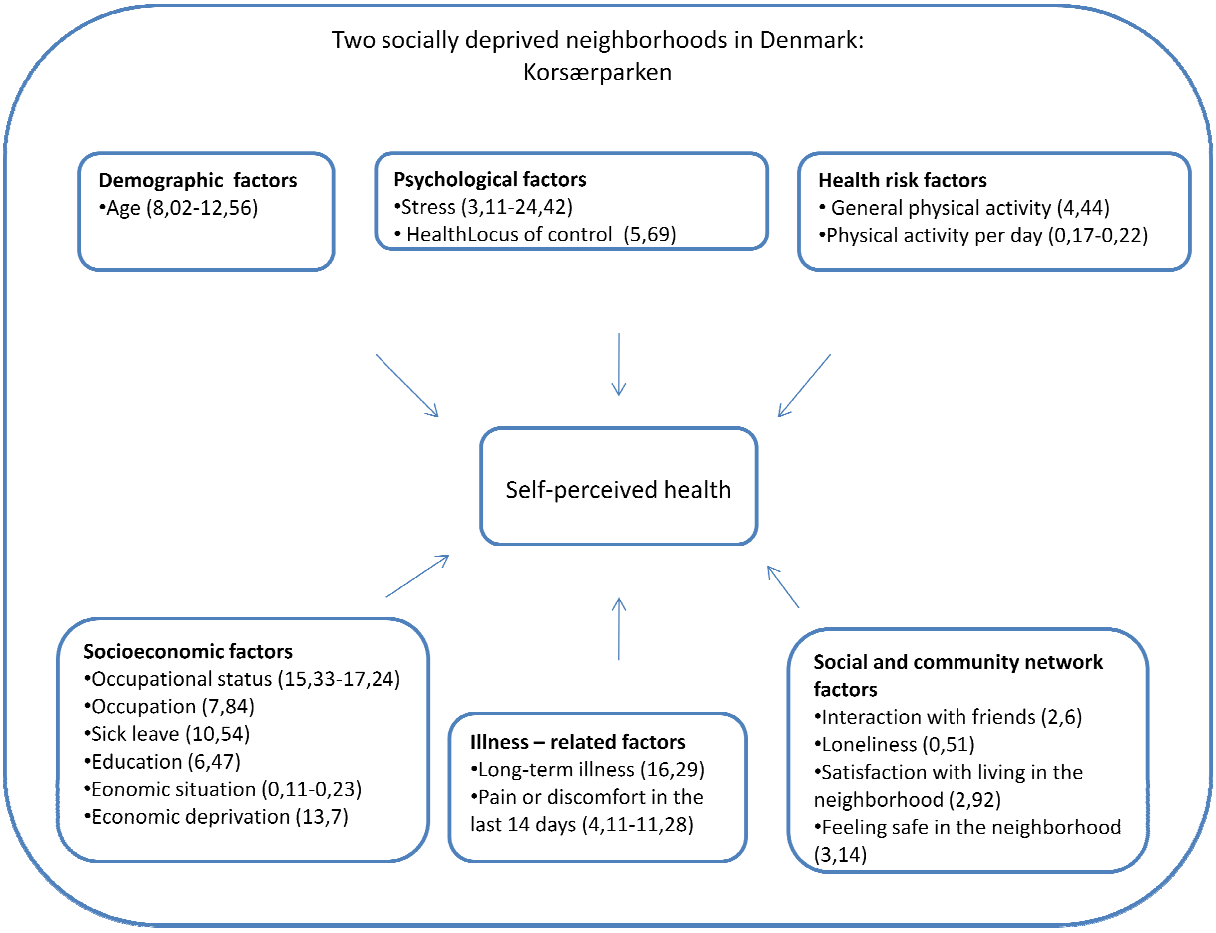

Figure 12. Factors identified as being significantly associated self-perceived health in Korskærparken. (Source: adapted from Davidsen, 2006, p.18).

5.3 Similarities and differences in the neighborhoods

All factors, which emerged as being significantly associated with self-perceived health in both neighborhoods are depicted in

Figure 13. Concerning demographic factors, only age had a significant impact, while nearly all socioeconomic factors were significantly associated in both samples: education, occupational status, occupation, economic situation, economic deprivation and sick leave. Furthermore, stress was identified in both deprived areas, as well as loneliness regarding social and community network factors. Taking health risk factors into account, general physical activity appeared to be a strong contributor to self-perceived health. Additionally, looking at illness-related factors, long-term illness and pain or discomfort in the last 14 days were significantly associated with self-perceived health.

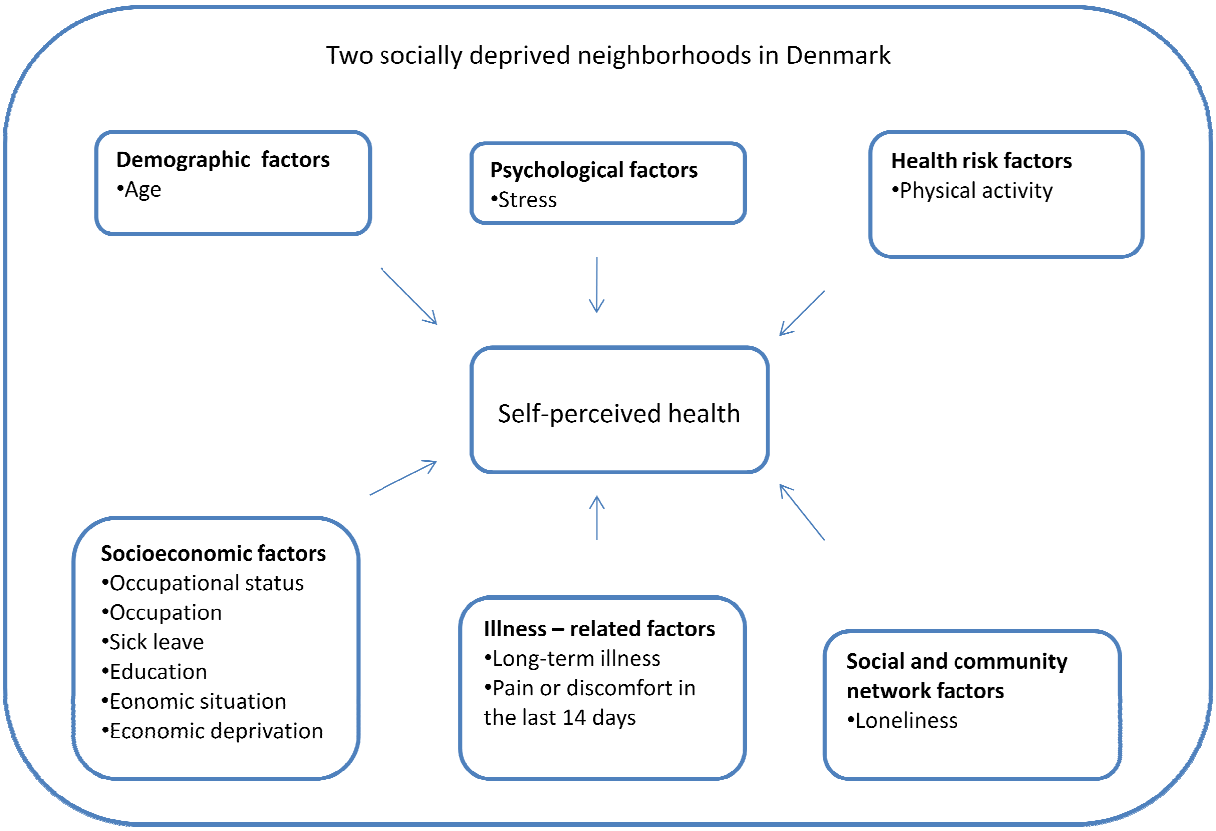

Figure 13. Factors identified as determinants of self-perceived health in both neighborhoods. (Source: adapted from Davidsen, 2006, p.18).

6. DISCUSSION

In this chapter, I will initially answer the first research question to illuminate which factors were identified as being associated with self-perceived health in this study in relation to the current state of research. Further on, I will answer the second research question by recommending implications for community interventions based on my findings. Thirdly, I will discuss the limitations of this study and finally close this chapter by making suggestions for further research.

6.1 Factors associated with self-perceived health in the two neighborhoods

The results of this study revealed the considerable fact that very good and good self-perceived health was about 20% lower in the two socially deprived neighborhoods in comparison with whole Denmark (Eriksen, 2006). This finding is consistent with the assumption of Reijneveld (2002), Stafford and Marmot (2003), as well as Poortinga et al. (2008), who all state that a poor health status is generally more prevalent in deprived neighborhoods. Most notably older, lonely and ill people as well as people, with a lower socioeconomic status, were identified as having a significantly worse health status. Additionally, the reduction of stress and the enhancement of physical activity turned out to be significant areas for action in both neighborhoods.

Demographic factors

Gender. In both investigated neighborhoods health was perceived better by men than by women. The same tendency regarding gender was found by Gilmore et al. (2002), who investigated self-perceived health in a national context in the Ukraine.

Age. Considering age, the findings of this study showed that the younger generation perceived their health significantly better than older people. This is in line with Sacker et al. (2010), who established that self-rated health declines with age, as well as Rohrer et al. (2006), who only took women into consideration, ascertaining that older women perceive their health as worse. Nevertheless, Rakowski and Cryan (1990 in Idler & Benyamini, 1997) found that older people rated their health better than younger participants. Additionally, Ziersch et al. (2004), who conducted research on neighborhood life in relation to health, discovered that physical health was lower, but the mental health higher within older age groups. Thus, research findings relating to age are inconsistent and it remains open, whether older or younger people perceive their health better in general.

Civil Status. Beyond this, the findings of this study concerning civil status in the one neighborhood (Kvaglund) are in line with a current finding of Lindström (2009), who states that unmarried and divorced people perceive their health worse than the ones, who are married. This is also consistent with Rohrer et al. (2006), who investigated the same tendency among women. Nevertheless, in the other neighborhood (Korskærparken), it surprisingly appeared that people, who indicated to be living alone, perceived their health slightly better in comparison to people, who lived together. This finding is inconsistent with the evidence from Lindström (2009) and Rohrer et al. (2006).

Ethnicity. Moreover, taking the results about ethnicity into consideration, it should be noticed that in both neighborhoods the ratio of people with an ethnic background was quite high, nearly 29% in the one neighborhood (Korskærparken), and nearly 27% in the other one (Kvaglund). Incidentally, White & Borrell (2006) conducted research in New Yorker neighborhoods, and discovered that poor self-perceived health was more prevalent in neighborhoods with a high concentration of ethnic minorities - in their case - black minorities. Since ethnic minority groups are affected by a higher risk for social exclusion (White, 1998 in Shaw, Dorling & Smith, 2006), and are known to suffer more often from diseases (e.g. in Naidoo and Wills, 2003), I hypothesized that people with an ethnic background perceived their health as worse. Surprisingly, oppositional results emerged in this study. Whereas in one neighborhood (Kvaglund) it was obvious that Danish people perceived their health significantly better than residents with an ethnic background, in the other neighborhood (Korskærparken), two possible interpretations lead to different results. If only very good and good self-perceived health were taken into account, about 9% of the people with an ethnic background perceived their health more frequently as very good or good, compared to the participants with a Danish background. However, if (very) good *and* fair health were considered, Danish people and participants with an ethnic background emerged to equally frequent report about a (very) good and fair self-perceived health status. In fact, the Danish residents appeared to even have a slightly better health. Taken together, in the one disadvantaged neighborhood (Kvaglund), my assumption was thus verified, whereas in the other one (Korskærparken), the opposite effect appeared: no difference considering ethnicity could be found - depending on how the findings are interpreted.

Having children. Further on, the relationship between self-perceived health and having children was examined in one of the neighborhoods (Korskærparken). Although Floderus et al. (2009) demonstrated that having children was associated with poor self-perceived health in a Swedish sample, this study revealed the interesting outcome that participants, who had one or more children, perceived their health as better compared to participants without children.

Socioeconomic factors

Analyses from both neighborhoods revealed that socioeconomic factors were all, as expected, significantly associated with self-perceived health. It is well known that the socioeconomic context of a neighborhood can directly influence the health status of individuals (Krieger et al., 1993 in Picket & Pearl, 2001). Since the socioeconomic status (SES) resembles (a) a particular level of education, (b) a certain level of income and (c) a certain type of occupation (Mielk, 2000), several factors relating to these three variables were looked at.

Level of Education. First of all, an increasing level of education indicated a significantly better perceived health status in both neighborhoods. It was astonishing that 27% of the participants with a low level of education in one of the areas (Kvaglund) reported about a very bad and bad health status, in comparison to 19% in the other neighborhood. In comparison, only 5.5% of the participants in other parts of Denmark perceived a poor health status (Eriksen, 2006). This finding implies that living in a deprived neighborhood may have the most negative effect on health for poorer individuals, which is in line with assertions by Stafford and Marmot (2003). They explain this phenomenon with the argument that poorer residents are more often dependent on collective resources in the neighborhood (ibid.). Generally, it has to be noticed, that in Kvaglund, 33% of the sample have a low level and 21% a high level of education, whereas in Korskærparken only 14% reported about a low level, but 37% about a high level of education. Thus, the neighborhood of Kvaglund seems to be worse off in comparison to the other deprived area (Korskærparken), which could also be one reason why health is generally perceived a bit worse in this neighborhood. A lower level of education was thus significantly associated with worse self-perceived health in this study. This finding is consistent with other research results in this field, like for example the study of Pärna and Ringmets (2010), in which self-perceived health was investigated in Finland and Estonia. Beyond these findings, Ziersch et al. (2004) found that a higher educational achievement was related to better physical and mental health.

