

**INTERACTION BETWEEN NORWEGIAN
COUNTIES AND MUNICIPALITIES TO REDUCE
SOCIAL HEALTH INEQUALITIES: AN
EXPLORATORY STUDY**

TIRIL GRIMELAND

Department of Health Promotion and Development

Faculty of Psychology

University of Bergen



Master's thesis submitted in partial fulfillment of the requirements for the
degree

Master of Philosophy in Health Promotion, University of Bergen

Spring 2015

DECLARATION OF ORIGINALITY

I hereby declare on oath that this thesis is my own work and that, to the best of my knowledge, it contains no material previously published, or substantially overlapping with material submitted for the award of any other degree at any institution, except where due acknowledgement is made in the text.

Tiril Grimeland

Bergen, June 26, 2015

ACKNOWLEDGEMENT

This thesis would not have been possible without the following people, whom I need to thank profoundly.

I am grateful for being a part of the SODEMIFA. Their emphasis on the importance of a focus on social inequalities in health spoke directly to my health promoter heart. I need to thank Dr. Marit K. Helgesen and Dr. Hege Hofstad at NIBR for providing me with the exciting data.

I would like to thank my great supervisor Professor Elisabeth Fosse. Her kind, patient and supportive way of being got me through this process, together with her extensive knowledge base.

I also need to thank my secondary supervisor, Professor Maurice Mittelmark. He taught me the importance of quality assurance in quantitative data, as well as having fun with SPSS.

I got great support from my wonderful study group over several lunches, where we shared laughter and frustration. Also, thank you, Mette Kolbjørnsen at SMS, for helping me through this process.

Last, but not least, I need to thank my patient and kind boyfriend, Andreas, my parents, brother and good friends for providing me good help and for calming me down. Thank you for believing in me and giving me confidence.

I look forward to the road ahead!

TABLE OF CONTENT

ABSTRACT	vii
ABBREVIATIONS	x
1. Introduction	1
1.1 Overview of the problem.....	1
1.2 Study purpose and objectives	4
1.3 Brief overview of methods	4
1.4 Contribution of the study.....	5
1.5 Language	5
2. Scientific background and significance	6
2.1 Social determinants of health	6
2.2 Inequity versus inequality in health.....	11
2.3 The health gradient	13
2.4 Addressing the inequalities in health.....	15
2.5 Intersectoral collaboration	20
2.6 Public health policies.....	22
2.7 Norwegian municipalities.....	26
2.8 Norwegian counties and partnership for health.....	27
2.9 Significance and research questions	30
3. Data and methodology	31
3.1 Study design	31

3.2 Participants	32
3.2.1 Counties	32
3.2.2 Municipalities	32
3.3 Data	32
3.4 Variables.....	33
3.4.1 Counties	34
3.4.2 Municipalities	36
3.5 Data management	38
3.6 Data analysis and interpretation methods.....	40
3.6.1 Missing data analysis	40
3.6.2 Comparative side-by-side analysis	41
3.7 Ethical considerations.....	43
4. Results.....	43
4.1 Intersectoral working groups in the county	43
4.2 Partnership with the county	47
4.2.1 Partnership with the county	47
4.2.2 Relationship between the partnership with the county and the population size	49
4.3 Comparative analysis between counties and municipalities – Observations	51
4.3.1 The counties’ focus in the follow-up of the municipalities	51
4.3.2 Similar perceptions of the focus areas	53

4.3.3 Connection to the main health challenges	54
4.4 Comparative analysis between counties and municipalities – Analyses	55
4.4.1 Preliminary analyses	55
4.4.2 Independent-Samples T Test	58
4.4.3 Correlations.....	63
4.5 Summary	68
5. Discussion	69
5.1 The counties’ work on reducing social health inequalities	70
5.1.1 The counties’ intersectoral work.....	70
5.1.2 The counties’ contribution to municipal public health work.....	72
5.1.3 Geographic and sociodemographic explanations	75
5.2. Similar or different work towards reducing social health inequalities at the county level and municipal level	76
5.2.1 The focus on social determinants of health in multilevel collaboration	76
5.2.2 Geographic and sociodemographic explanations	82
5.3 Methodological limitations.....	82
6. Conclusion	84
REFERENCES.....	87
APPENDIX.....	99

