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Ageing well in different community context

A quantitative study of life satisfaction among adults over 50 years of age in association with living environment and municipality population size in Norway

Master's thesis in International Social Welfare and Health Policy

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Abstract

In Norway, an increased proportion of the population are relocating from less central areas to be closer to the bigger cities. Moving tendencies towards more central locations are on historic highs but it is important to keep in mind that this movement is not occurring on a uniform fashion across the population. Relocation trends are significantly higher among younger adults, leaving behind shrinking municipalities with higher shares of older persons. This trend generates several challenges in terms of sustainability and territorial cohesion.

This thesis focuses on an apparent trivial aspect regarding this change: Life satisfaction. The aim of this thesis is to examine the associations between subjective life satisfaction, living environment and municipality population size among adults over 50 years of age in Norway. This is a quantitative, cross-sectional analysis using data from the third wave of the Norwegian Life Course, Ageing and Generation Study (NorLAG).[1] The methods used includes univariate, bivariate and multiple regression analyses.

The study uses a neighbourhood resource-based theory of social capital as frame of reference, looking at elements such as structural antecedents, social cohesion and forms of social capital. Using an approach of positive psychology this thesis focuses on what characterises those who report higher satisfaction in life. Research regarding living environment and life satisfaction is relevant for the development and implementation of aging policies.

The results of the study indicate that living environment, in the form of feeling of togetherness in the neighbourhood and satisfaction with community, is an important factor when explaining variations of satisfaction with life. The variable of municipality population size is less important in the direct association with life satisfaction. The results also show positive association between municipalities with fewer inhabitants and feeling of togetherness in the neighbourhood.

[1] NorLAG datasinnamlinger har blitt gjennomført med støtte av Norges Forskningsråd, fire departementer (HOD, AID, BLD, KMD), Helsedirektoratet, Husbanken, Statistisk sentralbyrå og NOVA. NorLAG data inngår i ACCESS Life Course infrastruktur, finansiert gjennom Nasjonal satsing på forskningsinfrastruktur ved Norges forskningsråd (prosjektnr. 195403 og 269920).

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Writing a master's thesis is hard work and writing one in the time of a national state of emergency have been even harder, at least for me. The corona virus situation has left me at times feeling quite lost and alone. The process of doing this piece of research has been harder than I could image, with many moments of self-doubt.

However, my supervisor Gustavo Sugahara has had great patience and attitude towards me and this process. Had he not been so positive, understanding and flexible, I doubt this thesis would have been delivered this May. Thank you very much Gustavo!

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A thank you is sent to friends and peers who have supported me by helping with the thesis and just general cheering on. Also, a thanks to my family and my parents for their support and never wavering in their belief in me.

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Lom, 15. Mai 2020

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1. Introduction

The recent outbreak of the Corona virus brought out the importance of living environment as a key component for individual's life satisfaction. From the residential unit and local community, to being able to ask a neighbour to go shopping for you, these elements plays a different role in the general public's life after the virus-outbreak. Where a person lives will influence how satisfied they are with their life, but to what extent, and does the size of the municipality's population matter?

Certain locations might offer more attractive and better paid job opportunities, at the same time the agglomeration effect will also bring challenges such as pollution and higher housing costs. Living in a small, rural village often means more space and fewer neighbours, but it might also mean more difficult access to essential elements, like the pharmacy and hospital. How have these living conditions been influenced by the implementations of the Corona virus restrictions like social distancing and isolation? What is important to us when we are forced to stay at home and going outside becomes a risk.

This master thesis explores the relationship between life satisfaction and living environment in Norway among people from 50 years of age and older. More specifically it explores how feeling of togetherness in the neighbourhood, satisfaction with local community and the differences in municipalities population size is associated with how satisfied adults over the age of 50 years are with their lives.

More and more people choose to move from less central areas in Norway and closer to the bigger cities. According to Statistics Norway (2017) moving tendencies towards more central locations are on historic highs, and it is the least central municipalities that are experiencing the biggest loss of inhabitants (Statistisk sentralbyrå, 2018, s. 152). This trend is not occurring on a uniform fashion across the population. The relocation trends are significantly higher among younger adults, leaving the smaller and least central municipalities with higher average age among the inhabitants than in more central municipalities. This can affect the sustainability in the communities as less people are in employable age(Budalen & Bergersen, 2019).

These tendencies generate several challenges related to regional cohesion, such as housing costs, job opportunities, access to services and sustainability issues in general. It is also

important to notice that this is a long-term trend reaching unprecedented levels, in particular when it comes to the share of older persons in the total population. As a new and unparalleled phenomenon, it is not clear what the impact of the referred changes are in many different areas. In particular regarding satisfaction with life in connection to the agglomeration in the central urban areas trend that is happening in Norway.

Satisfaction with life can be defined as mental well-being and the feeling of well-being connected to the subject, not the community. It is considered to be something more than just the absence of suffering, it is about satisfaction and the good life (Næss, Moum & Eriksen, 2011, s. 15-16). Good quality of life is associated with better physical and mental health and local municipalities are important for life quality and life satisfaction of adults because they provide social and health care to its inhabitants (Haugstveit, Otnes & Jensen, 2019; Nes, 2016) . Using satisfaction with life as a way to measure happiness or subjective well-being has become more popular in the recent years with the rise of positive psychology (Vittersø, 2009).

Positive psychology is an approach with focus first and foremost on the individual, and where topics are framed with the perceived positive experiences in mind. Instead of looking at what makes people sick, the focus is what makes them healthy. Instead of looking at what makes people feel depressed, we look at what makes people happy and satisfied with their life, and so on (Knardahl, 2011).

This thesis has used life satisfaction as measure scale for positive emotions connected to living environment. Instead of focusing on negative emotions, this thesis will explore whether there are associations between well-being, living environment and municipality size. In other words, how much does where you live matter when it comes to happiness?

Knowledge on how living environment and municipality population size influence satisfaction with life can also be relevant to the *age in place* concept. *Age in place* and the benefits of place attachment has become a major focus in aging policies in the recent years. The aim of this policy is for older adults to stay living at home for as long as possible (Lehning, Nicklett, Davitt & Wiseman, 2017). This thesis can contribute to relevant knowledge to this field of aging policies.

This thesis will not examine the reasons why people are choosing to move to more central areas but will examine if there are any indicators to whether adults living in smaller municipalities are experiencing less satisfaction in life than people living in larger municipalities. Using data from the third wave (from 2017) of the Norwegian Life Course, Ageing and Generation Study (NorLAG), this thesis will examine whether there is an association between reported satisfaction of life, living environment and different municipality sizes.

Social capital will be the theoretical frame of reference in this thesis, with focus on neighbourhood resource-based theory of social capital. I argue that the living environment, in the forms of municipality size and feeling of belonging to the neighbourhood, can be understood as aspects of social capital in a meso level perspective.

In summary, the purpose of this thesis is to examine how reported life satisfaction in adults over 50 years of age is associated with the population size of the municipality they live in, and the feeling of belonging that they have in their neighbourhood in Norway. The aim is to contribute to the knowledge of life satisfaction in association with living environment and municipality size, and analyse this knowledge in a social capital perspective. This knowledge is relevant today bearing in mind the clear tendencies of people relocating from small municipalities to larger and more central areas, and the relevance of aging policies on the research agenda.

The next chapter will review existing literature on life satisfaction, and the differences of living in an urban or rural area in Norway. Chapter three clarifies the theoretical frame of neighbourhood resource-based social capital that is used in the data analysis. Chapter four clarifies the hypothesis and the aim of the study. Chapter five outlines the data and methods used in this master thesis. Chapter six will clarify the results from the analysis and chapter seven discusses the results.

2. Who and where in Norway are people happier?

Norway has significant regional differences, and with the latest tendencies of centralization, the assumption is that is it the peripheral and smaller municipalities that will experience the biggest change in demographics in the future. People over the age of 65 makes up about 17%

of the Norwegian population and this number is expected to grow in the years to come (Rogne & Syse, 2017, s. 9). Since more and more younger people are moving to central areas, bigger cities can get an advantage regarding certain socio-demographic characteristics. These differences across the country may have consequences for the needs and access to financial and educational resources for smaller municipalities. In addition to the possible higher need for resources, a change in demographic can also mean that more elderly live further away from their grown children, which can affect social contact and informal care (Rogne & Syse, 2017, s. 22).

There is uncertainty around how the technological and medical advances, along with cultural and social changes in the future, will affect the older generation. These factors, along with higher life expectancy and more healthy years, are likely to change the way people plan the different phases in their life. All these changes for the future elderly generation are likely also going to affect the younger population. However, these trends are uncertain and must be interpreted with caution (Rogne & Syse, 2017, s. 4).

2.1. Subjective well-being and satisfaction with life scale; are people in Norway happy?

Satisfaction with life is considered part a of a broad definition of subjective well-being, which also includes the experience of positive emotions and less negative moods. Subjective well-being is considered an important measure when trying to understand and capture what makes life rewarding, and is considered a core concept of positive psychology (Snyder & Lopez, 2005, s. 63).

A common way to measure satisfaction with life is to use the Satisfaction with life scale (SWLS), a measure based on five different statements of how a person experience their conditions in life. More on this scale can be found in point 5.2.1. The intent of SWLS is to measure individuals subjective understanding of their life. This understanding is intuitive, and research has found that positive scores on SWLS often correlates with positive emotions like happiness and positive personality factors such as optimism. At the same time, negative correlation has been found between negative scores and SWLS and measures of depression moods (Vittersø, 2009).

Satisfaction with life was chosen as a measure in this thesis to give this analysis a positive perspective and focus on what makes people feel good. Reports show that people in Norway in general are quite satisfied with their life. In 2017 Statistics Norway reported that 36% of people over 16 years of age declared to have a high level of satisfaction in life (answering 9-10 on a scale from 0-10, 10 being the highest level of life satisfaction), 54% reported medium satisfaction in life (answering 6-8 on the 0-10 scale) and 10% reported low satisfaction in life (answering 0-5 on the 0-10 scale). This means that as much a 90% of Norway's adult population report that they are either medium or highly satisfied with life (Vrålstad, 2017).