Economic situation and deprivation. Aligned with findings from Pärna and Ringmets (2010), residents in both neighborhoods reporting about economic deprivation or a bad economic situation perceived significantly more frequently a very bad or bad health status. Pärna and Ringmets (2010) also showed that individuals with a poorer self-rated financial situation scored higher on less-than-good health than individuals, who were better off (ibid.). Accordingly, Ziersch et al. (2004) claim an association between a higher income level and better health, which is consistent with this study. Anyhow, Shaw et al. (2006) argue that harm cannot only be

attributed to material deprivation, but also to psychological and social problems, which will be addressed later in this chapter.

Occupation, Sick leave and Unemployment. Furthermore, a detrimental impact on health could be ascertained in this study, for those participants, who indicated to be economically not active, which is in line with results from Pärna and Ringmets (2010). Beyond this, people, who had been on sick leave within the last three years, indicated a significantly worse health status in both neighborhoods. Regarding unemployment, a significant association with a worse health status was found in one of the neighborhoods (Kvaglund), whereas an only similar tendency appeared in the other neighborhood. This was also ascertained by Luo et al. (2010) and Cummins et al. (2005). Whereas short-term unemployment turned out to be less detrimental to self-rated health than long-term unemployment (Martikainen & Valkonen, 1996 in Luo, 2010), Cummins et al. (2005) argue that unemployed people spent more time in the local environment, and thus have a greater exposure to social structures, which are often, in deprived neighborhoods, detrimental to health (Macintyre et al., 2002 in Cummins, 2005).

Occupational status. Taking the occupational status into consideration, some people emerged to be especially at risk for a worse health status. People, who indicated to be early-retired because of a handicap or an illness, were identified as perceiving their health significantly worse than skilled workers respectively employees in both neighborhoods. In one of the areas - Kvaglund - a similar trend appeared for early-retired and unemployed people, pensioners and househusbands or housewives, who all perceived their health significantly worse than employees. In the other area - Korskærparken - people on benefit payment indicated a significantly poorer health status than skilled workers.

Psychological factors

Stress. Looking at psychological factors, experiencing more stress was significantly associated with a worse self-perceived health status in both deprived areas. Thommasen et al. (2005) also found higher stress levels to be linked to poorer self-rated health. However, it has to be noticed that stress was measured by different questions in the two neighborhoods. In both, it was investigated how stressors and the accumulation of them influence the perception of health. But while, in one neighborhood (Kvaglund) the Perceived Stress Scale (PSS) (Cohen et al., 1983) was applied, in the other neighborhood (Korskærparken), a single item about stress in the everyday life of the participants was used.

Health Locus of Control and Manageability of important things. Furthermore, in one of the neighborhoods (Korskærparken) two other aspects, about the psychological factors, were

additionally uncovered. Firstly, it could be established that those, who attached importance to their own contribution to their health, perceived their health as significantly better as the ones, who did not. Secondly, it was ascertained that residents, who indicated to feel most often on top of important things in their lives perceived a better health status. Similar findings by Gilmore et al. (2002) support the idea that participants, who felt low control over their life, were more likely to perceive their health as poor. In addition, Wolinsky et al. (1993 in Idler & Benyamini, 1997) found, that loss of control emerged to have a negative impact on the immune system, and serves as an indicator for a declining health status.

Illness-related factors

Furthermore, the findings of this study show that illness-related factors, particularly long-term illness and pain or discomfort in the last 14 days, were significantly associated with a worse self-perceived health status in both neighborhoods. This seems to be reasonable, when thinking about how we feel, when we are sick.

Health risk factors

Consistent with Reijneveld (2002), it was supported in this study that harmful health behaviors take place more frequently in disadvantages areas. Accordingly, it emerged, that harmful health behaviors, like smoking and a low level of physical activity were more prevalent in the two deprived areas than in Denmark as a whole (Eriksen, 2006). As a poor rated health status is associated with less engagement in preventive health behavior or self-care (Idler & Benyamini, 1997), this could offer one explanation, why some of the people did not engage in a healthier lifestyle in the socially deprived areas.

Concerning the behavioral health risk factors, first of all, smoking appeared to be associated with a worse self-perceived health status in both neighborhoods, whereas in the one area smoking was significantly associated with poor self-rated health (Kvaglund). This ascertainment is supported by findings from Hirdes & Frobes (1993 in Idler & Benyamini, 1997). Besides, stemming from the results of the one neighborhood (Kvaglund), also consuming more alcohol per occasion and a diet-related factor, more specifically eating sweets, cake, chips and chocolate - were strongly associated with worse self-perceived health.

Alcohol consumption. Looking at alcohol consumption per occasion more closely, in the other neighborhood (Korskærparken), all ten participants, who reported to consume daily five units and more, perceived their health surprisingly as very good, good or fair (100%), whereas the 180 participants, who reported to never consume more than five units per occasion, perceived

their health as (very) good or fair the least often (80%). This finding contrasts the current state of research, as, for example, Stranges et al. (2006) found heavy drinking patterns to be associated with poorer self-perceived health, compared to people, who moderately consume alcohol. However, Gilmore et al. (2002) state that self-reported alcohol consumption can be rather notorious, which could be the reason for these results. Further on, the small number of people in the group 'consuming alcohol rather daily or daily' represents another reason, why these findings have to be regarded with caution.

Food. Looking at the diet-related factor - eating sweets, cake, chips and chocolate - two things have to be noticed. A significant association was found between those people, consuming the food weekly in comparison to those, who consume it rarely. Since the reference group was eating the food daily, no direction of this effect could be ascertained. Secondly, the same result surprisingly emerged in both neighborhoods, even though this only concerns the unadjusted result of the analyses. Nevertheless, it is striking that in both neighborhoods an effect can be observed considering the consumption of sweets, cake, chips and chocolate in relation to self-perceived health, since none of the other diet-related factors, which were investigated, appeared to be significantly associated.

Physical activity. A significant association was found between general physical activity and self-reported health in both disadvantaged neighborhoods, meaning that those, who are more physically active perceived a better health. This is in line with the current research of Tsai et al. (2010), who reported that regular physical activity was associated with good self-perceived health in a sample of American adults. Further on, another factor concerning physical activity, physical activity per day, only being investigated in Korskærparken, emerged to be significantly associated with self-perceived health. An increasing self-reported health status was related to more days in the week, on which a person was physically active.

Body Mass Index. In addition, a lot of overweight was identified to be significantly related with worse self-rated health in Kvaglund, which is consistent with findings Thommasen et al. (2005). They identified that increasing weight contributes to a poorer self-perceived health in a rural population in Canada. Albeit in the other neighborhood (Korskærparken), people with overweight reported most often about a (very) good and fair health, followed closely by people with normal weight. Although participants, who indicated to have a lot of overweight reported less often about (very) good and fair health, people with underweight appeared to be worst off in Korskærparken.

Improving health. Beyond this, the results concerning Korskærparken show that 73% of the residents indicated the wish to improve their health. Those 73% perceived their health

slightly worse in comparison to people, who did not want to improve their health (20%). This shows that a major part of the residents would like to enhance their health status, which represents a basic condition for the implementation of interventions in this area. Most of the people indicated that they tried to improve their health by being physically more active (56%), by caring for a healthy diet (55%), trying to keep in touch with friends and family (20%), not smoking (19%), caring for less stress (16%) and sleeping enough (16%).

Social and community network factors

Loneliness. In both socially deprived areas a factor measuring loneliness was examined. As a result, residents, who felt lonely less often perceived their health as significantly better in both neighborhoods.

Interaction with friends and family. Beyond this, participants, who met their friends and family more often, reported about a better health status, whereas meeting friends more often was only in one neighborhood significantly associated with a better health status (Korskærparken).

Neighborhood factors. A special emphasis within the neighborhood of Korskærparken laid on neighborhood factors. Two out of eight factors, which aimed at investigating the association between the socially deprived area and self-perceived health, appeared to be significantly associated. Hence, residents, who indicated to be satisfied with living in Korskærparken and the ones, who reported to feel safe in the neighborhood, perceived a significantly better health than unsatisfied residents or residents feeling more unsafe. Examining safety in a neighborhood, Ziersch et al. (2004) found evidence in their study about the association between feelings of safety and physical and mental health.

Other findings concerning neighborhood factors in Korskærparken, indicate, that participants, who felt that the area had a bad reputation perceived their health worse. In line with this, Macintyre et al. (1993 in Malmström et al., 1999) argue that the worse health status results from the bad perceived reputation of the deprived area. They claim that the perception about the reputation influences the self-esteem and morale of the people residing in the neighborhood in a bad way, and thereby also influencing the perception of their health (ibid.). Additional findings of this study ascertained that people, who indicated not to speak to other neighbors and did not engage in activities in Korskærparken, reported about a worse health status in comparison with those, who spoke to other neighbors or engaged in public activities. Heusinger et al. (2009) argue that speaking to neighbors is an important resource to get information about public and community activities. The communication with neighbors could thus contribute to a higher participation in social activities in the neighborhood and accordingly improve health. Moreover,

the results showed that participants, who reported not to speak to neighbors across ethnic categories, perceived a worse health compared to people, who did speak to neighbors across ethnic categories. Passive participation - that is to what degree residents know about social activities in the neighborhood - had no effect on the perception of the residents' health.

Lastly, people, who had been living in Korskærparken longer than 15 years reported rather more frequently about a very bad and bad health status. Hence, living in this socially deprived neighborhood had a detrimental impact on health, which accounts for a contextual effect of the neighborhood on self-perceived health. However, it has to be noticed, that the difference between people, living in Korskærparken less than five years and the ones, living in the neighborhood over 15 years comprises a decline of 17% when taking very good and good self-perceived health into consideration. However, when looking at (very) good *and* fair health, this effect attenuates, accounting only for a difference of 2% between people, who perceive their health as (very) good and good and those, who perceive their health as very bad and bad. Nevertheless, I pointed out earlier that there are several researchers, who argue that a disadvantaged neighborhood has an influence on health. Bond Huie (2001) claims that the neighborhood context has an indirect impact on health through factors like smoking, diet, exercise, stress and access to health insurance or medical providers. Malmström et al. (1999) infer that living in a deprived neighborhood makes people feel bad in general, and accordingly more likely to feel in poor health regardless of their physical state. This statement cannot be further elaborated in this study, as only a self-reported measurement was used, but it indicates, that more research in this area can shed light on the relation between the subjective feeling in a deprived neighborhood and the actual physical health status.

Summary

Taken together, this study elucidated that people, who live in the two socially deprived neighborhoods, perceived their health substantially worse in comparison with whole Denmark (Eriksen, 2006). Mostly and significantly affected by a worse health status were especially people, with a lower socioeconomic status as well as older, ill and lonely people. Moreover, the reduction of stress and the increase of physical activity turned out to be significant areas for action. It should furthermore be noticed that a poor rated health status is associated with less engagement in preventive health behavior or self-care (Idler & Benyamini, 1997). To prevent that people, who perceive their health as bad engage thus even less in healthy behavior, action is required, as elaborated in the next paragraph.

6.2 Implications for community interventions

The second research question, dealing with how people, who perceived their health status as very bad or bad, can be targeted through community interventions in the two disadvantaged neighborhoods, will be answered in this paragraph.

Community interventions can on the one hand, and in contrast to individually-oriented interventions, consider influences of neighborhood characteristics and the society in a broader sense (Röhrle, 2003). On the other hand, interventions in a community can be hard to manage, as borders of the neighborhood or community might be unclear (Faltermaier, 2005). Nevertheless, through these kinds of interventions, individuals can be reached in their everyday life, where problems emerge (Faltermaier, 2005). Furthermore, Röhrle (2003) underlines, that community interventions enhance the overall life quality, strengthen competences to participate in the community life, reinforce social networking and social support within the community, and thereby improve the health of the residents.

Regarding this, Laverack and Labonte (2000) developed a planning framework for community empowerment goals and health promotion to assist health promotion workers, when planning and implementing an intervention in the community context. In this thesis, it is suggested that this framework can exemplarily be applied, if supplemented with other theories, for the development of interventions in the neighborhoods, which are targeted in this thesis. Focusing on their planning framework, Laverack and Labonte (2000) stress the importance of *community empowerment*, which enables people to experience more control over decisions, which has an impact on their lives, as well as on their health (ibid.). Additionally, the empowerment of the community leads to a shift towards greater equality in the society (ibid.), which is a major long-term goal of this specific study, but also the FELIS-project[15] (Andersen & Kronborg Bak, 2009). Taking into consideration especially that this thesis deals with disadvantaged neighborhoods the achievement of greater equality represents a desirable goal.

Empowering the community implicates a *bottom-up approach* in health promotion, whereas a campaign which primarily deals with disease prevention through lifestyle management implies a *top-down approach* in health promotion (Laverack & Labonte, 2000). The framework of Laverack' and Labonte's (2000) suggests to integrate both approaches and to pass through five stages: (1) Overall program design, (2) Objective setting (3) Strategy selection, (4) Strategy implementation and management and (5) Program evaluation. At every stage, characteristics

[15] FELIS stands for Flerstrengede Evidensbaserede Lokale Indsatser for Sundhedsfremme (=multilevel evidence-based local interventions for health promotion). The contact person for the FELIS research project is Pernille Tanggaard Andersen at the University of Southern Denmark (ptandersen@health.sdu.dk).

derived from the top-down approach and the bottom-up approach, are respectively considered (ibid.).

Stage 1: Overall program design

First of all, the overall program design is generated, taking into account the intended time frame, the program size and the marginalized groups (ibid.). The *time frame* for the FELIS-project is 2008 until 2013, whereas the program size refers to the different steps, which were conducted as well as the steps, which are intended until 2013. Concerning the *program size,* Laverack (2004) stresses that primarily the production of small visible outcomes is important for the progress of a project. As such, the survey questionnaires used in this study served as a pre-measurement of the project, and resulted in the publication of two health profiles for each neighborhood describing the current health and illness situation as well as the socioeconomic circumstances in both areas. These health profiles are a first successful result of the FELIS-project and serve as a beneficial tool, when planning community interventions.