ABSTRACT

Background

Social inequalities in health are systematic differences in health between social groups, and are considered as unjust. The social determinants of health are factors external to the human body, which affects health. These factors must be acknowledged in order to reduce social inequalities in health. These are important to acknowledge to be able to reduce social inequalities in health. Reducing social inequalities in health has been on the political agenda in Norway for several years. In 2012, the Public Health Act was implemented as a means to reduce health inequalities and level the gradient. The law gave Norwegian counties and municipalities more concrete responsibilities towards public health issues. They are supposed to make an overview of the health situation and the positive and negative factors that affect health.

Objectives

The main objective of this study is to find out the degree of consistency in the work on reducing social health inequalities between and within counties and municipalities. The study has two main research questions:

RQ 1: How is the counties' work towards reducing social health inequalities?

RQ 1.1: How is the work reflected in the counties' intersectoral work?

RQ 1.2: How is the work reflected in the counties' contribution to municipal public health work?

RQ 1.3: What geographic or sociodemographic factors are associated with the patterns that emerge?

RQ 2: To what degree is the work on reducing social health inequalities at the county level similar to the work at the municipality level?

RQ 2.1: How is this reflected in the focus on the social determinants of health?

RQ 2.2: How is this reflected in the focus on multilevel collaboration and partnership?

RQ 2.3: What geographic or sociodemographic factors are associated with these similarities and differences?

This is an explorative study with a cross-sectional design. The dataset comes from a baseline survey conducted by the Norwegian Institute for Urban and Regional Research in 2011. The analyses mainly consist of observations, descriptive statistics, independent t-test and correlations.

Results and discussion

The data shows that counties offer much support to the municipalities, and that there is much intersectoral work towards public health. However, from a Health in All Policies perspective we would have liked to see that their intersectoral work moved away from the general public health work and towards including more and other sectors. The work on reducing social health inequalities at the county level is quite similar to the work at the municipal level. The focus is primarily on individual health behavior. They

should have prioritized, focused on, and perceived living conditions as main health challenges more than health behavior, to reduce social health inequalities.

Conclusion

The counties seem to have some control over the political guidelines, but they do not necessary bring the message down to the municipal level. The counties have an important advisory role towards the municipalities.

However, they still have a way to go to really take on their role, and to inspire and push the municipalities to move the public health focus towards structural living conditions.

Key words

Social inequalities in health, social determinants of health, counties, municipalities, health in all policies, intersectoral and multilevel collaboration, partnership, Norwegian public health policy.

ABBREVIATIONS

WHO = World Health Organization

HiAP = Health in all policies

HIA = Health impact assessment

SODEMIFA = “Addressing the social determinants of health: Multilevel governance of policies aimed at families with children in Norway”

NIBR = Norwegian Institute for Urban and Regional Research

SES = Socioeconomic status

GEF = Gradient Evaluation Framework

HB = Health behavior

LC = Living conditions

SE = Social environment

PE = Physical environment

1. Introduction

1.1 Overview of the problem

Health promotion is defined by the World Health Organization (WHO) as “the process of enabling people to increase control over, and to improve, their health” (1986, p. 1). This definition is from The Ottawa Charter for Health Promotion, which was created on an international conference on health promotion, organized by the WHO, in Ottawa the 21st of November 1986 (WHO, 1986). It is a charter for action, and their health promotion actions means are: building healthy public policy, creating supportive environments, strengthening community actions, developing personal skills, reorienting health services and moving into the future (WHO, 1986). Furthermore, it is stated that social justice and equity are some of the fundamental prerequisites for health. All individuals should have the equal opportunity to reach their full health potential, however, this is far from the reality (Koh et al., 2010). Even in a rich country with an extensive welfare system, like Norway, there are still social inequalities in health (Norwegian Ministry of Health and Care Services, 2007; Wilkinson & Marmot, 2003). Health inequality, which is defined as “the measurable differences in health and health outcomes between different population groups – according to socioeconomic status, geographical area, age, disability, gender, ethnic or other characteristics”, is often used interchangeably with the term health inequity (Stegeman & Costongs, 2012, p. 210). If the health inequality is due to factors like poverty, low income, lack of education or great physical distance to health care services, then the inequalities in health are unjust, and there is inequity in health (WHO, 2010b).