Although gender differences seems to have little impact on the level of life satisfaction, age differences apparently do, with older and younger people somewhat more satisfied than people in the age group 25-44 years (Vrålstad, 2017). Education is another significant factor and twice as many people with primary school education have low scores on life satisfaction than people with higher education. However, many people with lower formal education also score high on life satisfaction. Highly educated people more often declared medium levels of satisfaction with life. This shows that people with lower education are not necessarily less satisfied with life in general, but the variation between high and low life satisfaction seems bigger with people with lower education than people with higher education (Vrålstad, 2017).

2.2. Linking satisfaction with life to urbanization trends in Norway.

Norway has a diverse range of municipalities with different sizes in terms of population. Although there are fewer smaller municipalities in Norway since the last administrative reform came into force January 1st 2020, only 7 out of 356 municipalities have more than 100 000 inhabitants(Hagen, 2020). It is also relevant to notice that in 2019 more than 50% of all municipalities had less than 5000 inhabitants (Haugstveit et al., 2019).

In 2015 it was registered over 800 000 domestic relocations in Norway. About a third of these relocations were across municipality borders and this number has increased significantly during the later years (Rogne & Syse, 2017, s. 152). Although there are not many studies on moving patterns of older people, there is a study which found that 37% of those over 75 years of age had moved into their current resident after they turned 60 years old. This suggests that even if younger adults move more due to changes in life situations, older adults still relocates quite a bit (Rogne & Syse, 2017, s. 151). A study from England reported that about 60% of

people above 55 years of age thought moving to the countryside was a tempting idea (The Rural Media Company, 2012). This can be understood in association with "living the country dream", stepping back from the hustle of the city and enjoying the peace and quiet in a small country village. The dream of country-living is somewhat in contrast with the tendencies of centralisation reported by Statistics Norway, where rural areas experience the biggest loss of inhabitants (Rogne & Syse, 2017, s. 152).

The difference of living conditions in a small village and a big city can seem apparent. Typically living in a small village with few inhabitants means more visibility to your neighbours and local community. A report from Statistics Norway(2009) shows indicators that people living in sparsely populated areas and smaller villages have more contact with their neighbours than people living in densely populated areas (Normann, 2009). However, it does not clarify if more contact with your neighbours also means higher sense of belonging to the neighbourhood. This report states that there is a difference in contact with friends and family depending on where in the country you live. For instance, people living in central areas such as Oslo and Akershus have less contact with friends and family. In less central areas like the Northern part of Norway, people have more close friends in the area they live, compared to other parts of Norway. This suggest that a person's contact with neighbours, friends and family have different tendencies, depending on where they live (Normann, 2009).

Regarding former research relevant to the elements analysed in this thesis, I will mention an article written by Ørnulf Seippel (2012). Seippel examines the association between quality of life, friends, associations and neighbourhood. The author explores two aspects of quality of life, using both indicators of health and of satisfaction with life, and connects his research to the theory of social capital, themed individual's health-level. Seippel states that social background and cultural and economic resources influence individual's health-level, and that social capital is less important in this regard. When examining satisfaction with life and living place, Seippel found that the experience of belonging and togetherness is an important indication for satisfaction with life. In this context trust and social network is highlighted. He found however that the living place itself, such as between different parts in a large city, has little impact on life satisfaction (Seippel, 2012).

The respondents in this thesis are from 50 and up to 95 years of age. Using age as an element of social organization of individuals is a common way of structuring. This can help policy makers better assess and understand how to allocate needs and benefits. Using age cut-off is also a useful tool in academia as the demarcations of a population group can be useful for instance when applying empirical tests (Sugahara, 2017).

The next chapter will clarify the theoretical frame of reference used in this thesis.

3. A neighbourhood resource-based theory of social capital

Contact with other people is important for well-being not only for the individual, but also for society as a whole. Social network through both formal and informal contacts contributes to increased interactions and trust which in turn contributes to a better functioning of the society.

The theory of social capital is commonly associated with three different theorists, Pierre Bourdieu (1983), James Coleman (1988) Robert Putnam (1993) (Segaard & Wollebæk, 2011, s. 26-27). Bourdieu, a French sociologist, is known for using the terms social, cultural and economic capital and discussing the relationship between these fundamental forms of capital. His theory of social capital was developed with focus on the effects on the individual, and the structural inequality and how social classes are reproduced (Segaard & Wollebæk, 2011, s. 27) (Carpiano, 2006, s. 167).

The American sociologist James Coleman describes social capital as certain characteristics within groups or institutions. Mutual expectations and commitment, channels of information and social sanctions within social networks were some of the main elements of his theory. Coleman focuses on the collective and societal benefits from social capital, unlike Bourdieu's focus on the individual (Segaard & Wollebæk, 2011, s. 27).

Robert Putnam's theory of social capital focuses on norms, network and trust within social organizations, such as neighbourhoods or local communities, that facilitate cooperation and coordination with mutual beneficial outcomes (Carpiano, 2006, s. 166). Through his books *Making democracy work* (1993) and *Bowling Alone* (2000), the use of the term social capital had a breakthrough in the public debate and as a specialist term (Segaard & Wollebæk, 2011, s. 27).

Social capital can be approached in different ways. Firstly, it can be understood as norms, trust and network within the civil society, or social capital resources on a macro level. Secondly it can be understood as an individual's close network of family and friends, or social capital resources on a micro level. Thirdly it can be approached in a way that focuses more on living environment and how living environment creates and holds social capital. This represents the meso level perspective of social capital resources (Seippel, 2012, s. 166) (Halpern, 2005, s. 26-27).

3.1. Four elements of influence

The hypothesis of this thesis will focus on the meso level perspective of social capital. The analysis will be grounded on a neighbourhood resource-based theory of social capital for health, proposed by Richard Carpiano and based on the critical assessment of the classical work of Bourdieu. Carpiano writes in his article "Toward a neighbourhood resource-based theory of social capital for health: Can Bourdieu and sociology help?" (2006) about a conceptual model with four different elements to study the influence of neighbourhood social capital on individual health.

Based on Putnam and Bourdieu's theories, Carpiano has come up with a conceptual model with four elements, to try to conceptualise the causes, correlations and consequences of social capital within a neighbourhood. These four elements are *structural antecedents, social cohesion, social capital* and *outcomes of social capital,* and are illustrated in Figure 1 *(Carpiano, 2006, s. 168).*

By *structural antecedents*, Carpiano is talking about the structural characteristics of a given neighbourhood. The socioeconomic conditions, the resources available and the surrounding area will implicate how social attachment and social capital is created and maintained (Carpiano, 2006, s. 169). In this study the structural antecedents are represented by the variable of municipality population size and how long a person have lived in the neighbourhood. Living in a small village with limited public offers and living in a large vibrant city gives different grounds for what kind of social bonds and social capital is available and needed. Does living in a village with less than 200 people influence social capital in a different way than living in a municipality with over 100 000 inhabitants, and does it influence a person's satisfaction with life? The variables used in this thesis only represents a

few of the elements of structural antecedents. This thesis does not consider socio-economic background elements such as education level or income.

The second element in Caripano's Model, *social cohesion*, reflects the social networks formation and ties, and the pattern and values that residents share. Social cohesion is the trust and feeling of connectedness that residents in a neighbourhood have for each other. The nature of the social cohesion is influenced by the structural antecedents, and it lays the foundation for social capital to arise (Carpiano, 2006, s. 170). How many neighbours do you feel comfortable to talk to, or ask for help, or ask to borrow something from? If you feel like you live among like-minded trustworthy people, or if you feel like you live among strangers will impact a person's feelings of unity and belonging within a neighbourhood. A person who has lived their whole life within a small village is likely to experience a different social cohesion in that neighbourhood, compared to someone who just moved to the same village from somewhere else. A person living in the same district of a large city for a long time might feel a strong social cohesion with the neighbours. However, the change of a neighbourhood can happen rapidly and leave a person feeling alienated with low feeling of social cohesion despite living in the same place as before. At the same time a person can move to a new place and instantly feel a strong connection to the neighbours and neighbourhood. There variances will always be influenced by the individual's experiences and behaviour.

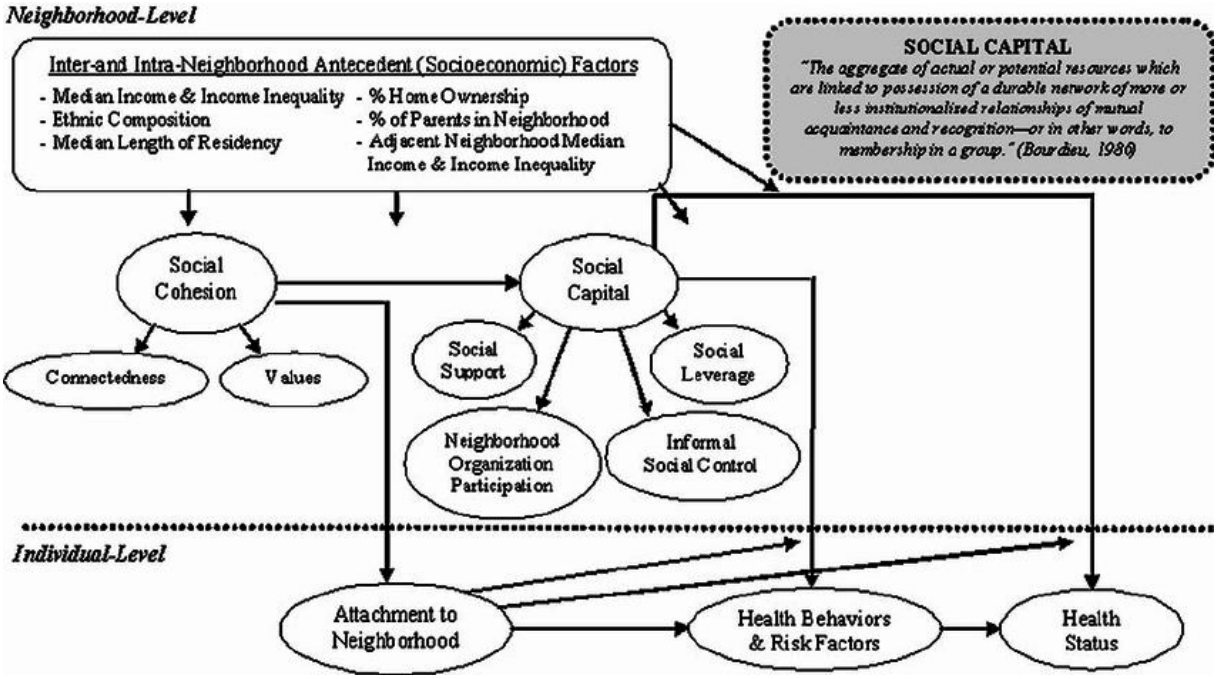
The emotions and feelings described above represent the social cohesion within a neighbourhood. In this study a variable of *togetherness neighbourhood* consists of several statements to measures the experience of social cohesion within a neighbourhood. This thesis also uses a variable to measure the respondent's satisfaction with village or city districts which also represents social cohesion (more on the construction of these variables can be found in point 5.2.2).