Beyond this, Laverack and Labonte (2000) emphasized that special attention should be given to *marginalized populations*, which they define as residents who are most in need. They describe this as a great challenge since, those individuals, who are most marginalized, are at the same time often not able to express their needs, which results in turn in their exclusion from the program (ibid.). This phenomenon is also called the *paradox of empowerment approaches* (ibid.). Concerning marginalized groups, the results of this study show that in each neighborhood about 27-29% of the participants in this study have an ethnic background. This has already been taken into consideration during the data gathering (see chapter 4.2) and has also to be regarded when developing appropriate interventions. Furthermore, 37% in Korskærparken as well as 25% in Kvaglund of the people aged under 69 reported about having been unemployed at least three months in the last three years, while in comparison, the average unemployment rate in Denmark was about 6% in 2009 (Massarelli & Wozowczyk, 2010). Costello (2003) underlines that unemployed people are more likely to experience social exclusion. Hence, unemployment needs to be considered when planning successful interventions.

Furthermore, it emerged in this study that people with a low level of education are at risk for a worse health status. This has to be taken into consideration especially in the one neighborhood of Kvaglund, since 33%, in comparison to 14% in Korskærparken, indicated to have a low level of education. Another focus should lie on reaching older people with the interventions, because they are more at risk of living in poverty as well as having difficulties to

access health services (Naidoo & Wills, 2005). In addition, this study showed that in both neighborhoods older people perceived their health significantly worse than younger people.

Stage 2: Objective setting

In a second step, the objectives of the interventions are determined and specified, aiming at integrating community empowerment objectives and program objectives (Laverack & Labonte, 2000). According to Miller (1985 in Minkler et al., 2008) issues, which can be taken into account as program objectives, must meet seven attributes in order to be eligible as target in an intervention. In the first place, it has to be winnable (ibid.), as researchers and other experts put a lot of effort in such health promotion campaigns. Furthermore, it should be simple and specific (ibid.) to enable the target group to understand the campaign easily, and to take part in it as much as possible. Likewise, the targeted issue should unite members of the neighborhood and involve them in a meaningful way (ibid.). Further on, it is important to affect lots of people and give them a feeling of being part of a larger plan or strategy (ibid.). The results of this study show that in both disadvantaged neighborhoods a high level of stress, a low level of physical activity and feelings of loneliness or sickness were associated with a poorer self-perceived health status. Since these factors can primarily be changed on an individual level, all socioeconomic factors, which emerged as being strongly associated with a worse health status, affect a more structural level and accordingly social policies. In this respect, Chavez et al. (2004) suggest to improve health outcomes of disadvantaged populations through ensuring access to resources and infrastructure, as well as employment opportunities and good housing. Another concept, which emerges in the literature about community interventions, is *social capital*, which characterizes, according to Tones (2001), a state in a community, which is conducive health. Baum (2002) describes social capital as networks between people, which enhance cooperation and desirable outcomes. In Tones' (2001) perspective, social capital is the result of a an active participating community, plus the existence of a *sense of community*, which he describes by four key dimensions (McMillan & Chavis, 1986 in Tones & Tilford, 2001). These dimensions concern a feeling of belonging in the community, a shared emotional connection, a feeling of having influence, as well as the integration and fulfillment of own needs (ibid.). Laverack (2004) mentions that the feeling to be connected with a 'community' already makes people feel healthy. Beyond this, Kawachi et al. (1997 in Chavez, Kemp & Harris, 2004) state that increasing social capital reduces socioeconomic disparities in health. Social capital can thus be used as a way of addressing health inequalities (Chavez et al., 2004). Additionally, Chavez et al. (2004) point out, that also trust in the community is an important factor, which can improve health outcomes of

disadvantaged populations. Sapag et al. (2008) underline as well, that promoting social capital in low income neighborhoods increases trust and reciprocity.

Individual-oriented interventions, as well as interventions, aiming at structural changes, which ameliorate the socioeconomic situation should thus be considered, when setting objectives for interventions in both neighborhoods. Thereby, a focus on building and strengthening social capital can contribute to the overall well-being of the residents.

Stage 3: Strategy selection

In the third place, strategies to achieve the desirable goals have to be agreed on. This includes how community empowerment can be strengthened (Laverack & Labonte, 2000). To get helpful suggestions and stimuli for appropriate strategies, planners and health workers can look into other projects to derive practical knowledge. The German Federal Centre for Health Education (FCHE), for example, published in 2010 a fourth edition of a booklet representing about one hundred examples of good practice concerning socially deprived people (Lehmann et al., 2010).

Stage 4: Strategy implementation and management

In this fourth stage, a methodology developed by Laverack (2000 in Laverack & Labonte, 2000) helps to assess and support the process of strengthening community empowerment. This methodology contains nine operational domains, which are known to affect the empowerment process. These operational domains concern participation, leadership, organizational structures, problem assessment, resource mobilizing, 'asking why', links with others, role of the outside agents and program management. Laverack and Labonte (2000) underline the role of the health promoter, who requires a good methodological and practical knowledge and methodologies to conduct the program. Also Baum (1993 in Baum, 2002) stresses that beyond this, health workers need to possess certain soft skills, experiences and a sensitive attitude to achieve change in the community or neighborhood. According to Baum (ibid.), health workers should regard the community as vulnerable and work with the skills of the residents, rather than exerting power over them from a higher level. Further on, he or she should adopt a caring role, listening and understanding the perspective of the residents, instead of telling them what to do (ibid.). Finally, the health worker needs to be assertive, thinking about how he or she can apply his or her skills to work with the people, who live in the neighborhood (ibid.).

Stage 5: Program evaluation

In the fifth place, program outcomes and community empowerment outcomes are to be assessed and evaluated (Laverack & Labonte, 2000). Here, a participatory type of evaluation, which involves residents of the neighborhoods, has an advantage over traditional ways of conducting evaluations because participatory evaluations lead, for example, to collaboration amongst residents and further on to the empowerment of individuals and the community (Coombe, 2007).

6.3 Limitations of the study

In this study, a secondary data analysis was conducted meaning that different parties have been involved since the planning of the study. This might have lead to information loss, for instance during the examination of the interviews or while processing the data. No information about the response rate could be obtained and regarding a few variables some data was actually missing. To take this into consideration, I *cleaned* the data before I started to conduct the analyses.

Due to the limited time-frame, this study relies on cross-sectional data. Thus, statements about causal relations cannot be made. However factors, which emerged to be significant in the logistic regression analysis, could be associated with self-perceived health. In the future, a longitudinal design of a study could overcome this limitation.

Furthermore, this study is based on self-reports. Although this can be a limitation on the one hand, I pointed out, that there are several researchers, stating that the outcome variable of this research - self-rated health - is a valid indicator of morbidity and premature death. Nevertheless, it can still be debated whether self-rated health is objective enough.

Further on, considering the small size of certain groups, concerning for example the item alcohol consumption, it has to be noticed that logistic regression analyses could sometimes not be conducted for such groups, or lack power to detect significant differences. If the time-frame for this thesis had been longer, the categorizations of certain items could be classified differently. Smaller groups could, for example, be summarized in one category.

In addition, it has to be noticed that due to the limited scope of this study only main effects were tested. Interaction effects and confounders could not be controlled for.

Furthermore, looking at the reliability of the questionnaires, inter-rater reliability could not be ascertained, because I did not receive information about the data gathering process from the company, which was in charge. To be able to make a clear statement about the test-retest reliability, the questionnaires need to be used again and again over a period of time, which can

be done in time to come. Internal consistency could be assessed regarding the Perceived Stress Scale (PSS), which makes one of the questionnaires partly reliable. In general, more research has to be done in socially deprived neighborhoods, using similar methods, to improve the internal validity of this study.

Looking at the external validity of this study - the generalizability of the results -, there are limitations, but some conclusions can be drawn. It is questionable, if the results are applicable to other populations outside of Europe or to populations, who are better off. Nevertheless, since a similar tendency could be ascertained in the two socially deprived areas in Denmark, I find it appropriate to translate the results of this study to other disadvantages neighborhoods within Denmark, as well as to those countries, which possess a comparable economic, political and cultural situation like Denmark. In this regard evidence from Sacker, Worts and McDonough (2010), who analyzed self-rated health data in Britain, Germany, Denmark and the US, suggest that national differences in self-perceived health may be attributed to national welfare policies.

6.4 Suggestions for further research

First of all, I want to underline, that many other health and morbidity measures could be studied. Other reliable and validated questionnaires dealing with subjective health, like the SF-36 Health survey (Brazier et al., 1992) could be applied to measure health perceptions. To measure objective health, the opportunities are endless, like feeling somebody's pulse, taking an electrocardiogram or examining a blood sample.

Moreover, deeper knowledge about the content and meaning of the question, "How do you perceive your general current health status?", could additionally be gained through qualitative research methods. One focus could lie on the investigation of the understanding and interpretation of the question from the perspective of Danish residents and people with an ethnic background.

Regarding the new public health movement and the salutogenetic perspective on health, more questions asking about resources of the residents could be substituted or added, like "Do you feel vitalized after being physically active?". Also questions from Antonovsky's Orientation to Life Questionnaire (SOC-Scale) (Antonovsky, 1997) could, for example, be integrated in the existing questionnaires.

Concerning the statistical analysis of this study, the inclusion of control variables could augment the power of significant result and uncover confounders.

Furthermore, subscales could be generated concerning each subject, like socioeconomic factors or psychological factors. In this study, I focused on single items of the questionnaires. By developing subscales, the reliability and main effects of those scales could be investigated, enabling the researcher to make sound statements about the impact of main factors. In addition, to be able to make more comparisons between the socially deprived neighborhoods, more questions in both questionnaires should be matched.

Taking the causal relationship between neighborhood and self-perceived health into consideration, further research can contribute to highlight the nature of this link. More specifically, whether it is the living environment, which determines self-perceived health – revealing contextual effects - or if self-perceived health is a result of the accumulation of risk factors concerning each individual – revealing compositional effects. A longitudinal study design would be most appropriate to study these influences over a certain time span.

7. CONCLUSION

First of all, this study revealed that the residents of the two disadvantaged neighborhoods perceived their health to a considerable amount worse in comparison to the whole population in Denmark. This substantial finding indicates that more research is needed to investigate the reasons for this decline, as well as the need for interventions to reduce such health inequalities. Since self-perceived health has been proven as a reliable and valid indicator of overall health and premature death, the situation in both socially deprived neighborhoods has to be taken seriously. To improve the current situation and take action, community interventions are suggested in this study, referring to the planning framework of Laverack and Labonte (2000). One advantage of this framework is its emphasize on community empowerment, which leads to a shift towards greater equality in the society, complying with a major long-term goal of the FELIS-project. Another benefit is its integration of bottom-up and top-down approaches to elicit behavioral, psychosocial and structural changes in the neighborhoods. This is important, since this study identified significant associations and tendencies between self-perceived health and a range of factors (e.g. demographic and psychological factors).

In line with previous research, this study found that men perceived their health better than women. Regarding civil status, inconsistent findings were ascertained. Further on, older people perceived their health significantly worse than younger participants in both neighborhoods, which identifies the elderly as one group, which should be targeted in community interventions. Since the FELIS-project attaches importance to ethnic minorities, the results concerning ethnicity are particularly interesting. It was striking that those findings were contrary - especially with regard to the current state of research in this field - since in one neighborhood more Danes perceived their health as very good or good, while in the other one more people with an ethnic background did so. Given that about one third of the participants in both samples had an ethnic background, this is a substantial finding. To illuminate this phenomenon, qualitative research could be applied and action could be derived later on.

Furthermore, as expected, nearly all socioeconomic factors (e.g. education, occupation, economic situation, unemployment and so on) were significantly associated with worse self-perceived health in both disadvantaged neighborhoods. This emphasizes a need for structural changes, for instance changes in social policies. This concerns particularly people, who reported about a low level of education, economic deprivation, a bad economic situation and those residents, who had been on sick leave for at least three months in the last three years. Besides, being unemployed was significantly associated with a worse health status in one of the samples

(Kvaglund), whereas in the other sample, a similar trend could be established. Above, one striking finding concerns residents with a low level of education: nearly every third participant, who resides in one of the neighborhoods (Kvaglund) perceived his or her health as very bad and bad compared to every fifth person in the other area (Korskærparken). This finding stands out, when taking into consideration that in whole Denmark only every twentieth person perceived his or her health as worse.

Beyond socioeconomic factors, the accumulation of stressors appeared to be significantly associated with self-perceived health in the two areas, which implies that interventions should address stress reduction. In one neighborhood (Korskærparken), it furthermore emerged that participants, who felt that their contribution to their own health was important, perceived their health as better. Three quarters of the participants in Korskærparken indicated that they wanted to improve their health, implicating that interventions are welcome and wanted. Besides, illness-related factors, namely suffering from a long-term illness or experiencing pain or discomfort in the last 14 days, appeared to be significantly associated with the perception of a worse health status in both neighborhoods. This implies that ill people should be targeted through community interventions to reduce discomfort and enhance their quality of life.

For the behavioral risk factors, it could generally be ascertained that harmful health behavior, like smoking and a low level of physical activity, was more prevalent in the two socially deprived areas than in Denmark as a whole. Furthermore, a higher level of physical activity was significantly associated with better self-perceived health in both disadvantaged areas, implicating that interventions should contain elements aiming at behavioral change, especially the promotion of physical activity. Analyzing social network factors, it appeared that lonely people should be targeted by community interventions, since those participants perceived their health significantly worse than the ones, who felt less lonely. People, who met their friends and family more often, had a better self-perceived health status compared to those, who rarely met friends or family. Moreover, when looking at neighborhood factors, which were investigated in one of the neighborhoods (Korskærparken), the results show that people, who were more satisfied with living in Korskærparken, and those, who felt safe to a higher degree, perceived their health significantly better. This indicates, that strengthening the satisfaction with the living situation in the area and the feeling of safety in the neighborhood, leads to better health outcomes. Beyond this, the building of social capital was stressed by different authors, and should be considered to contribute to the overall well-being in both neighborhoods. Finally, people, who had been living in Korskærparken longer than 15 years tended to perceive their

health worse, than participants, who had been living there for less than five years. This is aligned with theories, which state that living in a disadvantaged area has detrimental effects on health.