Health behavior varies systematically with social background, like the level of education, occupation and income (Norwegian Ministry of Health and Care Services, 2007). It has also been found that childhood conditions might affect health later in life (Norwegian Ministry of Health and Care Services, 2007; Stegeman & Costongs, 2012). Therefore, it is very important to design policies that ensure that all children and families get an equal opportunity to attain the best health. To be able to reduce the inequities in health for socioeconomic disadvantaged groups, it is necessary with policies that address this issue from all levels of society (Baum, 2007). In Norway, the local levels of government, like the municipalities, are responsible for providing several services, including many of those targeting children and families (Fosse & Helgesen, 2011). Because of these responsibilities, policy makers at the local level need to be a part of the policy making, in cooperation with those at the national level. In the Ottawa Charter it is stated that “to reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment“ (WHO, 1986, p. 1). This means that to improve health, the policy makers need to have an intersectoral approach. Instead of only focusing on the health sector when implementing programs, they need to understand the social, cultural and economic systems in the area. They need to mediate between the different interests in society to improve people’s health (WHO, 1986).

This study is a part of the research project “Addressing the social determinants of health: Multilevel governance of policies aimed at families

with children in Norway” (SODEMIFA; The Research Council of Norway, 2012). SODEMIFA looks at how social inequalities in health can be addressed at the local level by looking at implementation of policies aimed at children, with an emphasis on the multilevel governance of policies (Fosse & Helgesen, 2011). The project is a collaboration between the Department of Health Promotion and Development at the University of Bergen, Norwegian Institute for Urban and Regional Research (NIBR) and the University College of Vestfold, in cooperation with the University of Brighton and University of Mälardalen.

Health promotion has been on the political agenda in Norway for many years. In 2003, an increasing focus on the social inequalities in health came with the white paper “Prescription for a Healthier Norway”. The gradient perspective came with the action plan “The Challenge of the Gradient”, which was followed up by the white paper “National Strategy to Reduce Social Inequalities in Health” (Fosse, 2011). As of January 2012, a new health law came into force in Norway. The purpose of this new Public Health Act is to “to contribute to societal development that promotes public health and reduces social inequalities in health” (Lovdata, 2011, p. 1). This law requires that the Norwegian municipalities and counties have the necessary information about the health status of the population. They should also get a better understanding of the positive and negative factors that can affect the health status (Lovdata, 2011; Norwegian Directorate of Health, 2011a). The municipalities need to provide health services that promote health and well-being, as well as good social and environmental conditions. The counties are required to support the public health work in the

municipalities (Lovdata, 2011). Many municipalities have entered into partnership with the county, and use this partnership as a working method in their public health work (Norwegian Directorate of Health, 2011b).

1.2 Study purpose and objectives

To measure the effect of the Public Health Act of 2012, we need a benchmark of how the situation was prior to its implementation. The purpose of this study is therefore to get a better understanding of the municipalities' and counties' knowledge about health challenges just before the new health law came into action.

In 2011, The Norwegian Institute for Urban and Regional Research (NIBR) conducted a baseline study to map the different aspects of municipalities' and counties' health promotion work prior to 2012 (Helgesen & Hofstad, 2012). The data from the baseline study has been included in the SODEMIFA project. At the starting point of my study, the only available quantitative data in the SODEMIFA project was the data from 2011. The baseline study from 2011 also includes the only dataset in the project in which the counties are represented. Based on the responses from the baseline study, the overall objective of this study is to find out the degree of consistency in the work on reducing social health inequalities between counties and municipalities.