The third element is *forms of social capital* and Carpiano reserves "this term to refer only to actual or potential resources, that are rooted in neighbourhood social networks" (Carpiano, 2006, s. 168). Carpiano describes different forms of social capital such as social leverage, informal social control and social support. Social support refers to the social capital that individuals benefit from to help them meet their everyday problems. This can for instance be a ride to the supermarket or help watering plants when you are away.

Informal social control refers to the maintenance of social order and keeping the neighbourhood safe. This can be a collective initiative to change speed limits on roads, or the social control towards individuals that the community sees as a threat. Social leverage can be understood as socio-economic advances and access to information. Connections that can get you a job-referral or help you find a qualified baby-sitter are types of social leverage that will affect an individual's opportunities in life (Carpiano, 2006, s. 168, 170-171).

The last of the four elements in Carpiano's conceptual model is the *outcomes of social capital.* This element describes the benefit and goals that a neighbourhood and individuals can get from the different forms of social capital. This can be the upholding of local amenities, protection of the local nature and the individuals own quality of life (Carpiano, 2006, s. 170-171). In this study, the dependent variable life satisfaction represents the outcome of social capital.

Figure 1. *Proposed conceptual model of neighbourhood social capital processes on individual health outcomes. Source: (Carpiano, 2006).*



Carpiano suggests that by separating social capital from the factors that surround it, it is possible to conceptualise the causes, correlations and consequences of social capital more clearly. As shown in Figure 1, the structural antecedents are organized into inter- and intra-neighbourhood community factors, such as living area and municipality size. Social cohesion, containing the factors of connectedness and values, is linked to attachment to the neighbourhood. Attachment to neighbourhood, gained through social cohesion, is suggested to both directly and indirectly affect social capital and the results of social capital.

Carpiano's theory uses health research on social capital as point of reference in his article, stating that he "…sought to stimulate social epidemiological and public health research on neighbourhood social capital by proposing an empirically testable theory and conceptual model of neighbourhood social processes…"(Carpiano, 2006, s. 173). Carpiano's model and theory will not be used as an empirically testable theory in this thesis, but the elements of his model will be used as tools in the understanding and analysis of the associations that are examined. This thesis uses satisfaction with life as point of reference where Carpiano uses health status.

By using Coleman's theory, separating *social cohesion* from *forms of social capital*, I would have to operationalize and measure *forms of social capital*. Variables used in this thesis, such as *neighbourhood togetherness*, would also represent social capital, and not just social cohesion. It is either way hard to separate the two elements in a strict manner as they mutually influence each other. For instance, feeling of connectedness (social cohesion) and social support (forms of social capital) are, from this point of view, interchangeable and connected. In other words, when a person feels comfortable asking for help from their neighbour, it can be part of social cohesion and social capital at the same time.

In summary, this study will examine how the elements of structural antecedents (municipality size and time lived in residence), social cohesion/social capital (neighbourhood togetherness and satisfaction with village/district) is associated with life satisfaction as the outcome of social capital.

3.2. Social capital in a Norwegian context

Despite the important nuances and particularities the Norwegian society might display in terms of social capital, there is no reason to doubt that the theoretical frame of Carpiano would not stand in this specific context. Nonetheless it is important to highlight some of the peculiar characteristics for social capital in Norway.

Although the demographic and societal structural conditions for USA and Norway are very different, the basics of the elements should be possible to adapt to fit the characteristics of Norwegian society too. Norwegians have been found to be one of the most trusting people in Europe, and Norwegians in general believes that most people are trustworthy, this to the point of naivety (Segaard & Wollebæk, 2011, s. 12). Living in a society where people trust each other is suggested to be beneficial on an individual level, independently to whether the individual is a trusting person. Social trust can cause smoothness in society because control on individual's actions is mostly viewed as unnecessary (Segaard & Wollebæk, 2011, s. 12-15). For instance, in rural part of Norway, stalls selling fruits, vegetables, eggs or firewood is often self-service, where people take want they want to buy and pay for it, without any kind of control from the seller. This saves the seller both time and money and gives the buyer the opportunity to purchase the goods at the time convenient. In social services, there is little control to what financial social assistance is spent on. Mainly there is trust between the social worker and the client, that the client will spend money on necessities like food and rent. In many other countries, it is more common to give people food-coupons instead of money to ensure that the benefit goes to its intention. Using coupons for food can cause stigma and more visible social differences and trusting people with money can be very meaningful to the self-worth and societal inclusiveness for the individual.

Social trust can arguable be one of the main prerequisite conditions for cooperation between individuals and that the combination of trust with community network creates social capital (Segaard & Wollebæk, 2011, s. 12). These two components, trust and network create the base of understanding of the aspects that are examined in this thesis using the neighbourhood resource-based theory of social capital.

4. Aim and hypothesis

The main objective of this thesis is to examine associations between meso level perspective of social capital, such as social support in the neighbourhood and life satisfaction among adults over 50 years of age in Norway. Additionally, I wish to explore the differences between small and large municipalities. Departing from the operational definitions necessary for the empirical work, I will present the hypothesis in this study with a link to the respective theoretical model.

4.1. Operational definitions

4.1.1. Life satisfaction

Life satisfaction is the main concept that will be analysed, in order to find out if any variation between life satisfaction can be explained by the independent variables. Satisfaction of life is considered part a of a broad definition of subjective well-being. Subjective well-being is considered an important measure when trying to understand and capture what makes life rewarding (Snyder & Lopez, 2005, s. 63). In this thesis, I will use the Satisfaction with life scale (SWLS) to measure subjective life satisfaction. This measure is considered a measure with satisfactory reliability and validity. The intent of the SWLS is the measure individuals subjective understanding of their life (Vittersø, 2009).

4.1.2. Living environment

The term living environment in this study consists of two ways of measuring living environment; (i) feeling of togetherness in the neighbourhood and (ii) general satisfaction with village/district. The first variable measures feeling of togetherness in neighbourhood by a combination of six different variables stating the respondent's feelings of unity, safety and belonging in the neighbourhood. Further clarification of this variable can be found in point 5.2.2. The second part of this definition is the respondent's general satisfaction with village/district. The term district is used to describe a certain district in a larger city. The reason for including this part to the term living environment is to not to only measure neighbourhood relations and satisfaction, but also the respondent's satisfaction with the whole district, village or local community.

4.1.3. Municipality size.

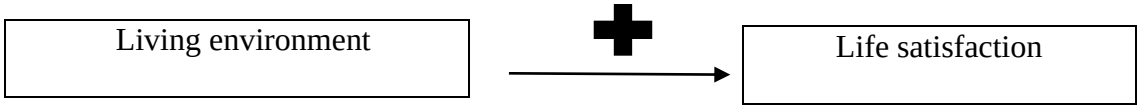
The data of the municipality population size the NorLAG-respondents live in, is collected from the National population register in Norway (Slagvold et al., 2012). Norwegian municipalities have very big range in population, the smallest having only 208 inhabitants and the largest having 673 469 inhabitants (by 01.01.2018.) The structure in Norwegian municipalities has changed a lot during the recent years and many of them have merged. In 2016 Norway had 422 municipalities and by the start of 2020 it was reduced to 356 (Regjeringen.no, 2020).The result is that the municipalities in Norway are fewer and with more inhabitants than before.

Since the time of the last NorLAG survey, the demographic of population density is likely to have changed as SSB reported more people are moving to central areas and the districts experience a reduction of inhabitants (Statistisk sentralbyrå, 2018). These changes can be expedient to keep in mind when applying the result of this study to the current situation.

4.2. Hypothesis

Hypothesis 1:

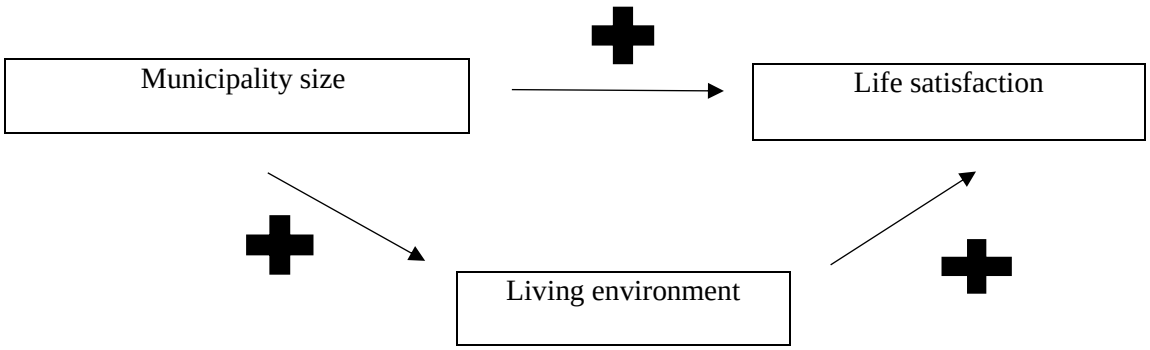
Positive emotions in living environment is associated with higher satisfaction with life.



The first hypothesis describes the assumption that there is association between the positive emotions towards a persons living environment and higher feelings of life satisfaction. With *living environment,* I specifically mean feeling of togetherness in the neighbourhood and satisfaction with village/district. In other words, adults over 50 years of age in Norway, who are experiencing higher feelings of togetherness within their neighbourhood and are more satisfied with the village or district that they live, are also more satisfied with life.

Hypothesis 2:

Living in a municipality with fewer inhabitants is associated with higher positive emotions in living environment and is therefore associated with higher satisfaction with life.



The second hypothesis assumes that living in municipalities with fewer inhabitants is correlated with positive emotions in living environment, and that these two variables influence a person's level of life satisfaction. In other words, adults over the age of 50 years who live in smaller municipalities in Norway, are more satisfied with their living environment, and this is connected to higher levels of satisfaction with life.