Taking the results of this study into consideration in relation to Antonovsky's metaphor of comparing life with a river, whose stream is rapid, involving danger in some parts and an easy stream in other parts, it is questionable whether people, living in deprived areas, have to swim in a more rapid stream than residents of more advantaged areas. This study showed that self-perceived health was worse in both disadvantaged neighborhoods, and harmful health behavior was more prevalent. These findings imply that the residents in those areas actually have to swim in a more rapid stream, or have a weakened ability to swim. Hence, a successful implementation of interventions should either aim at reducing the speed of the stream, or at teaching the residents how to swim well. The metaphoric speed reduction of the stream refers to structural interventions in the neighborhoods, while strengthening the residents' ability to swim well relates to behavioral changes. Taking action considering both realms requires assertive health workers, who understand to collaborate with the community and put a major effort in understanding the perspective of the residents.

All in all, it became clear that action is required to support both neighborhoods to change the current situation. While first steps are already undertaken in the course of the FELIS-project, further action has to and will be planned. In this regard, this thesis can serve as a reference point or source of inspiration, and finally contribute to improving health in the socially deprived neighborhoods in Denmark.

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APPENDIX

Appendix A - Map of Denmark

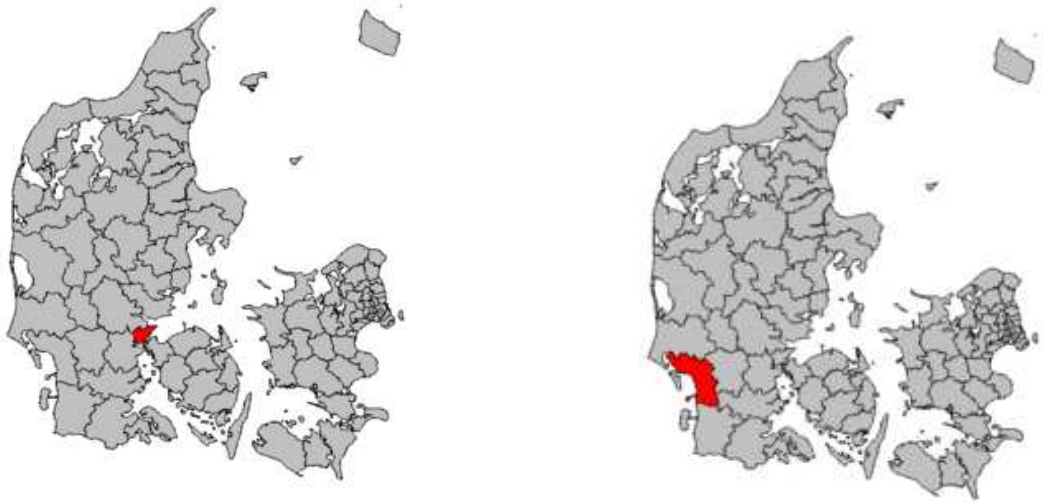
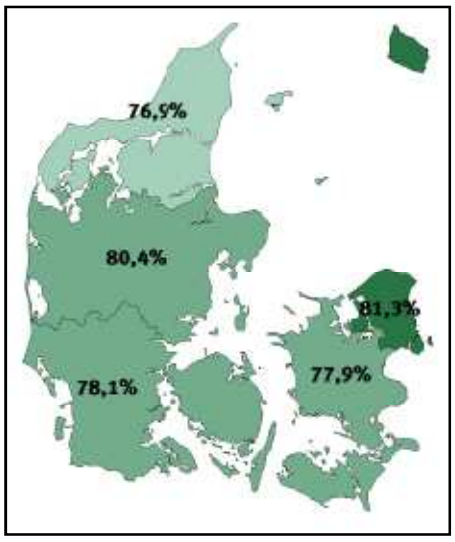


Figure A.14. Maps of Denmark showing the location of Fredericia municipality including Korskærparken (on the left) and Esbjerg municipality including Kvaglund (on the right). (Source: Syddansk Universitet (2010) http://www.sdu.dk/Om_SDU/Institutter_centre/Ist_sundhedstjenesteforsk/Forskning/Forskningsenheder/Sundhedsfremme/Forskningsprojekter/FELIS+projektet/Deltagende+kommuner accessed on August 19th 2010).



The map shows Denmark (see Figure 15), split up in its five regions. It depicts that people in the Capital Region perceive their health most often as very good and good (81.3%), followed by residents of Central Denmark (80.4%), Southern Denmark (78.1%), Zealand (77.9%) and finally Northern Denmark (76.9%).

Figure A.15. Percentage of very good and good health in the different parts of Denmark. (Source: Eriksen, 2006, p.35)

Appendix B - Questionnaire Fredericia Municipality Korskærparken

Fredericia Municipality - Korskærparken[16]

Residents health behavior mv.

Local Environment (Social Capital)

At first, I would like to ask you a few questions about your perception of the local environment, in which you live.

How satisfied are you with living in Korskærparken?

To a very high degree

To a high degree

To some degree

To a low degree

Not at all

I don't know

What do you enjoy about living in Korskærparken? (multiple)

Write the answer here:_____

Which impression, do you think people, who are not living in Korskærparken, have about Korskærparken?

Very good

Good

Neither good nor bad

Bad

Very bad

---

[16] The layout of the questionnaire was changed slightly in this Appendix; the content stayed the same though.

I don't know

To what degree...

	1. to a very high degree	2. to a high degree	3. to some degree	4. to a lower degree	5. not at all	6. I don't know/I don't want to answer
To what degree do you feel safe in Korskærparken?	☐	☐	☐	☐	☐	☐
To what degree do you speak to your neighbors or other people from Korskærparken?	☐	☐	☐	☐	☐	☐
To what degree do you know about social activities in Korskærparken?	☐	☐	☐	☐	☐	☐
To what degree do you participate in activities in Korskærparken?	☐	☐	☐	☐	☐	☐

How often do you speak to residents of Korskærparken, who have an ethnic background than you?

Very often

Often

Every now and then

Rarely

Never

I don't know/I don't want to answer

What do you think should be done, to make Korskærparken a better place to live?

Write what should be done:_____

Do you have plans or wishes to move away from Korskærparken?

No

Yes , in the long term

Yes, if it was possible, I would move now

I don’t know

Self-perceived health and stress

The next section is dealing with question about your health and general well-being. Now, some questions about your health and general well-being will follow.

How do you perceive your current general health status?

Really good

Good

Fair

Rather bad

Bad

Do you think you can do something to stay in good health?

I think my own input is very important

I think my input is important

I think my input is a bit important

I don’t believe in my personal contribution/input

Do you feel stressed in your everyday life?

Yes, often

Yes, every now and then

Rather not

No, never

I don’t know

How often do you feel, that you are not able to control important things in your life?

Very often

Often

Every now and then

Rarely

Never

I don’t know/I don’t want to answer

Did you feel stressed due to one or some of the following things in the last 12 months? (Multiple answers possible)

None of the things

Your economic situation

Your living situation

Your work situation or unemployment

Relation to your partner or children

Your poor health status

Sickness of your partner, family or close friends

Social relations

Now, I would like to ask some questions about your social relations.

Do you sometimes feel alone even though you would like to be with others?

Yes, often

Yes, every now and then

Yes, but rarely

No

How often do you meet with your family? (Meeting involves personal contact. Not telephone contact. Family incorporates all family members with whom you are not living together.)

Daily or rather daily

Once or twice a week

Once or twice a month

Rarely

Never

How often do you meet with friends or acquaintances? (”Meeting” involves personal contact. Not telephone contact.)

Daily or rather daily

1 or 2 times a week

1 or 2 times a month

Rarely

Never

Health behavior

The following questions concern your health behavior

Do you do something to stay healthy or improve your health?

No, I don’t do anything

Yes, I tried, but I gave up

Yes, I do something

(If ’Yes I tried but I gave up’ or ’Yes, I do something’ in question Q20)

What do you do or what have you done to stay healthy or improve your health?

Nothing

I am physically active

I eat a healthy diet

I try to eat less

I don't smoke

I try to stop smoking or smoke less

I don't drink alcohol

I try to restrict my alcohol consumption

I make sure to live a stress-free life

I make sure that I get enough sleep

I keep in contact with family and friends

How often do you drink/eat...

	1. Rarely/ Less than once a week	2. Every now and then	3. A few times a week	4. Almost every day	5. Every day/ Several times a day	6. I don't know
Fruits or vegetables?	☐	☐	☐	☐	☐	☐
Fish or cold cuts of fish (fiskepålæg)?	☐	☐	☐	☐	☐	☐
Sweets, cake, chips or chocolate?	☐	☐	☐	☐	☐	☐
Sugar containing drinks (e.g. juice or soda)?	☐	☐	☐	☐	☐	☐
Fastfood (e.g. pizza and grilled food)?	☐	☐	☐	☐	☐	☐

Do you smoke?

Yes, daily

Yes, at least once a week

Yes, but rarely

No, I quit smoking

No, I never smoked

How many cigarettes, cigars, cigarillos or grams pipe tobacco do you smoke on average per day?

Write the answer: _____

Do you smoke at home?

Yes, daily

Yes, every now and then

Yes, but very rarely

No, never

How many units of alcohol do you drink usually per week?

0 units

1 unit

2-7 units

8-14 units

15-21 units

22-30 units

Over 30 units

How often do you drink 5 units or more on one occasion?

Rather daily or daily

Weekly

Monthly

Rarely

Never

How many days a week are you usually physically active for a least 30 minutes a day? (Moderate or severe physical activity should be included, which increase your breathing frequency: E.g. Practicing exercises or competition sports, physically demanding garden work, quick walking, cycling at moderate or fast speed, or physically strenuous work. Include both work and leisure)

0 days per week

1 dag per week

2 days per week

3 days per week

4 days per week

5 days per week

6 days per week

7 days per week

If you think of the last year, which of the following descriptions does fit your physical activity routine in **your leisure time** best?

I work out hard and participate in practicing competition sports regularly and several times per week

Practicing physical exercises or physically demanding garden work at least 4 times per week

I go for walks, cycle or practice other less strenuous physical activities at least 4 times per week (involves also Sunday-tours, light garden work and cycling/walking to work)

I read, watch TV, use the computer or engage in other activities while sitting

---

How tall are you? (in meters)

Write the answer:_____

How much do you weigh? (in kg)

Write the answer:_____

Illness and Pain

The coming questions deal with your past experiences of illnesses and pain

---

Do you suffer from a long-term illness, prolonged after-effect of harm, disabling condition or other prolonged suffering ? (”prolonged” means at least 6 months)

Yes

No

Did you feel strained from some form of pain or discomfort within the last 14 days? (INT: don’t read the answers out loud)

Pain or discomfort in neck, shoulders, arms or hands

Pain or discomfort in the back or loin

Pain or discomfort in legs, hip, knee or feet

Headache

Rapid or excelliorated heartbeat

Worrying, nervousness, unease or anxiety

Sleeplessness, Sleeping problems

Dejection, depression, unhappiness

Fatigue

Cold and cough

Breathlessness

Nausea or stomach problems

Dizziness

Pain or discomfort around the heart or chest

Nothing of the above mentioned

Personal background information

In the end I would like to know something about your background

---

How old are you?

Are you? <INT: Interviewer don't ask, but note the sex of the respondent>

Woman

Man

What is your ethnic background?

Danish

Turkish

Somali

Iranian

Irakian

Ex-Yugoslav

Other

Afghan

Kosovoalbanian

European

African

North (Skaninavian/Iceland)

Sri Lankan

Asian

Libanese

Palestinian

What is your civil status?

I live alone

I live together with my longtime partner/spouse

I share a flat

I live at my parents' house

I don't know/ I don't want to answer

How many school-aged children live in your household? (between the age of 6 and 18) (single answer)

None

1 child

2 children

3 children

4 children or more

I don't know/ I don't want to answer

How many preschool-aged children live in your household? (between the age of 0 and 5) (single answer)

None

1 child

2 children

3 children

4 children or more

I don't know/ I don't want to answer

How many years have you been living in Korskærparken? (Note the number of years.)

What is your last completed education? ***(Single)***

Primary school (1st-10th class)

Apprenticeship for adolescence(e.g. gymnasium,HF, HTX, commercial school)

Apprenticeship (e.g. craftsmen, trade and office)

Short further education, 1½-2 years (e.g. Social- and health assistant)

Medium-long further education, 2½-4½ years (e.g. Primary school teacher)

Long further education (e.g. university)

Another education like language courses, AMU-courses

What is your current occupation? ***(Single)***

Self-employed

Skilled worker

Unskilled worker

White-collar workers, businessman

(E.g. Physician, Office assistant, Teacher)

Student

Early-retired because of illness or handicap

Homekeeper, housewife

On benefit payment

Pensioner, premature pensioner

If other, please note:

Have you been unemployed during the last 3 years?

No

Yes, but less than 3 months

Yes, 3 months to 1 year

1-2 years

More than 2 years

Have you been on sick leave for a longer period during the last 3 years?

No

Yes, but less than 3 months

Yes, 3 months to 1 year

1-2 years

More than 2 years

What do you and your family have to live for, after you have paid all living expenses covering all recurring costs and fixed costs referring to one month?

0-999 kr.

1000-1999 kr.

2000-2999 kr.

3000-3999 kr.

4000-4999 kr.

5000-5999 kr.

6000-6999 kr.

7000-7999 kr.

8000-8999 kr.

9000-9999 kr.

over 10.000 kr.

I don't know/ I don't want to answer

Were you or your family not able to do one of the following activities due to economic reasons during the last few months?

None of the things?

Paying bills – like rent?

Paying for unpredictable expenses like: Equipment at home, repairing a bicycle, TV, radio, furniture etc.?