1.3 Brief overview of methods

This is an exploratory study, which means that it is primarily concerned with discovery (Davies, 2006). An exploratory study does not set out with

clear hypotheses, but investigates the data to find patterns and create new hypothesis. One of the main features of exploratory research is according to Davies (2006, p. 110) that “the exploratory researcher does not approach their project according to any set formula”. Descriptive statistics and basic statistical testing are conducted to find the differences and similarities, and to look for patterns. Thus, mainly quantitative methodology will be used.

1.4 Contribution of the study

This study will be a contribution to the evaluation of the Norwegian Public Health Act. It looks at the situation before the Public Health Act came into force. By enhancing the baseline, it will contribute to a better comparison between then and now.

This study will also contribute to the knowledge base of local and regional health promotion, and it might help identify monitoring needs related to the actions they initiate. In addition, it will shed light on social determinants of health and social inequalities in health in Norway.

If any new hypotheses arise, it will yield the option of further research into these.

1.5 Language

The translation of Norwegian terminology is based on literature on similar topics together with my own translations. The variables in the datasets were translated into English based on my own translation, inspired by translations from other researchers working with the same or similar datasets. In the analyses, the 0 and 1 are explained in the notes of the tables. Usually, the 0

represent the largest or highest etc. value, while 1 and further out represent decreasing values. When the counties and municipalities were only to check off some of the alternatives, the 0 represent “not checked” and 1 represent “checked”.

2. Scientific background and significance

This chapter describes both the theoretical and empirical perspective of the study. It connects theory with literature and research written on the area of interest, in a funnel shape. It starts by looking at the wider social determinants of health and health inequities, and moves on to describing the local and regional governance practices in Norway. In the end, a short summary is presented.

2.1 Social determinants of health

A person’s health is determined by several factors. The biological factors like age, sex and genetic make-up play important roles, but equally important are the external conditions to the human body (Stegeman & Costongs, 2012). These factors are often called the social determinants of health, which are mainly responsible for health inequalities (Marmot, 2005). Social determinants of health are according to WHO (2012) “the conditions in which people are born, grow, live, work and age, including the health system”. These conditions could be income, housing, access to food and water, culture etc., and are shaped by forces like economics, politics and resources. Determinants of health was introduced in the 1970s as a response

to criticism towards the public health research and policies' focus on individuals and their illnesses rather than populations and the societal health (Graham & Kelly, 2004).

Social determinants of health and health inequalities among children have been widely researched. The main findings are that children's health and wellbeing are dependent on their parents', family and community support system (Norwegian Ministry of Health and Care Services, 2007; Stegeman & Costongs, 2012; WHO, 2008). In a report by the Norwegian Institute of Public Health (Norwegian Ministry of Health and Care Services, 2007; Oslo municipality, 2012) it is stated that there is a connection between chronic disease amongst children and their parent's education, profession and income. They found that children of a single parent household, or children of parents with low income and low level of education had a higher chance of getting diseases like asthma, allergies and eczema (Oslo municipality, 2012). The child's physical, social and cognitive development is dependent on the living conditions, which also influences their educational attainment, economic participation and health. This is why it is so important to study social determinants of health and health inequities in a life course perspective (Marmot et al., 2010). The evidence that the childhood environment is connected to long-term effect on their health, leads to the importance to support policies aimed at bettering children's living condition as a strategy to tackle social health inequalities (Graham & Power, 2004; Marmot, 2007).

The model of the main determinants of health by Dahlgren and Whitehead (1991, p. 11), see Figure 1, shows the interrelationship between

the different determinants and their impact on policies and programs. This model provides a description of the distribution of the determinants, which affect the social inequities in health, and is therefore of relevance to this study. The rainbow model of the main determinants of health (Figure 1), was designed to illustrate all the different factors that influence a person's health (Dahlgren & Whitehead, 1991). The main influences are “factors threatening health, promoting health and protecting health” (Dahlgren & Whitehead, 1991, p. 11). The model shows the main determinants as layers, where the three outer layers represent different kinds of social determinants of health, then behavioral determinants of health, and in the middle, the unchangeable biological determinants of health.