5. Data and method

5.1. NorLAG - Norwegian Life Course, Ageing and Generation Study

I have used the Norwegian Life Course, Ageing and Generation Study (NorLAG) dataset to analyse my research questions. The NorLAG study is a multidisciplinary, longitudinal study that gathers extensive information on health, family relation, well-being, care, and family relation of people aged 40 and above (Slagvold et al., 2012). Three waves of data have been collected, the first in 2002-2003 and the second in 2007-2008. The last wave is from 2017 and was made available for research in January 2020.

The gross sample of round three, a total 11039 persons, was everyone who fulfilled the criteria of having been part of previous round one or round two. Out of these 1728 people were registered as dead, emigrated, or otherwise invalid, and were removed from the sample. The actual gross sample in the third round was reduced to 9311 persons. Out of these, a total of 6099 people answered the phone interviews in the third round, giving the study a response

rate of 68,2%. Out of these 6099, 71,1% also answered the self-administrated questionnaire. All participant of round three were of the age 50-94 years old (Statistisk sentralbyrå, 2019) .

Statistics Norway has been responsible for the data-collection in all three waves. The primary sources of the data have been collected in two different ways, telephone interview and self-administrated questionnaires. The secondary sources, such as age, education and income, have been collected though administrative data register such as birth register, Statistics Norway's events base, tax-register and national register of education (Slagvold et al., 2012).

The data is organised into 18 modules, that covers the following areas: family and social network, work and activities, and health, welfare and values (Norsk senter for forskningsdata, 2020). In this thesis variables from the two modules "Residence and residence -environment" (HE) and "wellness" (WB) are used, in addition to the key-variables.

Although the NorLAG dataset is meant for longitudinal analysis, the cross-sectional possibilities are vast and should not be underestimated. It will provide an alternative perspective to other and similar studies, as well as an exclusive perspective on life satisfaction among adults of 50 year of age and over.

5.2. Construction of variables

5.2.1. Dependent variable – SWLS

The dependent variable for this study is a composite measure made by four questions from the questionnaire, made to assess reported life satisfaction. All questions are in accordance to the *Satisfaction with life scale*. The SWLS is based upon the following five statements;

1. In most ways, my life is close to my ideal.
2. The conditions of my life are excellent
3. So far, I have gotten the important things I want in life.
4. I am satisfied with life.
5. If I could live my life over, I would change almost nothing

The scale is often used with a seven-point scoring system with 1 being strongly disagree and 7 being strongly agree (Vittersø, 2009). NorLAG uses is a five-point scoring system and all five

questions have the same weight where 1 =Totally agree, 2= Somewhat agree, 3= neither agree nor disagree, 4=somewhat disagree and 5= totally disagree.

Although all five SWLS statements are used in round one and two of the NorLAG study, only the first four statements are used in the last round from NorLAG in 2017. As a measure of satisfaction with life, the last statement of "If I could live my life over, I would change almost nothing" has been controversial, as it is considered to be about the past and not so much about the present life situation and life satisfaction. It has therefore not been unusual to only use the four first statements of the SWLS without this making the measure any less valid (Vittersø, 2009).

In this study the first four questions of the SWLS scale has been computed together into one and used as a dependent variable to measure life satisfaction. In the NorLAG data there is a Sumscore variable of the mentioned SWLS variable containing the first four statements. The scale goes from 4-20 with a mean of 16.06. I wanted to use the scale-measure as it was in the questionnaire, with a 5-scale score. I therefore computed the four variables together into one variable called *Life satisfaction*. The mean of the computed scale was 1,876 and the Cronbach's alpha is .811 which is considered high reliability (Tavakol & Dennick, 2011).

5.*2.2. Independent variables*

The independent variables in this thesis are meant to measure the associations with neighbourhood-relationship, feeling towards place of residence, municipality size in terms of population and two background variables. The construction of these variables will be clarified in the following section.

Togetherness neighbourhood

I have chosen six different variables that measure statements of feeling of togetherness with neighbours/neighbourhood. The first four variables have the following statements: "How many neighbours do you greet", "how many neighbours do you talk to when you meet", "how many neighbours can you borrow things from" and "how many neighbours can you ask to shop for you when you are sick". All variables have a 5-point ordinal scale with the following scores; 1=most, 2=many, 3=some, 4=one, 5=none.

The next two variables I have chosen to measure feeling of togetherness in neighbourhood have the following statements: “Does this claim match with the place you live: I feel like I belong in this place” and “Does this claim match with the place you live: This is a community with strong sense of unity”. These two variables are ordinal variables with a five-scale score going from 1=is not correct at all, 2=this is somewhat not correct, 3= partly correct, 4=somewhat correct and 5=this is completely correct. I have recoded these two variables so that the value 1 is the most positive and value 5 is the least positive. This way, these two variables have the same positive and negative values at the first four variables.

I have summed up and computed the six variables together into one single variable called “togetherness neighbourhood”. The variable has skewness of .363 which is less than 2 and kurtosis value is -,131<7. The mean is 2,3422. The Cronbach’s Alpha value is .778. This value is acceptable in regards of the reliability of summarised data (Tavakol & Dennick, 2011).

Satisfaction with the district/village

In addition to measuring feeling of togetherness with neighbours this thesis will also examine if the general satisfaction with the district or village that people live in, is associated with life satisfaction. In the NorLAG study, there is a variable called “How satisfied are you with the residential district/village/city district”. The question has a 11-point ordinal score, ranging from 0= Not satisfied at all to 10=very satisfied. I have recoded the direction of the response to have the direction of positive and negative value correlate with my dependent variable. The values used in this study goes from 0=very satisfied, to 10= Not satisfied at all.

Municipality size

The third independent variable that will be used in this study is called “Size of living municipality”. This data is from secondary sources, collected from the National population register in Norway (Slagvold et al., 2012). In round one and two of the NorLAG study, data from the living location centrality and whether it is sparsely or densely inhabited has been collected. The variable used to measure municipality size in the third wave has a score that break the municipality population size into smaller categories than the previous waves. The range of the score is 6, going from minimum range 11 to maximum 17. The variable has been

recoded so that the scores start at 1 and goes to 7. The values of the variables are now as follows:

1= Less than 199 inhabitants.

2= Village with 200-499 inhabitants.

3= Village with 500-999 inhabitants.

4 = Village with 1000-1999 inhabitants.

5= Village with 2000-19 000 inhabitants.

6= Village with 20 000 – 99 0000 inhabitants.

7 = More than 100 000 inhabitants.

Background variable – Number of years lived in residence

Another independent variable that will be used is "When did you move to this residence?". The answer is collected from secondary sources, registering what year the respondents moved to the current residence they live in. The range is 94 years and goes from the year 1923 to 2017. Mean of the variable is 1993,69. To make this variable easier to work with I have recoded the numerical scale into an ordinal scale with five groups ranging answers according to how long the respondent have live in the same residence. The recoded scale of this variable is as follows Group 1= Lowest through >1979, group 2 = 1980-1999, group 3 = 2000-2010, group 4 = 2011-2015 and group 5 = 2016< highest. The missing and invalid answers were copied. Name of the variable used in the analyses is *Number of years lived in residence.*

Background variable -age

The thesis will also use the background variable of age. The age-range of the respondents is 45 going from 50 year of age to 95 years of age. The values equal the age, with minimum value 50= 50 years and maximum value 95=95 years. As the range in age within the participants is quite large, this variable is included in the study to examine whether any difference in life satisfaction is caused by age.

5.3. Data analysis

The data analyses in this thesis have been conducted in IBM SPSS statistics version 26. The analyses made has been univariate, bivariate and multivariate.

5.3.1. Univariate analysis

Univariate analysis provides descriptive analysis, such as distribution/frequency, central tendency (mean, mode, median) and standard deviation of a single variable (Ringdal, 2013, s. 282). In this master thesis, univariate analysis is used to describe and examine the response of the dependent variable and the independent variables.

5.3.2. Bivariate analysis

Bivariate correlation coefficient used in this thesis is Pearson's r. Pearson's r varies between -1 and 1, where 0 means the variables are not related at all. The values -1 and 1 signifies the perfect negative or positive relationship between the variables. Bivariate analysis describes the relationship between two different variables and common ways to measure this are t-test and correlation analysis. As I am not comparing means in this analysis, I am using Pearson's correlation to measure the strength between the linear relationship between all variables used in the analysis of this thesis (Bryman, 2016, s. 341).

To interpret whether the correlation is significant or not we have to look at the statistical significance, or p-value of the result (p meaning probability). It is the statistical significance that tells us about the relationship of the sample and the general population, and if the p-value is too high, the results does not reflect the population in an accurate way. Depending on the statistical significance, I either keep or reject the null hypothesis. If I get 0,000 as p-value, it means I could not get this result if it is not true to the general population. The higher the value goes, up until 1, it means the results have come by chance (Bryman, 2016, s. 347).

The cut-offs to whether p-value can be regarded as statistically significant are within scientific consensus often recognized with these values: $p<.05$ and $p<.01$. If $p<.01$, there is a 1%chance that the results are false. In this study $p<.05$ has been used as a cut off to whether results are considered statistically significant or not. In the bivariate analysis with person's r correlation co-efficient, the p-value must be less than .05 for the r-value to be significant for the general population (Bryman, 2016, s. 348).

This thesis uses bivariate correlation analysis to see how the dependent variable correlates with every independent variable separately from the others. It also gives an overview of how the independent variables correlate with each other, which can be useful when examining the results of the regression models and the hypothesis in this thesis.

5.3.4. Multivariate regression analysis

This thesis will use a linear multivariate regression analysis to achieve a more nuanced view of the associations between life satisfaction and the independent variables, than what is possible with bivariate analysis. As it is possible to include more than the relationship between two variables, the analysis will have better possibilities to explain and examine life satisfaction. Linear regression is used to predict an outcome variable based on a predictor variable, and multiple linear regression has more than one predictor value. This is done by fitting the data into a statistical model and examining the pattern of the data.

The important test parameters in multiple regression are B (beta) and R^2 (R-square). B is the standardized coefficient, the gradient of the regression line. In other words, B is a way of determining how many units of change in the predictor variable, the outcome variable is predicted by. In B-value, the higher the number, the stronger the relationship.