Leisure interests (E.g. membership in a sports club)?

Buying presents for birthdays or other occasions?

Go to the dentist?

Buying necessary medication?

Buying clothes or shoes?

Thank you very much for your answers

Appendix C - Questionnaire Esbjerg Municipality Kvaglund

1. Number (Indicate a value between 1 and 5000)[17]

2. Date

_ _

3. Birth date

_ _

4. Name

_ _

5. Address

_ _

6. What is your civil status? (Indicate one answer)

☐ I live alone

☐ I live together with my longtime partner/spouse

☐ I share a flat

[17] The layout of the questionnaire was changed slightly in this Appendix; the content stayed the same though.

☐ I live at my parents' house

☐ I don't know/ I don't want to answer

Everyday stress and burden

The questions will deal with your experience of burdening or stressing situations in the last months.

7. How often have you been upset because of something that happened unexpectedly? (Indicate one answer only)

☐ 0 Never

☐ 1 Almost never

☐ 2 Sometimes

☐ 3 Fairly often

☐ 4 Very often

☐ Point__

8. How often have you felt that your were unable to control the important things in your life? (Indicate one answer only)

☐ 0 Never

☐ 1 Almost never

☐ 2 Sometimes

☐ 3 Fairly often

☐ 4 Very often

☐ Point__

9. How often have you felt nervous and ”stressed”? (Indicate one answer only)

☐ 0 Never

☐ 1 Almost never

☐ 2 Sometimes

☐ 3 Fairly often

☐ 4 Very often

☐ Point__

10. How often have you felt confident about your ability to handle your personal problems? (Indicate one answer only)

☐ 4 Never

☐ 3 Almost never

☐ 2 Sometimes

☐ 1 Fairly often

☐ 0 Very often

☐ Point__

11. How often have you felt that things were going your way? (Indicate one answer only)

☐ 4 Never

☐ 3 Almost never

☐ 2 Sometimes

☐ 1 Fairly often

☐ 0 Very often

☐ Point__

12. How often have you found that you could not cope with all the things that you had to do? (Indicate one answer only)

☐ 0 Never

☐ 1 Almost never

☐ 2 Sometimes

☐ 3 Fairly often

☐ 4 Very often

☐ Point__

13. How often have you been able to control irritations in your life? (Indicate one answer only)

☐ 4 Never

☐ 3 Almost never

☐ 2 Sometimes

☐ 1 Fairly often

☐ 0 Very often

☐ Point__

14. How often have you felt that you were on top of things? (Indicate one answer only)

☐ 4 Never

☐ 3 Almost never

☐ 2 Sometimes

☐ 1 Fairly often

☐ 0 Very often

☐ Point__

15. How often have you been angered because of things that were outside of your control? (Indicate one answer only)

☐ 0 Never

☐ 1 Almost never

☐ 2 Sometimes

☐ 3 Fairly often

☐ 4 Very often

☐ Point__

16. How often have you felt difficulties were piling up so high that you could not overcome them? (Indicate one answer only)

☐ 0 Never

☐ 1 Almost never

☐ 2 Sometimes

☐ 3 Fairly often

☐ 4 Very often

☐ Point__

17. Did you feel stressed due to one or some of the following things in the last 12 months? (Please indicate no, one or more answers)

☐ Your economic situation

☐ Your living situation

☐ Your work situation or unemployment

☐ Relationship to your partner or children

☐ Your poor health status

☐ Sickness of your partner, family or close friends

Self-perceived health

18. How would you perceive your current general health status? (Indicate one answer only)

☐ Very good

☐ Good

☐ Fair

☐ Bad

☐ Very bad

Social relations

19. Do you sometimes feel alone although you would like to be with others? (Indicate one answer only)

☐ Yes, often

☐ Yes, every now and then

☐ Yes, but rarely

☐ No

20. How often do you meet with your family? (Meeting involves personal contact. Not telephone contact. Family incorporates all family members with whom you are not living together.) (Indicate one answer only)

☐ Daily or rather daily

☐ 1 or 2 times a week

☐ 1 or 2 times a month

☐ Rarely

☐ Never

21. How often do you meet with friends or acquaintances? ("Meeting" involves personal contact. No telephone contact.) (Indicate one answer only)

☐ Daily or rather daily

☐ 1 or 2 times a week

☐ 1 or 2 times a month

☐ Rarely

☐ Never

Health habits and health behavior

22. How often do you eat or drink: (Indicate one answer only per question)

	Never/very rarely	Less than once a week	Once a week	A few times a week	Almost every day	Every day/More than once a day
a. Potatoes, rice or pasta?	☐	☐	☐	☐	☐	☐
b. Bread, or grain?	☐	☐	☐	☐	☐	☐
c. Fruit or vegtables?	☐	☐	☐	☐	☐	☐
d. Fish or fiskepålæg (e.g. cold cut fish)?	☐	☐	☐	☐	☐	☐
e. Sweets, Cake, Chips or chocolate?	☐	☐	☐	☐	☐	☐
f.Sugarcontaining drinks (e.g. juice or	☐	☐	☐	☐	☐	☐

soda)?

g.Fastfood (e.g. pizza and barbecue)?	☐	☐	☐	☐	☐	☐

Smoking

23. Do you smoke daily? (Indicate one answer only)

☐ Yes, daily

☐ Yes, at least once a week

☐ Yes, but rarely

☐ No, I stopped smoking

☐ No, and I never smoked

24. How many cigarettes, cigars, cigarillos or grams pipe tobacco do you smoke on average per day? (Indicate a value between 0 and 1000)

☐ _ _ _ _ _ _

25. Do you smoke at home? (Indicate one answer only)

☐ Yes, daily

☐ Yes, every now and then

☐ Yes, but very rarely

☐ No, never

Alcohol

26. How many units of alcohol do you drink usually per week? (Indicate one answer only)

☐ Less than 2 units

☐ 2-7 units

☐ 8-14 units

☐ 15-21 units

☐ 22-30 units

☐ Over 30 units

27. How often do you drink 5 units or more on one occasion? (Indicate one answer only)

☐ Almost daily or daily

☐ Weekly

☐ Monthly

☐ Rarely

☐ Never

Physical activity

28. If you think of the last year, which of the following descriptions does fit your physical activity routine in your leisure time best? (Indicate one answer only)

☐ I work out hard and participate in practicing competition sport regularly and several times per week

☐ Practicing physical exercise movement sport or physically demanding garden work at least 4 times per week

☐ I go for walks, cycle or have other less strenuous physical activities at least 4 times per week (involve also Sunday-tours, light garden work and cycling/walking to work)

☐ I read, watch TV, use the computer or engage in other activities while sitting

Hight and weight (Body Mass Index (BMI))

29. How tall are you? (in meter) (Indicate a value between 1 and 1000)

☐ _ _ _ _ _ _

30. How much do you weigh? (in kg) (Indicate a value between 1 and 1000)

☐ _ _ _ _ _ _

Illness and Pain

31. Do you have any of the following long-term diseases? (long-term means at least 6 months here) (Indicate one answer only per question)

	Yes	No
Asthma	☐	☐
Allergy	☐	☐
Diabetes	☐	☐
Cataract	☐	☐
Raised blood pressure	☐	☐
Heart problems	☐	☐
Brain bleeding or thrombus in brain	☐	☐
Chronic bronchitis (emphysema)	☐	☐

Gout, rheumatism	☐	☐
Osteoporosis	☐	☐
Stomach ulcer, duodenal ulcer	☐	☐
Migraine or frequent headache	☐	☐

Cancer: Which kind of cancer?

_ _

32. Did you feel strained from some form of pain or discomfort within the last 14 days? (Indicate one answer only per question)

	Yes, very much	Yes, a little	No
Pain or discomfort in neck, shoulders, arms or hands	☐	☐	☐
Pain or discomfort in the back or loin	☐	☐	☐
Pain or discomfort in legs, hip, knee or feet	☐	☐	☐
Headache	☐	☐	☐
Rapid or excelliorated heartbeat	☐	☐	☐
Worrying, nervousness, unease or anxiety	☐	☐	☐
Sleeping problems	☐	☐	☐
Dejection, depression, unhappiness	☐	☐	☐

Fatigue	☐	☐	☐
Cold, cough, sniffles	☐	☐	☐
Shortness of breath	☐	☐	☐
Nausea or upset stomach	☐	☐	☐
Dizziness	☐	☐	☐
Pain or discomfort in heart or chest	☐	☐	☐

Use of health care services

33. Did you have contact to a physician because of side effects, a disease or other harm in the last 3 months? (Only include contacts because of your own sickness, not if you were there because of your children's sickness.) (Indicate one answer only per question)

	Yes	No
General practitioner	☐	☐
Emergency doctor	☐	☐
Medical specialist	☐	☐
Emergency room	☐	☐
Hospital (outpatient clinic)	☐	☐
Admission to hospital	☐	☐

Other (e.g. rehabilitation, cancer treatment, psychological suffering etc.):

_ _

34. Did you make use of one or more of the following treatments in the last 3 months? (Multiple answers possible)

☐ Dentist

☐ Physiotherapist

☐ Chiropractor

☐ Psychologist

☐ Alternative treatment (e.g. sun therapist, massager, acupuncture)

35. Did you use one or more of the following medicines on prescription or over-the-counter medications in the last 14 days? (Multiple answers possible)

☐ Yes, couph medicine

☐ Yes, asthma medicine

☐ Yes, antihypertensive medicine

☐ Yes, heart medicine

☐ Yes, skin medicine

☐ Yes, painkilling medicine for discomfort in muscles, bones, strings or joints (e.g. gout medicine)

☐ Yes, painkilling medicine for headache

☐ Yes, other painkilling medicine

☐ Yes, sleeping pills

☐ Yes, laxative

☐ Yes, neural medicine, calming medicine (e.g. antidepressants)

☐ Yes, penicillin or another form of antibiotics

Yes, other medicine, Write down which:

_ _

36. Did you make use of psychological or psychiatric help or treatment in the last year? (Multiple answers possible)

☐ Yes, because I experienced a deep mourning

☐ Yes, because I experienced traumatic event

☐ Yes, because I was mentally ill

☐ Yes, because I have bad nerves

☐ Yes, because I have been very stressed

☐ Yes, because I have been depressed for a longer time period

☐ No

Yes, because of something else. Write down:

_ _

Education and Occupation

37. What is your last completed education? (Indicate one anser only)

☐ I don’t want to answer

☐ Long further education (5 year or more)

☐ Medium long further education (3-4 years)

☐ Short further education (1-2 years)

☐ Apprenticeship (skilled worker, craftsmen, HK etc.)

☐ HH/Studentereksamen/HF

☐ EFG/HG/Technical school (1-year adolescence apprenticeship)

☐ Primary school, Middle school

☐ Other education (language courses, AMU-courses)

☐ No education

38. What is your current occupation? (Indicate one answer only)

☐ Employee

☐ Employer

☐ Self-employed

☐ Housekeeper, Housewife

☐ Parental leave

☐ Pensioner

☐ Early-retired because of illness or handicap

☐ Unemployed

☐ Premature pension

☐ On benefit payment

☐ Student/Pupil

If you work, write down your exact specification of work:

_ _

39. Have you been unemployed during the last 3 years? (One answer only)

☐ No, I haven't been unemployed

☐ Less than 3 monthsr

☐ 3 months – 1 year

☐ 1 year - 2 years

☐ 2 years or more

40. Have you been on sick leave for a longer period during the last 3 years? (Indicate one answer only)

☐ No

☐ Less than 3 months

☐ 3 - 6 months

☐ 6 months -1 year

☐ Over 1 year

Disposable income and economic deprivation

41. What amount of money do you and your family have to live for, after you paid all living expenses covering all recurring costs and fixed costs referring to one month? (Indicate one answer only)

☐ 0-999 kr

☐ 1000-1999 kr

☐ 2000-2999 kr

☐ 3000-3999 kr.

☐ 4000-4999 kr.

☐ 5000-5999 kr.

☐ 6000-6999 kr.

☐ 7000-7999 kr.

☐ 8000-8999 kr.

☐ 9000-9999 kr.

☐ Over 10.000 kr

☐ I don't know/ I don't want to answer

42. Were you or your family not able to do one of the following activities due to economic reasons during the last few months? (Multiple answers possible)

☐ Paying bills – like rent?

☐ Paying for unpredictable expenses like: Equipment at home, repairing a bicycle, TV, radio, furniture etc.?

☐ Leisure interests (E.g. membership in a sports club)?

☐ Buying presents for birthdays or other occasions?

☐ Go to the dentist?

☐ Buying necessary medication?

☐ Buying clothes or shoes?