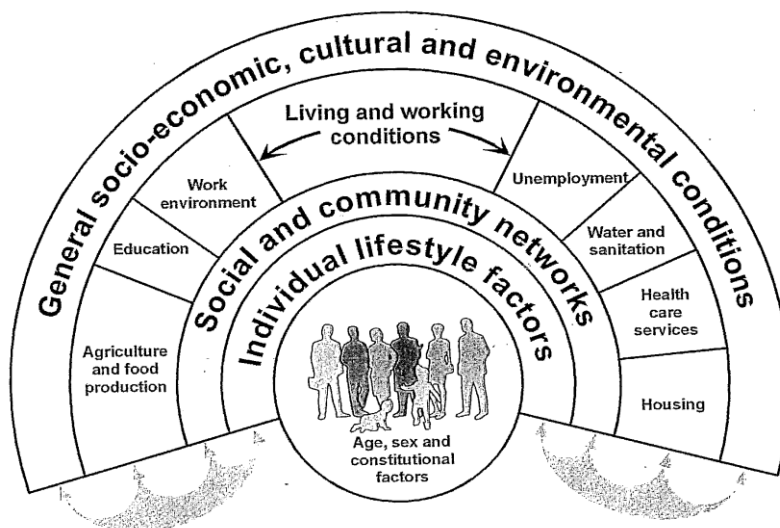


Figure 1: The main determinants of health (Dahlgren & Whitehead, 1991, p. 11)

According to Dahlgren and Whitehead (1991), these layers has an impact on policy making on four levels. The first outer layer is connected to a policy level that addresses the need for structural changes, especially economic strategies at national and international level (Dahlgren & Whitehead, 1991). The second layer is connected to creating health supportive environments; to improve material and social conditions where people work and live. These are strategies located at a national, regional and local level (Dahlgren & Whitehead, 1991). Strategies and initiatives aimed at this level of determinants is particularly important to reduce inequities in health, because there are strong gradients in these factors (Dahlgren & Whitehead, 2006). The third layer is connected to policies aimed at strengthening the community support so people and families can stand stronger together against health hazards. This could be strategies like supporting different neighborhood initiatives (Dahlgren & Whitehead, 1991). The last and inner layer is connected to policies aimed at influencing individual lifestyle choices. It should be policies that address the need for health education and support, especially directed to people with unhealthy lifestyles (Dahlgren & Whitehead, 1991).

These layers are interconnected as for example a person's level of education (second layer) is influenced by economy and geography (first layer). It depends on the cost of higher education, like school tuition, and whether or not the education opportunities are placed nearby their hometown. Davies and Sherriff (2012, p. 657) adds to this with the statement: "Environments determine whether individuals take up tobacco,

use alcohol, have poor diets, and engage in physical activity”. This means that before one can make policies directly aimed at for example health education; one must make policies directed at creating supportive environments. This leads to the important issue that the policies aimed at reducing health inequalities need to have a multilevel and multisectoral approach (Whitehead, 1991).

The policy makers need to look at the bigger picture to understand that the general socioeconomic conditions in the community will influence individual lifestyle choices. To do this, it is necessary to know all the determinants that influence health. England was the first country in Europe to pursue a systematic policy to reduce socioeconomic health inequalities (Graham & Kelly, 2004). However, the policy did not work as well as hoped. One of the problems was that they did not have enough focus on the drivers of health inequalities, which are mainly the social determinants of health (Graham & Kelly, 2004). This experience from England, where they spent a large amount of money on implementing this strategy which did not succeed, has shown the importance of mapping the situation well enough before making the policies.

The model gives a picture the multilevel governance of policies, as it shows the relationship between policies at national level, county level, municipal level, and community and individual level. These are the factors that can be addressed at the municipality and county level.

The model was developed for a European context (industrialized countries), so it might be more suitable in western countries (Dahlgren &

Whitehead, 1991). Thus, the model will be suitable for this study because it will look at health inequities in the western country Norway.