R^2 is the multiple correlation coefficient and measures how much of the variance in the outcome variable, in this case, life satisfaction, can be explained by the independent variables. R^{2-} value goes from 0-1, where 0 means the independent variable do not predict any of the variation, and 1 means the independent variables explains all the variations of the outcome variable (Hayes, 2020). For the values to be statistically significant, the B-value must be less than .05.

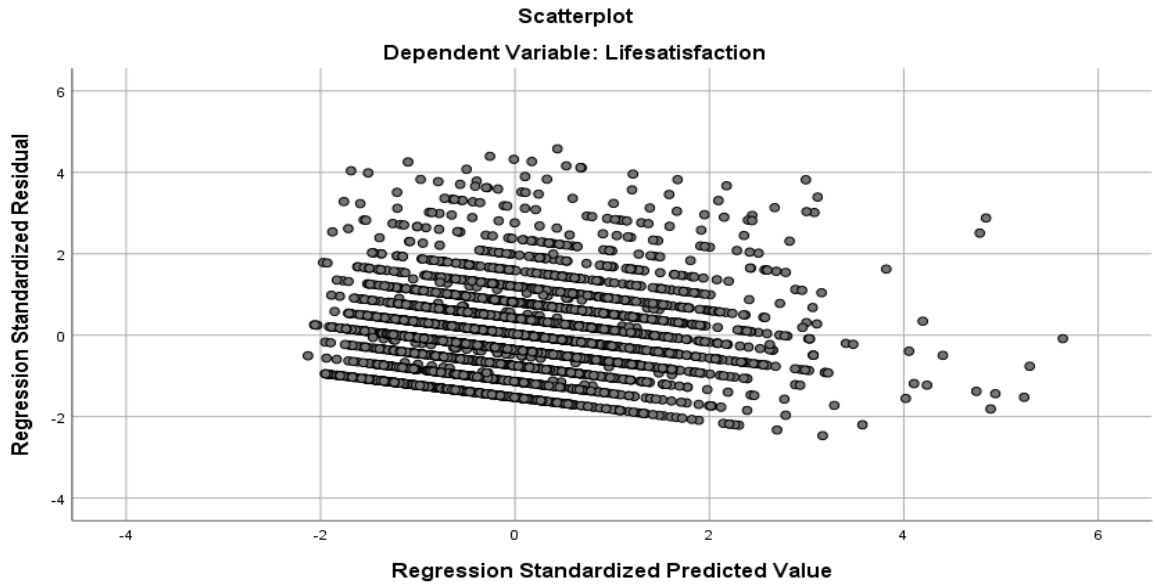
In social science research, multiple regression is frequently used, most commonly logistical and linear. Linear regression is common when a study has ordinal data. The dependent variable, life satisfaction is ordinal, which means the score is ranked (from highest to lowest), but the score does not have equal intervals between the values. The same goes with several of the independent variables. Based on this, a linear regression is a suitable choice of multivariate analysis in this study. This allows more explanatory variance when analysing the life satisfaction.

To be confident that linear regression is the right analytical method, I as a researcher should be confident that the dependent and independent variables indeed have a linear relationship. The independent variables are meant to measure associations between a neighbourhood resource-based social capital, and I want to know if positive scores on life satisfaction is associated with positive score of neighbourhood-togetherness and satisfaction with

village/district. If the relationship is not linear, linear regression might be not the best suited choice of analytical method. There should not be any extreme values that doesn't follow the superior pattern of the data. This is the prerequisite for the validity of the results of the regression analysis.

I must also check the prerequisite of homoscedasticity, meaning that the stability of the variances of the residuals should be the same for all values of the independent variables (Ringdal, 2013, s. 416). This prerequisite was evaluated visually in a scatterplot seen below in Figure 2. The distribution of residuals stays satisfactory uniform which indicates the prerequisite of homoscedasticity is maintained.

Figure 2. *Life satisfaction scatterplot with standardized residuals*



The residuals of the independent variables must also be normally distributed. This can be checked in a histogram as seen in Figure 3. A symmetrical, rounded peak shows a normal distribution of data. If there was any considerable irregularities or asymmetries in the distribution, the assumption of normality is not met. If this was the case, a regression analysis should not be conducted.

As seen in Figure 3, the distribution of *Life satisfaction* shows a somewhat positive skew, some high residuals, but upon visual inspection, the deviation is found to be mild and the distribution acceptable, with skewness<2 and kurtosis <7. A supplement to the residual

distribution can be seen in Figure 4, where the residuals compared to the normal distribution ca be inspected. As the thick line of residual, at large, follows the thin line of normal distribution, I conclude that the residuals are satisfactory distributed.

Figure 3. *Life satisfaction histogram with standardized residuals*

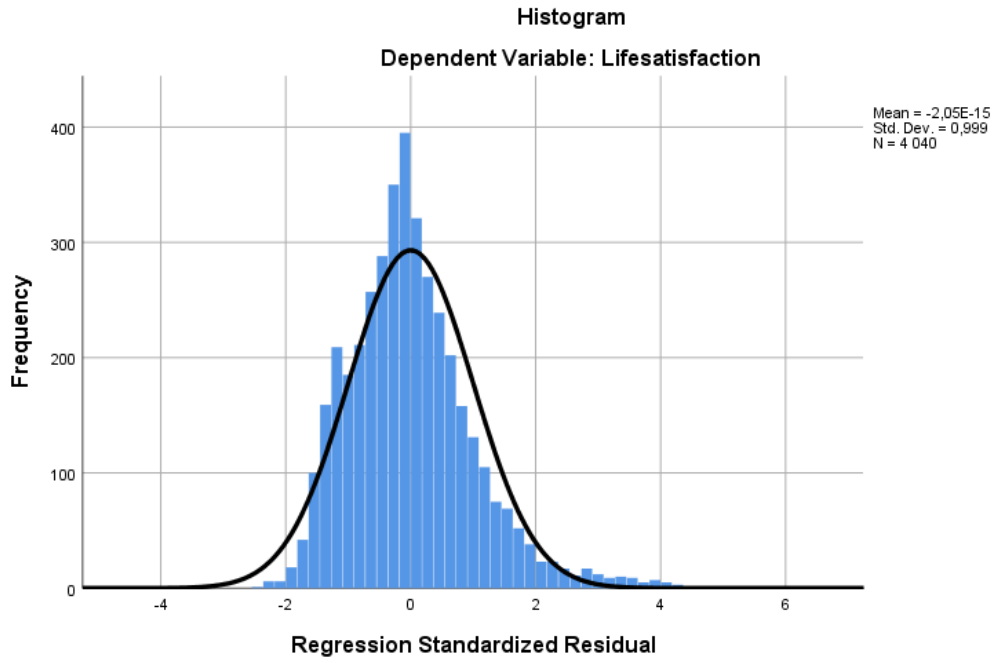
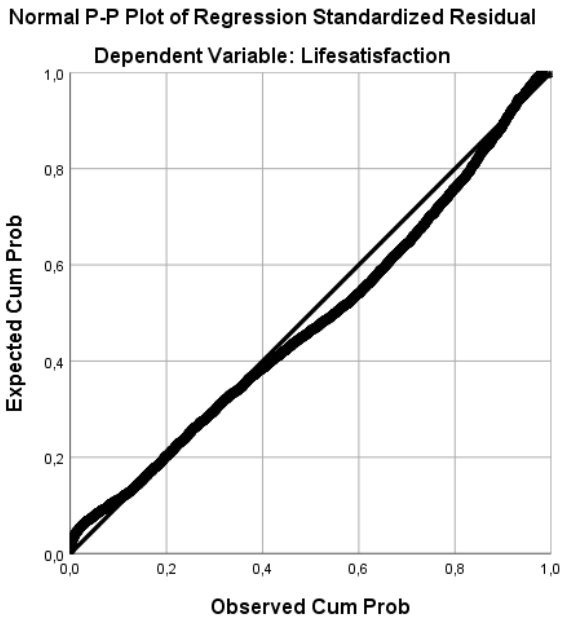


Figure 4. *Residuals compared to normal distribution*



5.4. Missing Data

The data sample used in this study comes from NorLAG3, the third round of questions of a Longitudinal study Norwegian Life Course, Ageing and Generation Study. The total response rate of round three was 68,2% of the phone interview and out of these 73,1 % answered the self-administrative questionnaire (Statistisk sentralbyrå, 2019). This means that the questions handled in the self-administrative questionnaire has about 15% more missing data values than the questions from the phone interview. Those who did not respond in the third round at all is registered as missing in the data sample.

The dependent variable, *Life satisfaction*, is made up of 4 variables, summed together. The total missing of the dependent variable is 45%. The three first statements were asked in the self-administrative questionnaire, and the last statement "I am satisfied with life", was asked in the phone-interview. The missing data is therefore higher in the first three questions, than in the last. The missing percentage of those who did not participate in the round is 44,7 % in all the questions. The missing percent of those who did not answer the self-administrative questionnaire is about 15% and missing data outside of these categories ranges from 0,1-8%.

All the background variables have missing percentage of 44,7% of those who did not participate in round three. The background variable of *age* has data for all 6099 of the participants in the third round. Of the variable *years lived in resident*, there is missing data from 0.3% outside those who did not participate in round three. The data from these two variables is collected through administrative data register.

The variable *satisfaction with village/district* has missing data of 12 respondents, or 0,1%, who either answered that they don't know or do not want to answer, in addition to those who did not participate. With the variable *municipality size* the missing data of those who did participate in round three is 3,5%.

The variable *togetherness neighbourhood* had a higher number of missing values than the other variable with a total missing of 60,8%. Of these, 44,7% did not participate in the third round. The questions in this variable was asked through the self-administrative questionnaire so 14,9 % of the missing data in this are those who did not answer the questionnaire. 1-2% of the missing data in this variable are invalid responses.

The self-administrative questionnaire was available both online and on paper. There can be several reasons why the response rate for the questionnaire was lower than the phone-interviews. Factors such as time, theme, and technical challenges can influence this.

Since this is not a longitudinal study, but cross-sectional, the missing data of those who did not participate in the previous rounds is not necessarily regarded as problematic, as is it still a large sample. Further appraisal of the study will follow.

5.5. Assessing the quality of the study

Validity and reliability are two common terms to assess the quality of a study and evaluate whether the study contains good measures. In the next part I will discuss the reliability of the study, specifically the importance of assessing the source, stability and inter-reliability. Afterward I will clarify the importance of the validity of the study.