Appendix D - Variables concerning the questionnaire of Korskærparken

Variable/ Label	Question	Answer options	Categorized into
Self-perceived health		.	.
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Self-perceived health	How do you perceive your current general health status?	Really good, Good, Fair, Bad, Very bad	0 = (Very) good, Fair; 1 = (Very) bad
Demographic factors		.	.
.			
Age	How old are you?	-	1 = 16-29; 2 = 30-39; 3 = 40-49; 4 = 50-59; 5 = 60-69; 6 = 70+
Gender	Are you male or female?	-	1 = Men; 2 = Women
Ethnicity	What is your ethnic background?	.	1 = Danish; 2 = An ethnic background
Living situation	What is your civil status?	Living alone, living with spouse/long-time partner, share a flat, living with parents, Don't want to answer	1 (Living together)= Living with spouse/long-time partner, share a flat, live with parents; 2 = Living alone
Children in school-age	How many school-aged children live in your household? (between the age of 6 and 18)	None, 1 child, 2 children, 3 children, 4 children and more, I don't want to answer	0 = No, 1 = 1 and more
Children in preschool-age	How many preschool-aged children live in your household? (between the age of 0 and 5)	None, 1 child, 2 children, 3 children, 4 children and more, I don't want to answer	0 = No, 1 = 1 and more
Socioeconomic factors		.	.
.			
Education	What is your last completed education?	Primary school, Apprenticeship for adolescents, Apprenticeship, Short further education, Medium-long further education, Long further education, Other short education	1 (High education) = medium-long and long further education; 2 (Middle education) = Short further education, Apprenticeship, Apprenticeship for adolescents); 3 (Low education) = Primary school, Other short education
Occupational status	What is your current occupation?	Self-employed, Skilled worker, Unskilled worker, Businessman, Physician Office assistant or Teacher, Early retired because of illness or	-

		handicap, Homekeeper or Housewife, People on benefit payment, Pensioner or Premature pensioner, Other	
Occupation	see Occupation	see Occupation	1= Economically active: Self-employed, Skilled worker, Unskilled worker, Businessman, Physician Office Assistant or Teacher; 2 = Not economically active: Student, Early retired because of illness or handicap, Housekeeper or Housewife, Pensioner or premature pensioner, People on benefit payment
Economic situation	What do you and your family have left to live for, after you have paid all living expenses covering all recurring costs /fixed costs referring to one month?	0-999 Kroner (Kr.), 1000-1999 Kr., 2000-2999 Kr., 3000-3999 Kr., 4000-4999 Kr., 5000-5999 Kr., 6000-6999 Kr., 7000-7999 Kr., 8000-8999 Kr., 9000-9999 Kr., Over 10.000 Kr., I don't want to answer	1 = 0-2999 Kr.; 2 = 3000-5999 Kr.; 3 = 6000-9999 Kr., 4 = Over 10.000 Kr.
Economic deprivation	Were you or your family not able to do one of the following activities due to economic reasons during the last few months?	None of the things, Paying bills, Paying for unpredictable expenses, Paying for leisure interests, Buying presents, Go to the dentist, Buying necessary medication, Buying clothes	A scale was computed. 0 = None; 1 = The person had ticked one of the questions (One); 2 = The person had ticked 2 or 3 of the questions (Fairly); 3 = the person had ticked 4 or more of the questions (A lot)
Unemployment	Have you been unemployed during the last 3 years?	No, Yes but less than 3 months, Yes 3 months to one year, Yes 1-2 years, Yes more than 2 years	1 = No; 2 = Yes less than 3 months to more than 2 years
Sick leave	Have you been on sick leave for a longer period during the last 3 years?	No, Yes but less than 3 months, Yes 3 months to one year, Yes 1-2 years, Yes more than 2 years	1 = No; 2 = Yes less than 3 months to more than 2 years
Psychological factors		.	.
.			
Health locus of control	Do you think you can do something to stay in good health?	Yes I think my own input is very important, Yes I think my own input is important, Yes I think my input is a bit important, No	1 = I think my own input is (very) important; 2 = My own input is a bit important and No
Manageability of important things	How often do you feel that you are not able to control important things in your life?	Very often, Often, Every now and then, Rarely, Never, I don't know	1 = (Very) often, Every now and then; 2 = Rarely and Never
Stress	Do you feel stressed in everyday like?	Yes often, Yes every now and then, rather not, No never, I don't now	1 = Yes often and every now and then; 2 = Rather not and never

Stressors	Did you feel stressed due to one or some of the following things in the last 12 months?	None of the things**, Your economic situation, Your living situation, Your work situation or unemployment, Relation to your partner or children, Your bad health, Sickness of your partner, family or close friends	A scale was computed. 0 = No stressor was ticked; 1 = 1 Stressor was ticked; 2 = 2-3 stressors were ticked; 4 = 4 and more stressors were ticked
Illness-related factors		.	.
.			
Pain or discomfort in the last 14 days	Did you feel strained from some form of pain or discomfort within the last 14 days? Pain or discomfort in neck shoulders arms or hands, Pain or discomfort in the back or loin, Pain or discomfort in legs, hip, knee or feet, Headache, Rapid or excelliorated heartbeat, Worrying nervousness unease or anxiety, Sleeplessness or sleeping problems, Dejection depression or unhappiness, Fatigue, Cold or couph, Breathlessness, Nausea or stomach problems, Dizziness, Pain or discomfort around the heart or chest, Nothing of the above-noted	Yes, No	A scale was computed. 0 = No pain was indicated; 1 = 1-2 pains were indicated; 2 = 3-4 pains were indicated; 3 = 5-8 pains were indicated; 4 = 9-14 pains were indicated
Long-term illness	Do you suffer from a long-term illness, prolonged after-effect of harm, disabling condition or other prolonged suffering ? (”prolonged” means at least 6 months)	Yes, No	1 = Yes; 2 = No
Health risk factors		.	.
.			
General health behavior	Do you do something to stay healthy or improve your health?	No, Yes I tried but I gave up, Yes	1 = No; 2 = Yes I tried but I gave up; 3 = Yes
.	What do you do or what have you done to stay healthy or improve your health?	Not included in LR analyses	.
Diet: Fruit and Vegetables	How often do you eat fruits or vegetables?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Fish or cold cut fish	How often do you eat fish or fishspread?	Rarely or less than once a week, Every now and then, A few times a week, Almost	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and

(fiskepålæg)		every day, Every day or several times a day, I don't know	rarely
Diet: Sweets, cake, chips or chocolate	How often do you eat sweets, cake, chips or chocolate?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Sugarcontaining drinks	How often do you drink sugarcontaining drinks?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Fastfood	How often do you eat fastfood?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Smoking	Do you smoke?	Yes daily, Yes at least once a week, Yes but rarely, No I quit smoking, No I never smoked	1 = Yes daily or at least once a week or rarely (Smoker) ; 2 = No I quit smoking (Ex-Smoker); 3 = No I never smoked
	How many cigarettes, cigars, cigarillos or grams pipe tobacco do you smoke on average per day?	Not included in whole analyses	.
Smoking at home	not included in whole analysis	.	.
Alcohol consumption per week	How many units of alcohol do you drink usually per week?	0 units, 1 unit, 2-7 units, 8-14 units, 15-21 units, 22-30 units, Over 30 units	This variable was categorized differently for men and women according to the recommended alcohol consumption. For women: 1 = below 14 units; 2 = More than 14 units Men: 1 = Below 21 units; 2 = More than 21 units
Alcohol consumption per occasion	How often do you drink 5 units or more on one occasion?	Rather daily or daily, Weekly, Monthly, Rarely, Never	No categorization
Physical activity per day	How many days a week are you usually physically active for a least 30 minutes a day?	0 days, 1 day, 2 days, 3 days, 4 days, 5 days, 6 days, 7 days	1 = 0 days; 2 = 1-3 days; 3 = 4-7 days)
General physical activity	If you think of the last year, which of the following descriptions does fit your physical activity routine in your leisure time best?	I work out hard and participate in practicing competition sports regularly and several times per week, Practicing physical exercises or physically demanding garden work at least 4 times per week, I go for walks, cycle or practice other less strenuous physical activities at least 4 times per week, I read, watch	1 (Hard and middle)= I work out hard and participate in practicing competition sports regularly and several times per week, Practicing physical exercises or physically demanding garden work at least 4 times per week; 2 (light and sitting) = I go for walks, cycle or practice other less strenuous physical activities at

		TV, use the computer or engage in other activities while sitting	least 4 times per week, I read, watch TV, use the computer or engage in other activities while sitting
Height	How tall are you?	Body Mass Index (BMI) was calculated: mass (kg)/(height (m))²	1 = Normal weight; 2 = Underweight; 3 = Overweight; 4 = A lot of overweight
Weight	How much do you weigh?	BMI was calculated	1 = Normal weight; 2 = Underweight; 3 = Overweight; 4 = A lot of overweight
Social and community network factors			
.		.	.
Interaction with family	How often do you meet with your family? (Meeting involves personal contact. Not telephone contact. Family incorporates all family members with whom you are not living together.)	Daily or rather daily, Once or twice a week, Once or twice a month, Rarely, Never	1 = Daily or rather daily and once or twice a week; 2 = Once or twice a month, rarely and never
Interaction with friends	How often do you meet with your friends? (Meeting involves personal contact. Not telephone contact.)	Daily or rather daily, Once or twice a week, Once or twice a month, Rarely, Never	1 = Daily or rather daily and once or twice a week; 2 = Once or twice a month, rarely and never
Loneliness	Do you sometimes feel alone even though you would like to be with others?	Yes often, Yes every now and then, Yes but rarely, No	1 = Yes often and every now and then; 2 = Yes rarely and No
Years living in Korskærparken	How many years have you been living in Korskærparken?	-	1 = Less than 5 years; 2 = 5-15 years; 3 = More than 15 years
Satisfaction with living in Korskærparken	How satisfied are you with living in Korskærparken?	To a very high degree, To a high degree, To some degree, To a low degree, Not at all, I don't know	1 = To a (very) high degree, to some degree; 2 = To a low degree, Not at all
Reputation of Korskærparken	Which impression, do you think, people, who are not living in Korskærparken, have about Korskærparken?	Very good, Good, Neither good nor bad, Bad, Very bad, I don't know	1 = (Very) good, neither good nor bad; 2 = (Very) bad
Feeling of safety in Korskærparken	To what degree do you feel safe in Korskærparken?	To a very high degree, To a high degree, To some degree, To a low degree, Not at all, I don't know	1 = To a (very) high degree, to some degree; 2 = To a low degree, Not at all
Communication among neighbors in Korskærparken	To what degree do you speak to your neighbors or other people from Korskærparken?	To a very high degree, To a high degree, To some degree, To a low degree, Not at all, I don't know	1 = To a (very) high degree, to some degree; 2 = To a low degree, Not at all
Passive participation in Korskærparken	To what degree do you know about social activities in Korskærparken?	To a very high degree, To a high degree, To some degree, To a low degree, Not at all, I don't know	1 = To a (very) high degree, to some degree; 2 = To a low degree, Not at all

Active participation in Korskærparken	To what degree do you participate in activities in Korskærparken?	To a very high degree, To a high degree, To some degree, To a low degree, Not at all, I don't know	1 = To a (very) high degree, to some degree; 2 = To a low degree, Not at all
Communication across ethnic categories in Korskærparken	How often do you speak to residents of Korskærparken, who have an ethnic background than you?	Very often, Often, Every now and then, Rarely, Never, I don't know	1 = (Very) often, Every now and then; 2 = Rarely and Never
Plans to move away from Korskærparken	Not included in LR analysis	.	.

Appendix E - Variables concerning the questionnaire of Kvaglund

Variable/Label	Question	Answer options	Categorized into
Self-perceived health		.	.
.			
Self-perceived health	How do you perceive your current general health status?	Really good, Good, Fair, Bad, Very bad	0 = (Very) good, Fair; 1 = (Very) bad
		.	.
Demographic factors			
.			
Age	How old are you?	.	1 = 17-29; 2 = 30-39; 3 = 40-49; 4 = 50-59; 5 = 60-69; 6 = 70+
Gender	Are you male or female?	.	1 = Men; 2 = Women
Ethnicity	What is your ethnic background?	.	1 = Danish; 2 = An ethnic background
Civil status	What is your civil status?	Marriage, Living together, Alone, Widow, Divorced or separated, Stopped living together	1 = Married, Living together; 2 = Alone, Widow, Divorced or separated, stopped living together
Socioeconomic factors		.	.
.			
Education	What is your last completed education?	Primary school, Apprenticeship for adolescents, Apprenticeship, Short further education, Medium-long further education, Long further education, Other short education	1 (High education) = medium-long and long further education; 2 (Middle education) = Short further education, Apprenticeship, Apprenticeship for adolescents); 3 (Low education) = Primary school, Other short education
Occupational status	What is your current occupation?	Employee, Employer, Self-employed, Housewive or housekeeper, On parental leave, Pensioner, Early-retired, Unemployed, Premature pension, On benefit payment, Student or Pupil	.
Occupation	see Occupation	see Occupation	1= Economically active: 2 = Not economically active:
Economic situation	What do you and your family have left to live for, after you have paid all living expenses covering all recurring costs	0-999 Kroner (Kr.), 1000-1999 Kr., 2000-2999 Kr., 3000-3999 Kr., 4000-4999 Kr., 5000-5999 Kr., 6000-6999 Kr., 7000-7999	1 = 0-2999 Kr.; 2 = 3000-5999 Kr.; 3 = 6000-9999 Kr., 4 = Over 10.000 Kr.

	/fixed costs referring to one month?	Kr., 8000-8999 Kr., 9000-9999 Kr., Over 10.000 Kr., I don't want to answer	
Economic deprivation	Were you or your family not able to do one of the following activities due to economic reasons during the last few months?	Paying bills, Paying for unpredictable expenses, Paying for leisure interests, Buying presents, Go to the dentist, Buying necessary medication, Buying clothes	A scale was computed. 0 = None; 1 = The person had ticked one of the questions (One); 2 = The person had ticked 2 or 3 of the questions (Fairly); 3 = the person had ticked 4 or more of the questions (A lot)
Unemployment	Have you been unemployed during the last 3 years?	No, Yes but less than 3 months, Yes 3 months to one year, Yes 1-2 years, Yes more than 2 years	1 = No; 2 = Yes less than 3 months to more than 2 years
Sick leave	Have you been on sick leave for a longer period during the last 3 years?	No, Yes but less than 3 months, Yes 3 months to one year, Yes 6 months to 1 year, Yes more than 1 year	1 = No; 2 = Yes less than 3 months to more than 1 year
Psychological factors.		.	.
Perceived Stress Scale (PSS)	Scale comprising 10 Questions	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	Questions are summed up (0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often) while the scores of question 4,5,7 and 8 are reservsinlgy counted (0=4, 1=3, 2=2, 4=0) A score between 0 and 40 can be obtained.
.	1. In the last month, how often have you been upset because of something that happened unexpectedly?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
.	2. In the last month, how often have you felt that you were unable to control the important things in your life?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
.	3. In the last month, how often have you felt nervous and "stressed"?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
.	4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
.	5. In the last month, how often have you felt that things were going your way?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
.	6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.