2.2 Inequity versus inequality in health

Health inequalities are according to WHO (2010a, p. 2) “the differences in health status or in the distribution of health determinants between different population groups”. It will always be there, for instance because old and young people need different health care, as for men and women. Inequality is also unequal opportunities due to for example geography, both within the country and between countries (WHO, 2008). It is very hard to avoid it, but the goal of health promoters is to narrow it as much as possible (Mittelmark, Kickbusch, Rootman, Scriven, & Tones, 2007).

The term health inequality is often used interchangeably with the term health inequity (Braveman & Gruskin, 2003), but “health inequities are the avoidable inequalities in health” (WHO, 2010b, p. 1). Inequalities can happen because of biology, and that is not a product of social injustice. However, if the inequality is happening because of poverty, low income, long way to health care services, lack of education, then the inequalities in health are unjust (WHO, 2010b). The social gradient gives an illustration of why health inequalities are an important issue for everyone. This is because inequality affects everyone (WHO, 2010b). The richest people will get the best health care, then those who are rich, but not as those at the top, will get slightly “worse” health care. The same happens at the bottom of the gradient, where the poorest people get really bad health care, but those who

are poor, but not as poor as those at the bottom, will get slightly better health care (WHO, 2010b).

The definition of social health inequities is “the differences which are unnecessary and avoidable, but in addition, are also considered unfair and unjust” (Whitehead, 1991, p. 219). Health inequities are possible to change, because it’s a product of social injustice (WHO, no date). That could be social injustice for example due to discrimination based on race, gender, culture or social status, which leads to unfair opportunities to get the best health care (Mittelmark et al., 2007). Inequity is the unfair distribution of the social determinants among people (WHO, no date).

Whitehead (1991) states that she chooses to use the terms equity and inequity because the WHO chose those terms in their European Health for All strategy. She also stresses that there is a translation problem. In some languages, included Norwegian, there is only one word to cover both inequality and inequity.

Graham (2004) states that health inequalities could be seen as individual variations and social differences linked to broader structural inequalities, and therefore as a descriptive concept. This means that it summarizes the evidence without passing moral judgment, and the term inequity is used to convey the moral judgment. She chooses to use the term inequality because the United Kingdom policy debates use this term. However, health inequalities are seen by the government (the current in 2004) as something intrinsically unjust, and to tackle health inequalities is to tackle unfairness (Graham, 2004).

In the WHO European review of social determinants of health and the health divide (Marmot, Allen, Bell, Bloomer, & Goldblatt, 2012), the systematic differences in health between social groups which are avoidable, are seen as unjust. Hence, these avoidable inequalities are seen as health inequities.

In my study, I am using the term social inequalities in health as that is what the SODEMIFA project uses, together with the Report No. 20 (2006-2007) to the Storting (Fosse & Helgesen, 2011; Norwegian Ministry of Health and Care Services, 2007).

2.3 The health gradient

In the literature, the term socioeconomic status (SES) is often used to explain health inequalities. Socioeconomic status is an operational term, which describes a person's relative position in the society. This includes indicators on level of education, income, occupation, social- and cultural capital, demography and so on (Stegeman & Costongs, 2012).

Health inequalities can be illustrated by the socioeconomic gradient in health. This health gradient shows the relationship between socioeconomic status and health (Stegeman & Costongs, 2012). There is a broad consensus among researchers that the lower socioeconomic status, the poorer health (Stegeman & Costongs, 2012; WHO, 2010b). There are inequalities in health in all countries, and thus the gradient affects all people. The gradient's universality and the fact that it can be prevented, by levelling the systematic differences in health status, should make it an urgent priority for action by policy makers (Davies & Sherriff, 2011). This

means that the focus should be on policies affecting inequity in future generations and reducing potential adverse effects (Leppo, Ollila, Pena, Wismar, & Cook, 2013).