5.5.1. Reliability

Reliability is fundamental when referring to the consistency of a measure. Within this term, we have different factors that are usually applied. First, assessment of the general source must be considered regarding the quality of the data collection (Ringdal, 2013). Round three of the NorLAG data has, like the other two rounds, been handled by Statistics Norway (The Central Bureau of Statistics). Statistics Norway is the national statistical institute of Norway, established in 1876. They have collected the data on behalf of the Norwegian social research institute, NOVA, and are by all accounts considered a reliable source of statistical data.

The second term of reliability, stability, is often referred to as test-retest reliability. It entails that a measure will stay the same over time, a stable measure. This means that if the study was given to a group of people, and then the same study was given again at a later time, there would not be great variation in the results between the two datasets (Bryman, 2016, s. 156-157). The NorLAG study, being a longitudinal study, has been administrated a total of three times. Although some alterations have been made between the rounds regarding the questionnaire, the main objective and format have remained the same. There are no indicators in the results of the three rounds that the stability of the measure is not reliable.

The internal reliability of the measure refers to a multiple indicator measure. The purpose is to measure the internal consistency of the indicators that make up an index or scale. A

commonly used test of internal reliability is the Cronbach's alpha. This test expresses a number between 0 (indicating no internal reliability) and 1(indicating perfect internal reliability). The value of alpha is increased if the items in a test correlate. What is considered an acceptable value of alpha differs between 0.70 and 0.95 (Bryman, 2016, s. 158; Tavakol & Dennick, 2011). In this study, the Cronbach's alpha of the index variables *Life satisfaction* and *Togetherness neighbourhood* was found to be .811 and .778. These values are considered high in reliability.

In summary, the assessment of the quality of the study regarding the data source, the stability and the internal reliability are considered to be good. To continue the assessment of the quality of the study, the term validity will be clarified in the next section.

5.5.2. Validity

To know if a measure of a concept truly measures that concept, we need measurement validity. Validity is a broad concept and there are several different terms and types of validity. A common distinction is set between internal and external validity.

Internal validity concerns the procedures and methodological structures within a study. It tells us whether the instruments and analysis used answers the research question (Bryman, 2016, s. 41). Similar to internal validity is *construct validity*. Construct validity can be understood with different aspects to capture the validity assessment of a study (Netemeyer, Bearden & Sharma, 2003). There are many concepts that could be relevant concerning construct validity. The minimum assessment a researcher should do is *face validity*. Face validity refers to the immediate reflections of the concept in question. It is essentially an intuitive process, where people, perhaps experts, are asked to assess the validity of a concept (Bryman, 2016, s. 159; Netemeyer et al., 2003).

Content validity refers to the elements of measure instruments and targeted constructs, and to which degree these are considered relevant and representative. In other words, does the content reflect the target construct (Netemeyer et al., 2003). Both face validity and content validity are relevant in this study, for instance when assessing the validity of the dependent variable *Life satisfaction* and the use of Satisfaction with life scale.

I am also going to mention *socially desirable response bias*. This is a complex issue, that can be considered a bias, or response style, and reflects the respondent's tendencies to give favourable answers. It addresses peoples wish to make themselves look good in accordance to cultural norms and practices in the general society. In socially desirable response bias, the respondents shape their answers in order to give a desired image of themselves (Netemeyer et al., 2003). The problem can be that the respondents exaggerate their feelings, and overreport positive or negative emotions. This should be kept in mind when assessing the answers regarding the dependent variable Life satisfaction, as it can be considered socially desirable to be satisfied, or happy with your life.

5.5.3. External validity and representation

External validity refers to the extent that the results of the study represents the general population. When conducting quantitative studies, researchers are usually concerned about the generalization of the findings beyond the group of participants(cases). The aim for the sample is to be as representable of the general population as possible (Bryman, 2016, s. 163). Statistics Norway published a documentation report about the third round of the NorLAG study (2019). This report clarifies the concern regarding selection bias in the third round of the data collection.

Selection bias is characterised by a skewness between the participants of a study and the general population. It can be caused by randomness in the selection draw, and in NorLAG round 3, the sample selection is already somewhat skewed compared to the selection of participant in round one and two. The skewness in the third selection is mainly caused by departures of those who have either died, emigrated or in other ways are considered invalid (Statistisk sentralbyrå, 2019).

In the assessment of selection bias it is important to look for any systematic characteristics of those who have departed since round one and two. In round three of the NorLAG study women are somewhat underrepresented and men somewhat overrepresented. People under the age of 70 are somewhat overrepresented compared to those who are 80 years and older. Especially those over 90 years have the lowest response rate and are underrepresented in the selection. Regarding education, there is clear underrepresentation of those with primary education, and likewise an overrepresentation of participants with higher education. All these

deviations are reinforced when looking at the dropouts of the self-administrative questionnaire (Statistisk sentralbyrå, 2019).

In round one of the NorLAG study, the selection was drawn from 30 different municipalities and city-districts. A country-representative additional selection was added in the second round. A total of 9045 persons represented the gross selection for round three, when deaths and other invalid respondents were subtracted from the previous participants. To reduce the skewness of the selection, weighs can be added to the data. The weights are calibrated from information about gender, age, education, district of country and centralization. The weights are adjusted so that the sum will reflect the general population (Statistisk sentralbyrå, 2019).

The NorLAG study is conducted by Statistics Norway, the sample is large, and deviation from the selection bias have been assessed along with the measurement validity. The NorLAG data is regularly used in research studies by the Norwegian social research – NOVA, statistics Norway and by university students. After an overall assessment, the validity and data quality of the NorLAG data is considered to be good.

5.5.4. Ethical considerations

When considering the ethical principles of social research, there are four main aspects that are relevant. First the researcher must consider whether there is *harm to participants*. This can among other things be stress, loss of self-esteem, physical harm or harm to the development of the participant. If any kind of harm is considered possible, the research is not ethically appropriate (Bryman, 2016, s. 126). Secondly there is the consideration of possible *lack of informed consent.* Does the participant have the preconditions to understand what participation entails? The researcher is ethically responsible to make sure that the participants understand what it means to give consent and participate in the study (Bryman, 2016, s. 129)

Thirdly the research must consider the invasion of privacy. The right to privacy is important and a breach of this principle in social research would not be acceptable. Lastly, the researcher must consider whether there is any deception involved. The researcher must never hide the true purpose of the study by presenting it as something else. To trick the participant to be part of something the person is not aware of, even if it is considered not to be harmful, is an obvious breach of ethical principal (Bryman, 2016, s. 131-133).

As this study is grounded upon existing data from the NorLAG study, it's relevant to point out that the overall responsibility that the data collection is done properly lies on them. It is stated on the web page of Statics Norway, that their research-employees are subjected to general ethical and management norms and principals. The values that are mentioned are openness, loyalty, justice, reliability, and treating others like you want to be treated (Statistisk sentralbyrå, 2007).

Participation in the NorLAG study is voluntary, and participant are given information on what the data will be used for. As the interviews are given over telephone and self-administrative questionnaire the risk of harm to the participant is low. Some of the questions are of personal and private nature, however the participants are reassured that all information collected are stripped of their name, addresses and social security number to safeguard their anonymity. In summary, there are no indicators that any ethical principles have been breached when the NorLAG3 data was collected.

6. Results

In this chapter the results from the univariate analysis from the dependent variable will be presented. The results from the bivariate analysis will follow, and lastly the results from the linear regression analysis will be illustrated and described.

6.1. Descriptive statistics/univariate analysis

In this thesis the purpose of the univariate analysis of the dependent variable is to examine how the values are distributed within the respondents. This reflects how the dependent variable, satisfaction with life, is distributed within the population. In addition, it gives an overview of the Life satisfaction four item summary. Descriptive analysis of the independent variables gives an overview of range, mean-values and number of participants. Further frequency distribution is illustrated for two of the independent variables.

The descriptive analysis of *Life satisfaction* in Table 1 shows that a total of 90.7 % of the respondents of the dependent variable have answered that they highly or somewhat agree on the satisfaction of life scale. In other words, 90% of the respondent are highly or somewhat satisfied with their life, and a mere 10% have answered that they are indifferent or don't agree with the statements. The mean of the *life satisfaction* is 1.876. Looking at the means of the

different statements that make up the SWLS, the statement of "I am satisfied with my life" have a distinctly higher mean than the other statements.

Table 1. *Descriptive analysis of the dependent variable*

	N (missing)	Min	Max	Mean	Std. deviation	Skewness	Kurtosis
Life satisfaction	6070 (4958)	1	5	1.876	.763	1.140	2.052

Range:	1=Highly agree	2=Somewhat agree	3=Neither agree or disagree	4=Somewhat disagree	5=Highly disagree	Total
N (%)	3137(51.7%)	2369(39%)	394 (6.5%)	145(2.1%)	43(0.7%)	6070(100%)

Life satisfaction 4-Item summary	Mean	Std. Deviation
In most ways my life is near ideal	2.30	.865
My life conditions are excellent	2.13	.858
So far, I have the most important things I wanted in life	2.04	.833
I am satisfied with my life	1.46	.789

Table 2 shows descriptive statistics of all the independent variables. The mean of the *togetherness neighbourhood* variable is 2.352 on a 5-point scale which means that people are scoring medium-high on the positive end of the scale. The mean of satisfaction with village district is 1,147 on a 11-point scale. The mean age of the respondents is 65,25 years old.

The mean of variable of municipality size is 4,844. To be able to understand this number I have included descriptive statistics of the frequencies of this variable in Table 3. The scale of the variable *municipality size* in Table 3 is ordinal in the way that the it goes from the municipality with the fewest inhabitants and rises with intervals to the municipality with the most inhabitants. The intervals between the points vary a great deal, and so does the number of respondents who live in these municipalities. A third of the respondents live in a city with more than 100 000 inhabitants whereas the remaining respondents is partitioned out across the smaller municipalities.