.	7. In the last month, how often have you been able to control irritations in your life?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
.	8. In the last month, how often have you felt that you were on top of things?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
.	9. In the last month, how often have you been angered because of things that were outside of your control?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
.	10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0=Never, 1 = Almost never, 2=Sometimes, 3=Fairly often, 4= Very often	.
Stressors	Did you feel stressed due to one or some of the following things in the last 12 months?	None of the things**, Your economic situation, Your living situation, Your work situation or unemployment, Relation to your partner or children, Your bad health, Sickness of your partner, family or close friends	A scale was computed. 0 = No stressor was ticked; 1 = 1 Stressor was ticked; 2 = 2-3 stressors were ticked; 4 = 4 and more stressors were ticked
Illness-related factors		.	.
.			
Pain or discomfort in the last 14 days	Did you feel strained from some form of pain or discomfort within the last 14 days? Pain or discomfort in neck shoulders arms or hands, Pain or discomfort in the back or loin, Pain or discomfort in legs, hip, knee or feet, Headache, Rapid or excelliorated heartbeat, Worrying nervousness unease or anxiety, Sleeplessness or sleeping problems, Dejection depression or unhappiness, Fatigue, Cold or couph, Breathlessness, Nausea or stomach problems, Dizziness, Pain or discomfort around the heart or chest, Nothing of the above-noted	1 = Yes; 0 = No	A scale was computed. 0 = No pain was indicated; 1 = 1-2 pains were indicated; 2 = 3-4 pains were indicated; 3 = 5-8 pains were indicated; 4 = 9-14 pains were indicated
Long-term illness	Do you have one of the following long-term diseases? (long-term means at least 6 months here) Asthma, Allergy, Diabetes, Cataract, Raised blood pressure, Heart problems, Brain bleeding or thrombus in brain, Chronic bronchitis, Gout or rheumatism, Osteoporosis, Stomach ulcer or duodenal	1 = Yes; 0 = No	A scale was computed. The scale was categorized into 1=No long-term disease; 2 = 1 and more long-term diseases

	ulcer, Migraine or frequent headache, Cancer		
Health risk factors		.	.
.			
General health behavior	Do you do something to stay healthy or improve your health?	No, Yes I tried but I gave up, Yes	1 = No; 2 = Yes I tried but I gave up; 3 = Yes
.	What do you do to perpetuate or improve your health?	I am physically active, I eat a healthy diet, I try to eat less, I don't smoke, I try to give up smoking or smoke less, I don't drink any alcohol, I try to restrict my alcohol consumption, I try to decrease my stress, I try to ge enough sleep, I keep in touch with family and friends	.
Diet: Potatoes, rice or pasta	How often do you eat potatos, rice or pasta?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Bread or grain	How often do you eat bread or grain?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Fruit and vegetables	How often do you eat fruits or vegetables?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Fish or cold cut fish (fiskepålæg)	How often do you eat fish or fishspread?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Sweets, cake, chips or chocolate	How often do you eat sweets, cake, chips or chocolate?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Sugarcontaining drinks	How often do you drink sugarcontaining drinks?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times a day, I don't know	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and rarely
Diet: Fastfood	How often do you eat fastfood?	Rarely or less than once a week, Every now and then, A few times a week, Almost every day, Every day or several times	1 = Daily or rather daily; 2 = A few times a week or weekly; 3 = Less than once a week and

		a day, I don't know	rarely
Smoking	Do you smoke?	Yes daily, Yes at least once a week, Yes but rarely, No I quit smoking, No I never smoked	1 = Yes daily or at least once a week or rarely (Smoker) ; 2 = No I quit smoking (Ex-Smoker); 3 = No I never smoked
.	How many cigarettes, cigars, cigarillos or grams pipe tobacco do you smoke on average per day?	Not included in whole analyses	.
.	Do you want to quit smoking?	Not included in whole analyses	.
.	Do you smoke at home?	Not included in whole analyses	.
Alcohol consumption per week	How many units of alcohol do you drink usually per week?	0 units, 1 unit, 2-7 units, 8-14 units, 15-21 units, 22-30 units, Over 30 units	This variable was categorized differently for men and women according to the recommended alcohol consumption. For women: 1 = below 14 units; 2 = More than 14 units Men: 1 = Below 21 units; 2 = More than 21 units
Alcohol consumption per occasion	How often do you drink 5 units or more on one occasion?	Rather daily or daily, Weekly, Monthly, Rarely, Never	No categorization
	What kind of help would you like to have, if you wish to lower your alcohol consumption?	Contact to an alcohol treatment center, Disulfiram treatment, Impose a prohibition of alcohol at my workplace, Help and support from my family, Opportunity to do it together with other who also want to restrict their alcohol consumption, help rom my general practitioner, help from other health personnel, I don't wish any help	Not included in whole analyses
General physical activity	If you think of the last year, which of the following descriptions does fit your physical activity routine in your leisure time best?	I work out hard and participate in practicing competition sports regularly and several times per week, Practicing physical exercises or physically demanding garden work at least 4 times per week, I go for walks, cycle or practice other less strenuous physical activities at least 4 times per week, I read, watch TV, use the computer or engage in other activities while sitting	1 (Hard and middle)= I work out hard and participate in practicing competition sports regularly and several times per week, Practicing physical exercises or physically demanding garden work at least 4 times per week; 2 (light and sitting) = I go for walks, cycle or practice other less strenuous physical activities at least 4 times per week, I read, watch TV, use the computer or engage in other activities while sitting
	What kind of help would you like to get, if you wish to be more physically active in your	Free sports offer, Opportunity for physical activity at my workplace, Shorter distance to sports facilities, Help and	Not included in LR analyses

	leisure time?	support of my family, Opportunity to do it with others who also want to be more physically active, Help from my general practitioner, Help from other health personnel, Training at home, I don't wish any help	
Height	How tall are you?	Body Mass Index (BMI) was calculated: mass (kg)/(height (m))²	1 = Normal weight; 2 = Underweight; 3 = Overweight; 4 = A lot of overweight
Weight	How much do you weigh?	BMI was calculated	1 = Normal weight; 2 = Underweight; 3 = Overweight; 4 = A lot of overweight
Social and community network factors			
.		.	.
Interaction with family	How often do you meet with your family? (Meeting involves personal contact. Not telephone contact. Family incorporates all family members with whom you are not living together.)	Daily or rather daily, Once or twice a week, Once or twice a month, Rarely, Never	1 = Daily or rather daily and once or twice a week; 2 = Once or twice a month, rarely and never
Interaction with friends	How often do you meet with your friends? (Meeting involves personal contact. Not telephone contact.)	Daily or rather daily, Once or twice a week, Once or twice a month, Rarely, Never	1 = Daily or rather daily and once or twice a week; 2 = Once or twice a month, rarely and never
Loneliness	Do you sometimes feel alone even though you would like to be with others?	Yes often, Yes every now and then, Yes but rarely, No	1 = Yes often and every now and then; 2 = Yes rarely and No
Access to health services		.	.
.			
Contact physician	Have you had contact to a physician because of side effects, a disease or other harm in the last 3 months?	Not included in whole analyses	.
Treatments in the last 3 months	Did you make use of one or more of the following treatments in the last 3 months?	Not included in whole analyses	.
Medication	Did you make use of one or more of the following medicines on prescription or over-the-counter medications in the last 14 days?	Not included in whole analyses	.
Psychological treatment	Did you make use of psychological or psychiatric help or treatment in the last year?	Not included in whole analyses	.

Appendix F - Correlations concerning Korskærparken

	N	Pearson
Demographic factors		
Gender		
Age	399	0.233**
Living situation	404	-0.097
Ethnicity	401	-0.054
Children in Schoolage	403	-0.028
Children in Preschool Age	403	-0.149
Socioeconomic factors		
Education	386	- 0.109*
Occupation	385	0.291**
Economic situation	300	- 0.258**
Economic deprivation	404	0.169**
Age range 16-69		
Work situation	340	0.095
Sick leave	340	0.242**
Psychological factors		
Health locus of control	505	0.285**
Stress	401	-0.055
Manageability of important things	385	- 0.87
Stressors	404	0.263**
Illness-related factors		
Pain or discomfort in the last 14 days	404	0.329**
Health risk factors		
Diet		
Fruit and Vegetable	403	0.012
Fish and Fishpalaeg	403	0.4
Sweets, cake, chips, chocolate	403	0.1*
Sugarcontaining drinks	401	0.095
Fastfood	403	0.106*

Smoking	404	-0.066
Alcohol consumption		
Women	208	0.005
Men	196	-0.018
More than 5 glasses at one occasion	404	0.062
General physical activity	404	0.194**
Physical activity per day	404	- 0.231**
Interaction with family	404	0.086
Interaction with friends	404	0.163**
Loneliness	404	- 0.142**
Satisfaction with living in Korskaerparken	402	0.127*
Opinions from others about Korskaerparken	351	-0.042
Feeling of safety in Korskaerparken	402	0.099*
Speak to other neighbors	402	0.039
Follow what's happening in Korskaerparken	398	-0.077
Participation in activities	403	0.01
Speak to neighbors with an ethnic background	396	0.006
How long living in K.	401	0.097

* Correlation is significant at the 0.05 level.
** Correlation is significant at the 0.01 level.

Appendix G - Correlations concerning Kvaglund

	N	Pearson
Demographic factors		
Gender	1158	0.03
Age	1158	0.114**
Civil status	1157	0.081**
Ethnicity	1157	0.125**
Socioeconomic factors		
Education	1031	0.228**
Occupation	1007	0.354**
Economic situation	863	- 0.282**
Economic deprivation	1138	0.194**
Age range 17-69		
Work situation	906	0.233*
Sick leave	914	0.24**
Psychological factors		
Stress (PSS)		
Stressindex (1-40)	1082	0.32**
Stress index 6 Cat	1082	0.285**
Stress 2 Levels	1082	0.236**
Stress Highest 20%	1082	0.297**
Stressors	1147	0.256**
Illness-related factors		
Discomfort in the last 14 days	1149	0.467**
Long-term illness	1119	0.385**
Long-term illness	1119	0.532**
Health risk factors		
Diet		
Fruit and Vegetable	1157	0.054
Fish and Fishpalaeg	1156	0.081**

Sweets, cake, chips, chocolate	1156	0.061*
Sugarcontaining drinks	1157	-0.051
Fastfood	1156	0.031
Coffee/Tea consumption	1156	0.031
Smoking	1158	- 0.085**
Alcohol consumption		
Women	623	-0.018
Men	534	0.035
More than 5 glasses at one occasion	1144	- 0.191**
General physical activity	1157	0.278**
Interaction with family	1156	0.041
Interaction with friends	11156	0.038
Loneliness	1156	- 0.215**

* Correlation is significant at the 0.05 level.
** Correlation is significant at the 0.01 level.

Appendix H -Descriptive Results for Korskærparken

Self-perceived health in Korskærparken

	Korskaerparken		%	%	%
	N	Missing	(Very) good	Fair	(Very) bad
Demographic factors					
Total	404	0	61.9	23	15.1
Gender	404	0			
Men	196		65.3	19.9	14.8
Women	208		58.7	26	15.4
Age	399	5			
16-29	93		82.8	14	3.2
30-39	70		70	20	10
40-49	73		52.1	28.8	19.2
50-59	51		58.8	21.6	19.6
60-69	53		43.4	32.1	24.5
70+	59		54.2	27.1	18.6
Living Situation	**404**	0			
Living together	237		65.8	19.8	14.3
Living alone	167		56.3	27.5	16.2
Ethnicity	401	3			
Danish	286		59.4	25.9	14.7
Others	115		67.8	16.5	15.7
Socioeconomic factors					
Education	386	18			
Low	130		59.2	21.5	19.2
Medium	200		63	23.5	13.5
High	56		69.6	25	5.4
Occupation	385	19			
Economically active	168		77.4	17.9	4.8

Economically not active	217		50.2	26.7	23
Economic situation	300	104			
0-2999	79		48.1	22.8	29.1
3000-5999	130		56.9	27.7	15.4
6000-9999	57		68.4	24.6	7
Over 10.000	34		82.4	11.8	5.9
Economic deprivation	404	0			
None - 0	318		64.5	23	12.6
One	46		58.7	28.3	13
Middle 2-3	29		48.3	13.8	37.9
A lot 4+	11		36.4	27.3	36.4
Occupational status	385	19			
Selfemployed	2		0	100	0
Skilled worker	64		81.3	15.6	3.1
Unskilled worker	72		76.4	16.7	6.9
Businessman	30		76.7	20	3.3
Studying	46		84.8	13	2.2
Pensioner because of handicap or illness	35		17.1	34.3	48.6
Houseman/woman	2		100	0	0
On benefit payment	28		39.3	28.6	32.1
Pensioner	106		48.1	30.2	21.7
Age range 17-69					
Work situation	340				
Never been unemployed	215		66	21.4	12.6
Unemployed for less than 3 months - more than 2 years	125		60	24	16
Sick leave	340				
Never been on sick leave	237		71.3	20.7	8
Having been on sick leave for less than 3 months - more than 1 year	103		46.6	26.2	27.2

		Self-perceived health (%)

	N	Missing	Very good/good	Fair	Bad/Very bad
Social and community network factors					
Interaction with family	404	0			
Daily or almost daily/1 or 2 per week	322		62.7	23.6	13.7
1 or 2 times a month/Seldom/Never	82		58.5	20.7	20.7
Interaction with friends	404	0			
Daily or almost daily/1 or 2 per week	348		63.8	23.6	12.6
1 or 2 times a month/Seldom/Never	56		50	19.6	30.4
Loneliness	404	0			
Yes, often and every once in a while	131		52.7	27.5	19.8
No and rarely	273		66.3	20.9	12.8
Health risk factors					
Diet					
Fruit and Vegetable	403	1			
Daily/Rather daily	295		61.4	22.7	15.9
A few times a week/weekly	71		64.8	23.9	11.3
Less than once a week/Rarely	37		59.5	24.3	16.2
Fish and Fishpalaeg	403	1			
Daily/Rather daily	39		64.1	30.8	5.1
A few times a week/weekly	222		61.7	21.6	16.7
Less than once a week/Rarely	142		61.3	23.2	15.5
Sweets, cake, chips, chocolate	403	1			
Daily/Rather daily	71		66.2	19.7	14.1
A few times a week/weekly	166		65.1	26.5	8.4
Less than once a week/Rarely	166		56.6	21.1	22.3
Sugarcontaining drinks	401	3			
Daily/Rather daily	121		69.4	16.5	14
A few times a week/weekly	99		64.6	21.2	14.1
Less than once a week/Rarely	181		55.2	28.2	16.6
Fastfood	403	1			