Table 2. *Descriptive statistics of the independent variables*

Variable name	N (missing)	Minimum	Maximum	Mean	Std. dev
Togetherness neighbourhood	4324 (6704)	1 (Highest positive score)	5 (lowest negative score)	2.352	.763
Satisfaction village/district	6087 (4941)	0 (Very satisfied)	10 (Not at all satisfied)	1.147	1.467
Municipality size	5713 (5315)	1(less than 199 inbht.)	7(more than 100 000 inhbt.)	4.844	2.289
Number of years in residence (grouped)	6099 (4964)	1 (lived 38 years or more)	5 (moved in the last two years)	2.462	1.092
Age at time of interview	6099 (4929)	50	95	65.25	9.7

Table 3. *Descriptive analysis frequencies of Municipality size*

Value	N (%)
1= < 199 inhabitants	1180 (20,7%)
2= 200-499 inhabitants	138 (2,4%)
3= 500-999 inhabitants	193 (3.4%)
4= 1000-1999 inhabitants	224 (3.9%)
5= 2000–19 999 inhabitants	1194 (20.9%)
6= 20 000–99 999 inhabitants	723 (12.7%)
7= >100 000 inhabitants	2063 (36.1%)
Total	5713 (100%)

The last univariate analysis that will be shown is descriptive analysis of the independent variables *number of years in residence* in Table 4. This is to get a better overview of the moving patterns of the respondents. The analysis shows that almost two thirds of the respondents have lived in the same residence for 17 years or longer.

Table 4. *Descriptive analysis frequencies of Number of years in residence - grouped*

Value	N (%)
Lowest thru<1979	1157 (19.1%)
1980-1999	2377 (39.2%)
2000-2010	1377 (22.7%)
2011-2015	876 (7.9%)
2016-2017	277 (4.6%)
Total	6064 (100%)

6.2. Bivariate analysis

The bivariate analysis with the Pearson's r correlation between all the variables used in the analysis can be seen in Table 5. All except two of the correlations are statistically significant.

Table 5. *Bivariate Correlation analysis between all variables – Pearson's r*

	1	2	3	4	5	6
1.Life satisfaction	1					
2.Togetherness neighbourhood	.217***	1				
3.Satisfaction village/district	.190***	.258***	1			
4.Municipality size	.041**	.307***	-.045**	1		
5. Number of years in residence	.036**	.182***	.026*	.164***	1	
6. Age at time of interview	-.019	.052	-.075***	.037**	-.210***	1

*p<0.05 **p<0.01 ***p<0.001.

Looking closer at the variables correlating with the dependent variable first, the correlation between *life satisfaction* and *togetherness neighbourhood* is positive with a value of .217 and statistically significant. As the correlation is positive, it indicates that higher *satisfaction with life* correlates with higher score *togetherness neighbourhood.* The same goes for *life satisfaction* and *satisfaction with village/district* with values .190. Although the correlation is not very strong, it is statistically significant.

The correlation between *municipality size* and *life satisfaction*, and *municipality size* and *number of years in residence* is also positive and statistically significant, but the correlation is

weaker than the first two with values of accordingly .041 and .036. There is no significant correlation between *age* and *life satisfaction* as p>0.05.

I will continue by looking at the correlations between the independent variables. The variable *togetherness neighbourhood* correlates positively with *satisfaction of village/district* with .258 and is statistically significant. The correlation between *togetherness neighbourhood* and *municipality size* is .307, a moderate correlation, which is stronger than the correlation between *life satisfaction* and *municipality size*. The correlation between *togetherness neighbourhood* and *municipality size* is positive, indicating that positive emotions in togetherness in the neighbourhood is correlated with smaller municipality population size.

Togetherness neighbourhood also has a positive correlation with *number of years in residence*, with a value of .182. Although it is not a strong correlation, is statistically significant. The correlation between *togetherness neighbourhood* and *age* is not statistically significant with p>0.05.

The variables of *satisfaction with village/district* and *municipality size* has a negative correlation of -.045. The correlation is weak but indicates that larger municipality size correlates with higher satisfaction of village/district. This contrasts with what was shown before where there was a positive correlation between smaller municipality size and higher feeling of togetherness in the neighbourhood.

Satisfaction with village/district also has a weak, positive correlation with *number of years in residence*. This suggests that the longer time a person has lived in a residence, the more they are satisfied with the village/district they live in. *Satisfaction with village/district* has a negative correlation with *age*, -.075. Again, it is a weak correlation, but statistically significant and means that higher *satisfaction with village/districts* correlates with higher *age*.

The variable *number of years lived in residence* has a weak, positive correlation with *municipality size* of .164, which indicates that smaller municipality size correlates with longer time lived in the same residence. In other words, people in smaller municipalities stay in the same residence longer than people in larger municipalities. *Number of years in residence* has a negative correlation with *age*, -.210, which suggests that higher age correlates with years lived in the same residence. *Number of years in residence* and *age* have a weak positive

correlation, .037, which indicates that people with lower score in age, more often lives in smaller municipalities.

Although the correlation between the dependent variable and *age* is not statistically significant, *age* has statistically significant correlations between several of the other independent variables. The strongest correlation for *age* was *number of years in residence.*

6.3. Multiple linear regressions analysis

The regression analysis in this study has been constructed in the form of a hierarchical regression model, with each variable included sectionally. This gives the possibility to see how each additional variable changes the existing variables in the model. This way it is possible to analyse the effect, according to the hypothesis. In the following the findings of the regression analysis is clarified, going through each of the five models illustrated in Table 6.

Table 6. *Multiple linear regression analysis with Life satisfaction as dependent variable*

	Model 1	Model 2	Model 3	Model 4	Model 5
	B	B	B	B	B
Constant	1,456	1,474	1.1514	1.534	1,492
Togetherness Neighbourhood	.221***	.174***	.193***	.196***	.196***
Satisfaction Village/district		.083***	.079***	.079***	.079***
Municipality size			-.16**	-.016**	-.016**
Number of years in residence				-.012(,215)	-.011(.280)
Age					.001 (.579)
Adjusted R^2	0.05	0.078	0.080	0.080	0.080

*p<0.05 **p<0.01 ***p<0.001.

In Model 1 of the regression analysis, we see, as suspected from the bivariate correlation, there is a positive correlation of .221 between *life satisfaction* and *togetherness neighbourhood.* In other words, higher positive score in life satisfaction is associated with higher positive score in togetherness in the neighbourhood. The correlation is statistically significant and as the adjusted R^2 value is 0.05, this model explains 5% of the variations of life satisfaction.

In Model 2, *satisfaction with village/district* is added and reduces the correlation between *life satisfaction* and *togetherness neighbourhood* from .221 to .174. This means that some of the variance in *life satisfaction* that was explained by *togetherness neighbourhood*, can in fact be explained by *satisfaction in village/district*. Correlation between *satisfaction in village/district* and *life satisfaction* is weak, but statistically significant with a value of .083. With an R^2 value of 0.078, Model 2 explains 7,8% of the variance of life satisfaction.

Municipality size is added as a variable in Model 3. In the bivariate analysis, the correlation between *life satisfaction* and *municipality size* was positive, but in the regression analysis the correlation is negative. A negative correlation indicates that higher positive score in life satisfaction, correlates with higher municipality size. The correlation in the bivariate analysis and the regression analysis are both considered weak correlations but statistically significant. The value of the adjusted R^2 of model 3 is .002 higher than the previous model, meaning a total of 8% of the variance of life satisfaction is explained by Model 3.

Model 4 adds the variable *number of years lived in residence*. In the bivariate analysis, the correlation between *life satisfaction* and *number of years lived in residence* has a weak, but statistically significant positive correlation. In the regression model however, the correlation between the independent variable *number of years lived in residence*, and *life satisfaction* is statistically insignificant with $p>0.05$. The same goes for Model 5 when adding the variable *age*. This was expected however, as the bivariate analysis between *age* and *life satisfaction* was not statistically significant. This means that *age* and *number of years lived in residence* does not have significant contributions to the variances in the dependent variable.

Living environment in the form of *togetherness neighbourhood, satisfaction with village/district* and *municipality size* together explain a total 8% of the total variations of *life satisfaction*. This indicates that a person's living environment, at a meso level perspective of social capital, will have quite a lot to say for a person's subjective satisfaction in life. This will be discussed in the following chapter.

7. Discussion

In this chapter I will give an overview of the results from the analysis and whether the hypothesis was confirmed or not. I will continue to analyse the findings in the perspective of neighbourhood resource-based theory of social capital, and in the context of social work. At the end, I will reflect upon the study limitations and suggestions for further work.

7.1. Hypothesis and findings

The results from the analytical tests conducted confirmed the first hypothesis, that there is association between satisfaction neighbourhood and living environment. Between the variable's *life satisfaction* and *neighbourhood satisfaction*, the Pearson's r value in the bivariate analysis showed positive correlation of .217 and the multivariate regression analysis showed a positive correlation coefficient of .221, both were statistically significant with $p<0.001$. The results for the relationship between *life satisfaction* and *satisfaction village/district* showed a positive bivariate correlation of .190 and regression coefficient value of .088, both statistically significant. The regression analysis showed that the two variables explains a total of 7,8% of the variations of *life satisfaction*, and since the results are statistically significant it represents the general population. Based on these results I keep hypothesis 1, suggesting that higher positive emotions in living environment is associated with higher satisfaction with life.

The second hypothesis was; Living in a municipality with fewer inhabitants is associated with higher positive emotions in living environment and is therefore associated with higher satisfaction with life. Looking first at the relationship between municipality population size and the dependent variable, the results from the bivariate analysis showed a weak, positive correlation between *life satisfaction* and *Municipality size* of .041. This indicates that smaller municipality size score is correlated with higher score in satisfaction with life.

The bivariate correlation between *municipality size* and *togetherness neighbourhood* has a much stronger correlation of .307 with $p<0.001$. This suggests that people who live in municipality with fewer inhabitants are more satisfied with the village or district they live in, than people who live in municipalities with larger populations. However, the bivariate correlation between *municipality size* and *satisfaction village/district* is negative, indicating the opposite. Looking at the multiple regression analysis, the regression coefficient of

municipality size, with the dependent variable *life satisfaction* shows a weak negative value of -.016. The value is significant, and as the value of R^2 increases, adding the variable municipality size increases the explanation of the dependent variable with 0.2%.

With these results in mind, the second hypothesis is partly kept. The analysis did indeed show an association between living in a municipality with fewer inhabitants and living environment, in the form of higher feeling of togetherness between neighbours. However, the association between living in a smaller municipality and satisfaction with village or district was negative. At the same time, the bivariate analysis and the multiple regression analysis showed contradicting results of the association between *municipality size* and *satisfaction with life,* as the first value was positive and the other negative. Both values were quite weak, even if they were statistically significant. The result of this association is therefore somewhat inconclusive, suggesting that people in larger municipalities are more satisfied with their village or district, and people in municipalities with fewer inhabitant's report of higher feeling of togetherness in the neighbourhood. In summary, when explaining the variation of how satisfied people are with their life, living environment is the most relevant indicator of the variances, and population size of the municipality is less relevant.

Looking more closely at the variable *Years lived in same residence* the univariate descriptive analysis showed that 58.3% of the respondents had lived in the same residence 18 years or more (moving there before 1999). A total of 37.1% have moved between year 2000 and 2015 and only 4.6% had moved in the last two years. In other words, the majority of the respondents have not relocated recently, but stayed in the same residence. This can be seen in context with previous research, suggesting that although older people move less than younger people, people over 50 years of age still relocate quite a bit (Rogne & Syse, 2017, s. 152).

The results from the bivariate correlation also showed statistically significant correlation between the variables *number of years lived in residence* and all the other variables. The strongest positive correlation was between *number of years in residence* and *togetherness neighbourhood.* This positive correlation indicates that the longer you live in the same residence, the stronger the feeling of togetherness in the neighbourhood is. There is also a positive correlation between *number of years in residence* and *municipality size,* indicating that people who have lived longer in the same residence also live in municipalities with fewer

inhabitants. This is in accordance with previous studies on moving patterns, indicating that people living in larger cities more often relocated than people living other places (Rogne & Syse, 2017, s. 152).

The results of the descriptive analysis of the dependent variable showed that 90.7 % reported medium or high levels of life satisfaction. This number is the same as found in Statistics Norway (2017), where it was also indicated that people over the age of 45 was the happiest of the population. Further on, Statistics Norway found that age has little relevance regarding satisfaction with life (Vrålstad, 2017). That is in accordance with the results of this study, where age and satisfaction with life did not have a significant correlation.

The idea that age influence how happy people are could possibly be part of the myths that exist around older adults (Hansen, 2019). One example is the idea that older people are lonelier than the general population. However, research shows that the level of loneliness is stable as people grow older, and that people around 70 years old are the most satisfied with their life (Hansen, 2019). The results of this thesis, indicating that there are no statistically significant associations between age and life satisfaction, are in accordance with this research. However, previous research also claims that the results of loneliness and life satisfaction among the older generation is only valid until a certain age-group. People who are over 80 years of age are more often depressed and lonely, and that can be seen in association to decreased health status and the loss of close friends and family (Hansen, 2019). This is relevant to keep in mind knowing that people over 80 years of age are somewhat underrepresented in the NorLAG data sample.

7.2. Satisfaction with life and neighbourhood resource-based social capital

In Carpiano's neighbourhood resource-based theory of social capital, structural antecedents created the conditions for social cohesion. Structural antecedents in the form of municipality populations size in this study indicates that the direct influence of life satisfaction is somewhat weak. However, the associations between social antecedents and social cohesion in the form of feeling of togetherness in neighbourhood, is more prominent. The results in this study showed significant correlations between municipality population size, how many years a person lived in the same residence and how strong the feeling of togetherness in the neighbourhood is.

This is in accordance to Carpiano's theory, where the structural conditions create the foundation that form social cohesion and social capital (Carpiano, 2006). The longer time the same people have lived next to each other, the more opportunities (voluntarily or involuntarily) they have had to get to know each other. Meeting each other at the mailbox, or out in the garden moving the lawn, or perhaps when someone is missing their cat, these encounters can be the beginning of good and long-lasting relationships between neighbours. In smaller communities, people are perhaps more likely to meet their neighbours in the grocery shops, at the dentist or at political meetings. As the results indicates, the longer a person has lived in the same residence, the stronger feeling of togetherness in the neighbourhood is reported. This, along with the population size of the municipality they live in, influence social cohesion.

Social cohesion as feeling of unity and belonging to the living place can be understood as the groundwork on which social capital in the neighbourhood is based upon. The social ties made from good and positive relationships between neighbours, exist as a result from this base and can have implications for the general feeling of life satisfaction (Carpiano, 2006). This is an accordance with the result from this study that showed a clear positive correlation between feeling of togetherness in the neighbourhood and satisfaction with life.

This feeling of togetherness in the neighbourhood can also be understood as social support or social trust, and these elements create social capital (Carpiano, 2006; Segaard & Wollebæk, 2011). In the current situation of the Corona virus, social capital in the form of social support is likely to be more essential than ever. The importance of social cohesion in the current situation can be understood as not only having someone to ask for help, but also the trust upon people's ability and will to show consideration to each other.

Access to education is also an important factor contributing to neighbourhood resource-based social capital. In the next 20 years, the level of education of the population and hence the level of resources of the elderly is expected to increase significantly (Rogne & Syse, 2017, s. 203). This can mean that the future elderly generation is more independent and somewhat better equipped to handle everyday difficulties than the elderly before them. However, the distribution of this higher educated elderly's is expected to be unevenly distributed across Norway. The gap between people with high education and good economy and the people with

lower income is expected to rise, and so the gap between health and opportunities could increase too (Rogne & Syse, 2017, s. 203).

In summary, the theoretical elements of Carpiano's neighbourhood resource-based theory of social capital is very relevant when analysing the results of this thesis. The associations between the independent variables, can be understood in accordance to the relationship between structural antecedents and social cohesion in this model. Further on, social cohesion and social capital, in the form of positive emotions in togetherness neighbourhood, was found to be associated with higher feeling of life satisfaction.

7.3. Social capital in the context of social work

Using the perspective of positive psychology and looking at what makes people satisfied with life, the most relevant indicator in this study is perhaps the importance of living environment. Social capital in the form of feeling of unity and satisfaction with community is in this study an important indicator on life satisfaction. In this sense, strategies of social work related to fostering local community engagement deserve some extra consideration. By creating circumstances where feeling of unity and belonging could prosper, the result could be enhancement of social capital in the form of social support.

This knowledge can be relevant in an *age in place* concept, where the aim is for older adults to live at home as long as possible (Lehning et al., 2017). Potential benefits from *age in place* is connected to the experience of place attachment that older adults develop as they live in the same place for a long time. In the regard of *age in place*, place attachment is believed to contribute to better health and well-being as people get older (Lehning et al., 2017).

When developing, implementing and evaluating policies towards the concept of *age in place*¸ social workers are often involved (Lehning et al., 2017). Knowledge about what factors influence place attachment, such as municipality population size and living environment is essential. Having a preventive approach when making social policies could be beneficial. This could for instance be putting in more resources in facilitating local social support for people in bigger cities and for those who recently moved to a new place of residence. A relevant organization to this kind of work is Norway's Voluntary Centres. The results in this study suggest that a person is more likely to have social capital, in the form of social support, if they

live in smaller places for a longer period, and that this in turn influence satisfaction in life. These results are in accordance with the potential benefits of *age in place* concept.

7.3. Study limitations and suggestions for further research

This thesis has aimed to analyse the associations between municipality size, living environment and life satisfaction, using data from the third wave of the NorLAG study. The analysis was limited to the data sample from the third wave, even though the data material has had longitudinal analytical possibilities. It can be argued that there are other, more suitable dataset to be used when doing a cross-sectional analysis, instead of this one. A longitudinal study would add a dimension of aging over time that this thesis does not contain. However, using NorLAG for cross sectional analysis gives a perspective from a different source of information and can testify to the broad ranges of application such an important study can have.

In the analysis this thesis has used Carpiano's theory of a neighbourhood resource-based perspective. Carpiano's model however contains more factors than this study has included. By including socioeconomic factors such as income, education and status of homeownership in the analysis, another dimension would be added to the level of structural antecedents. This might have given more perspectives when analysing social cohesion and the basis of social capital. Further on, with the components included in this study, there was no possibility to measure outcome of social capital in any other way than satisfaction with life. Adding health status as another predictor of social capital could have been a way to add a different perspective to the study than "just" measuring individual's subjective life satisfaction.

This study contributes to general understanding of neighbourhood level of social capital and subjective life satisfaction with older persons in Norway. The age cut-off is set to 50 years of age and older, thus including the entire sample of the third wave of the NorLAG study. The study could have limited the group of participants further, for instance by only including pensionaries, or people living only in certain geographical places or with certain socio-economic conditions. However, any further limitation of the sample-group was not considered expedient regarding the aim of the study.

When interpreting the results, it can be relevant to keep in mind the composition of the sample of participations, as it is likely not a coincidence who participates. The questionnaire is extensive and time-consuming, and knowing that people over 80 years of age are underrepresented, participants in studies like the NorLAG study are probably quite resourceful (Hansen, 2019).

Aging under the life course perspective and with this, life satisfaction, is important to put on the research agenda. As the Norwegian population is aging and moving patterns shows clear tendencies of centralisation, there is a need for social policy regarding both urban and rural population aging. Although the study partly answers the hypothesis this study aimed to explore, other questions have been brought forward. The associations between life satisfaction and municipality population size was contradictive and inconclusive. Further research on this would better the understanding of this association, which could be relevant knowledge for policy makers in different municipalities and regions in Norway.

An interesting research proposal for future research would be measuring social support on neighbourhood level after the impact of the Corona virus. Exploring whether social capital on neighbourhood levels have been strengthened or weakened by the restrictions and social distancing would be interesting and relevant knowledge in an ageing perspective.

Conclusion

The aim of this thesis was to examine the associations between subjective life satisfaction, living environment and municipality population size for adults over 50 years of age in Norway. It has also looked at the influence of factors such as age and how many years the respondents have lived in the same residence.

The results of the study indicate that living environment is an important element when explaining variations of satisfaction with life. The variable of municipality population size was less relevant in the direct association with satisfaction with life, it did however correlate positively with living environment.

In the perspective of neighbourhood resource-based theory of social capital, the results suggest that the structural antecedents of a neighbourhood are associated to the feeling of

togetherness and social support the inhabitants experience. The research indicates that these elements are an important influence on the outcome of subjective life satisfaction.

Research regarding living environment and life satisfaction is relevant for the development of aging policies, for instance regarding place attachment and the concept of *age in place.* The results from this study contribute to the knowledge of the associations between living environment and satisfaction with life in different community contexts in Norway.

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