Daily/Rather daily	6		100	0	0
A few times a week/weekly	81		66.7	25.9	7.4
Less than once a week/Rarely	316		60.1	22.8	17.1
Smoking	404	0			
Smoker	163		58.3	23.3	18.4
Ex-smoker	94		54.3	28.7	17
Never smoked	147		70.7	19	10.2
Alcohol consumption					
Women	208	0			
Less than 14	206		58.7	25.7	15.5
15 - over30	2		50	50	0
Men	196	0			
Less than 21	191		65.4	19.4	15.2
22 - over 30	5		60	40	0
More than 5 glasses at one occasion	404	0			
Rather daily/daily	10		70	30	0
Weekly	22		63.6	22.7	13.6
Monthly	51		64.7	25.5	9.8
Rarely	141		63.1	24.8	12.1
Never	180		59.4	20.6	20
Person does not drink					
Physical activity	404	0			
Hard and middle	91		75.8	19.8	4.4
Light and sitting	313		57.8	24	18.2
BMI	367	37			
Underweight	30		53.3	23.3	23.3
Normal weight	171		63.7	23.4	12.9
Overweight	121		63.6	24.8	11.6
A lot overweight	45		62.2	22.2	15.6
Psychological factors					
Stress	404	0			

No Stressors	138		71.7	21	7.2
1 Stressor	136		61.8	22.8	15.4
2-3 Stressors	100		56	24	20
4 and more Stressors	30		26.7	30	33.3
Illness-related factors					
Pain of discomfort in the last 14 days	404	0			
No pains			75.8	18.1	6
1-2 pains			53.8	28	18.1
3-4 pains			30.3	27.3	42.4
5-8 pains			80	0	20
9-14 pains			0	0	100

Variables, which are only in the questionnaire of this neighborhood (and not in Kvaglund)					
KORSKAERPARKEN	N	Missing	(Very) good	Fair	(Very) bad
Improve health	404	0			
No	82		67.1	22	11
tried but gave up	27		40.7	44.4	14.8
Yes	295		62.4	21.4	16.3
Improve health					
Nothing	9		22.2	44.4	33.3
Physically activ	228		65.4	22.8	11.8
Healthy diet	224		63.4	22.3	14.3
Eat less	50		58	24	18
Don't smoke	76		60.5	22.4	17.1
Smoke less	30		53.3	23.3	23.3
Don't drink alcohol	45		60	20	20
Reduce alcohol consumption	45		60	22.2	17.8
Care for less stress	64		62.5	25	12.5

Care for enough sleep	64		64.1	21.9	14.1
Keep social contacts	80		61.3	26.3	12.5
Neighborhood factors					
Satisfaction with living in Korskaerparken	402	2			
to a very high/high little degree	358		63.7	22.3	14
to a lower degree/not at all	44		47.7	29.5	22.7
Opinions from others about Korskaerparken	351	53			
very good/good/neither good or bad	163		59.5	26.4	14.1
bad/very bad	188		64.9	22.3	12.8
Feeling of safety in Korskaerparken	402	2			
to a very high/high little degree	342		63.7	22.5	13.7
to a lower degree/not at all	60		50	26.7	23.3
Speak to other neighbors	402	2			
to a very high/high little degree	272		61.4	25.4	13.2
to a lower degree/not at all	130		63.1	18.5	18.5
Follow what's happening in Korskaerparken	398	6			
to a very high/high little degree	219		58.9	26	15.1
to a lower degree/not at all	179		65.4	19.6	15.1
Participation in activities	398	6			
to a very high/high little degree	103		60.2	26.2	13.6
to a lower degree/not at all	295		62.7	22	15.3
Speak to neighbors with an ethnic background	403	1			
to a very high/high little degree	235		60.4	26	13.6
to a lower degree/not at all	168		64.3	19	16.7
Children in Schoolage	403	1			
No	270		61.5	23	15.6
1 or more	133		63.2	23.3	13.5
Children in Preschool Age	403	2			
No	326		58	25.2	16.9

1 or more	77		79.2	13	7.8
Health locus of control	404	0			
my own input is very important/important	349		66.5	22.6	10.9
my own input is a little important/not important	55		32.7	25.5	41.8
Stress	401	3			
Often/Every now and then	156		59.6	24.4	16
Rather not/Never	245		63.3	22	14.7
Manageability of important things	385	19			
Very often/Often/Every now and then	135		59.3	23.7	17
Rather not/Never	250		65.2	22	12.8
Years living in Korskærparken	401	3			
Less than 5 years	164		67.7	17.7	14.6
5-15 years	137		62	23.4	14.6
Over 15 years	100		51	32	17
More than 30 min active a day	404	0			
0 days per week	67		40.3	20.9	38.8
1-3 days per week	105		63.8	21.9	14.3
4-7 days per week	232		67.2	24.1	8.6

Appendix I - Descriptive results for Kvaglund

Self-perceived health in Kvaglund

			Self-perceived health (%)		
	N	Missing	(Very) good	Fair	(Very) bad
Demographic factors					
Total	1158	2	57.9 (671)	25.3 (293)	16.8 (194)
Gender	1158	2			
Men	535		59.8	25	15.1
Women	623		56.3	25.5	18.1
Age	1158	2			
17-29	155		64.5	31	4.5
30-39	158		64.4	25.3	10.1
40-49	214		53.7	29	17.3
50-59	216		57.4	22.2	20.4
60-69	214		57.9	21.5	20.6
70+	201		52.7	24.4	22.9
Civil status	1157	3			
Married	733		62.1	22.4	15.6
Single	424		50.7	40.4	18.9
Ethnicity	1157	3			
Danish	850		60.4	25.3	14.4
Others	307		51.1	25.4	23.5
Socioeconomic factors					
Education	1031	129			
Low	162		47.2	26.2	26.5
Middle	302		64.3	24	11.7
High	157		72	21.1	6.9
Occupation	1007	153			
Economically active	429		75.8	20.5	3.7

Economically not active	578		44.8	26.6	28.5
Economic situation	863	297			
0-2999	178		43.3	27	29.8
3000-5999	289		50.2	28.7	21.1
6000-9999	223		59.2	29.6	11.2
Over 10.000	173		80.3	15.6	4
Economic deprivation	1138	22			
None - 0	951		61.3	24.2	14.5
One	92		46.7	30.4	22.8
Middle 2-3	66		34.8	33.3	31.8
A lot 4+	29		27.6	37.9	34.5
Occupational status	1091	69			
Selfemployed	20		70	30	0
Employee	409		76	20	3
Parental leave	11		81.8	9.1	9.1
Early-retired	40		65	20	15
Studying	84		67.9	29.8	2.4
Pernsioner because of handicap or illness	115		19.1	29.6	51.3
Houseman/woman	22		45.5	36.4	18.2
Pension	281		53.4	24.9	21.7
Unemployed	109		38.5	30.3	31.2
Age range 17-69					
Work situation	906				
Never been unemployed	682		67	23.5	9.5
Unemployed for less than 3 months - more than 2 years	224		42.4	29.9	27.7
Sick leave	914				
Never been on sick leave	672		66.8	22.9	10.3
Having been on sick leave for less than 3 months - more than 1 year	242		44.2	31.8	24

	Kvaglund		Self-perceived health (%)		
	N	Missing	Very good/good	Fair	Bad/Very bad
Social and community network factors					
Interaction with family	1156	4			
Daily or almost daily/1 or 2 per week	731		60.1	24.6	15.3
1 or 2 times a month/Seldom/Never	425		54.6	26.6	18.8
Interaction with friends	1156	4			
Daily or almost daily/1 or 2 per week	842		58.8	25.5	15.7
1 or 2 times a month/Seldom/Never	314		56.1	24.8	19.1
Loneliness	1156	4			
Yes, often and every once in a while	262		40.8	30.9	28.2
No and rarely	894		63.1	23.7	13.2
Health risk factors					
Diet					
Fruit and Vegetable	1157	3			
Daily/Rather daily	946		59.4	23.8	16.8
A few times a week/Weekly	159		54.1	30.2	15.7
Every now and then/Rarely/Never			44.2	36.5	19.2
Fish and Fishpalaeg	1156	4			
Daily/Rather daily	187		65.8	16.6	17.6
A few times a week/Weekly	625		59.5	25.8	15
Every now and then/Rarely/Never	344		51.5	29.1	19.5
Sweets, cake, chips, chocolate	1156	4			
Daily/Rather daily	193		62.2	20.7	17.1
A few times a week/Weekly	545		60.7	26.4	12.8
Every now and then/Rarely/Never	418		52.4	25.8	21.8
Sugarcontaining drinks	1157	3			
Daily/Rather daily	277		50.9	31.8	17.3
A few times a week/Weekly	281		59.8	25.6	14.6
Every now and then/Rarely/Never	599		60.3	22.2	17.5

Fastfood	1156	4			
Daily/Rather daily	17		41.2	35.5	23.5
A few times a week/Weekly	176		61.9	26.7	11.4
Every now and then/Rarely/Never	963		57.4	24.9	17.7
Smoking	1158	2			
Smoker	424		52.8	27.6	19.6
Ex-smoker	288		61.1	21.9	17
Never smoked	446		60.8	25.3	13.9
Alcohol consumption					
Women	623	1			
Less than 14	611		56.3	25.4	18.3
15 - over 30	12		58.3	33.3	8.3
Men	534	2			
Less than 21	500		60.4	25	14.6
22 - over 30	34		50	26.5	23.5
More than 5 glasses at one occasion	1144	16			
Rather daily/daily	18		38.9	27.8	33.3
Weekly	73		64.4	19.2	16.4
Monthly	201		67.7	27.4	5
Rarely	269		68.4	21.2	10.2
Never	121		65.3	21.5	13.2
Person does not drink	462		45.7	28.1	26.2
General physical activity	1157	3			
Hard and middle	253		81.8	14.6	3.6
Light and sitting	904		51.3	28.2	20.5
BMI	1085	75			
Underweight	30		60	30	10
Normal weight	492		66.3	20.7	13
Overweight	367		56.7	27.8	15.5
A lot overweight	196		43.9	32.7	23.5
Psychological factors					

Stress	1147	13			
No Stressors	432		71.3	20.4	8.3
1 Stressor	310		54.8	25.8	19.4
2-3 Stressors	322		47.8	32	20.2
4 and more Stressors	83		38.6	25.3	36.1
Illness-related factors					
Discomfort in the last 14 days	1149	11			
No pains	150		86	10	4
1-2 pains	371		71.4	23.2	5.4
3-4 pains	280		56.1	30	13.9
5-8 pains	255		39.2	32.2	28.6
9-14 pains	93		18.3	25.8	55.9

Variables. which are only in this Questionnaire (and not in Korskærparken)			**KVAGLUND** Self-perceived health (%)		
	N	Missing	(Very) good	Fair	(Very) bad
Stress (PSS)	1082	78			
High perceived stress (0-6 points)	301		66.4	23.3	10.3
High perceived stress (7-9 points)	216		72.2	19	8.8
High perceived stress (10-12 points)	201		66.2	21.9	11.9
High perceived stress (13-16 points)	172		50	35.5	14.5
High perceived stress (17-40 points)	192		35.4	30.2	34.4
Low Level of stress	578		68	22.1	9.9
Moderate Level of stress	504		49.6	29	21.4
Highest 20% Stress	227		35.7	32.6	31.7
Lower 80%	855		65.7	23.4	10.9
Health risk factors					
Coffee/Tea consumption	1156	4			
No consumption of coffee/tea	132		56.8	31.1	12.1
1-4 Cups	551		59.5	23.6	16.9

5-9 Cups	333		61.3	23.1	15.6
10 Cups and more	140		45	31.4	23.6
Speak to physician about health behavior	1160	0			
Speak about alcohol	9		44.4	33.3	22.2
Speak about smoking	61		42.6	26.2	31.1
Speak about diet	134		47.8	25.4	26.9
Speak about physical activity	101		49.5	26.7	23.8
Speak about blood pressure	163		54.7	25.2	20.2
Usage of treatments in the last 3 months	1158	2			
Dentist	362		63.8	23.8	12.4
Physiotherapist	125		44	30.4	25.6
Chiropractor	46		65.2	19.6	15.2
Psychologist	37		40.5	27	32.4
Alternative treatment (acupunture. suntherapie etc.)	48		64.6	16.7	18.8

Appendix J - ERKLÄRUNGSTEXT (Personal declaration)

Persönliche Erklärung

Hiermit versichere ich, dass ich die vorliegende Arbeit selbstständig angefertigt und keine anderen als die angegebenen Hilfsmittel verwendet habe. Wörtlich oder dem Sinn nach aus gedruckten, elektronischen oder anderen Quellen entnommene oder entlehnte Textstellen sind von mir eindeutig als solche gekennzeichnet worden. Mir ist bekannt, dass Verstöße gegen diese Versicherung nicht nur zur Bewertung dieser Masterarbeit als ‚nicht ausreichend', sondern in schwerer wiegenden Fällen zu weiteren Maßnahmen der Universität Flensburg bis hin zur Exmatrikulation führen können.

Hamburg, den 30.August 2010

Erklärung zur Ausleihe

Ich bin mit der Ausleihe der Master Thesis einverstanden.

Hamburg, den 30.August 2010