Stegeman and Costongs (2012) points out the economic and societal benefits of leveling the socioeconomic gradient among children. A child's health will be negatively affected by several factors in its childhood. It might have parents with low income, in the risk of unemployment and lacking higher education. Then the parents might not be able to stimulate the child in a way that is needed to for example do well in school. The child might live with parents with an unhealthy diet, which they also adopt. This might lead to conditions like coronary heart disease and diabetes when they get older (Stegeman & Costongs, 2012). The childhood socioeconomic status predicts adult health (Axelsson & Axelsson, 2006; Stegeman & Costongs, 2012). If the child does not finish school, it might not be able to get a job later on in life. This will be a great loss of human capital and lead to macroeconomic implications. Bad health might lead to an early retirement and huge medical expenses. It is less costly to invest money towards leveling the gradient among children and young people now, than taking care of them for many years (Stegeman & Costongs, 2012).

In Norway, most children grow up in good conditions. However, there still is a socioeconomic gradient, and thus inequalities in health (Fosse & Helgesen, 2011; Norwegian Ministry of Health and Care Services, 2007; Statistics Norway, 2012). The health differences are related to parental income, education and marital status (Statistics Norway, 2012). The higher education and income we have, the longer we live (Fosse & Strand, 2010).

In Norway, we see that obesity and mental illnesses are socially skewed after the parent's education level (Dahl, Bergsli, & van der Wel, 2014). This is a part of the life course perspective, which means that there is a solid evidence of a directly or indirectly effect of childhood conditions to today's health condition and social inequalities. Thus, the health inequalities in the adult population in Norway today, might have been founded already in the war and the postwar years (Dahl et al., 2014).

2.4 Addressing the inequalities in health

There is a large amount of articles about the severity of health inequalities and what should be done to reduce the health gap and level the gradient (Davies & Sherriff, 2012; Norwegian Ministry of Health and Care Services, 2007; WHO, 2008). Marmot (2007) looked at the challenges in translating research evidence into public health policy and practice to reduce health disparities. They found that a stronger public policy agenda and public support for eliminating health inequities are still urgently needed. Graham and Kelly (2004) suggest that more advocacy towards articulation in political parties' programs, more research on the effectiveness on policies, and strategies focused exclusively on drivers of health inequalities are needed to successfully reduce health inequalities in the future. Bambra et al. (2010) looked at systematic reviews of health effects of interventions based on tackling health inequalities. They found that because the differential impacts by socioeconomic status are rarely assessed, it is not clear what the effects of interventions on reducing health inequalities are. Davies and Sherriff (2012, p. 174) support this by saying that there is "a surprising lack

of knowledge about which policy actions are effective in reducing these health inequalities”.

The Commission on Social Determinants of Health has suggested three key strategies to reduce health inequity: improve daily living conditions, tackle the inequitable distribution of power, money and resources, and measure and understand the problem and assess the impact of action (WHO, 2008). Health impact assessment (HIA) is a good tool to find the source of the health inequities and inequalities, promote healthy public policy and then assess the potential effect on health equity (Green & Tones, 2010).

The DETERMINE project suggest to show the policy makers, politicians and the public the economic cost of health inequities, by telling them that “investing in the reduction of health inequities represents a more effective use of resources than paying the costs of ill health and lost productivity” (Consortium, 2010, p. 14). Hopefully that will be an incentive to go through with policies and programs directed towards health equity.

To make health promotion policies and programs aimed at health equity to work, Baum (2007) stresses the importance of having a combination of action from the policy makers and action from communities. She calls it “the nutcracker effect”, and it describes how to combine top down and bottom up action to crack the inequity nut (Baum, 2007). If we are going to achieve health equity, we need to have all levels of society on board. The politicians need to have a strong commitment to action on health equity, and communities and civil society groups need to put a pressure on

the politicians. Then it is more likely that the government will go through with the actions (Baum, 2007).

The difference between the determinants of health and determinants of health inequalities is that “...tackling the determinants of health inequalities is about tackling the unequal distribution of health determinants” (Graham & Kelly, 2004, p. 5). Graham and Kelly (2004) describes a determinant oriented approach towards tackling the health inequalities. This view looks not only at the influences and impact on health, but that they are not equally distributed. “Tackling health inequalities variously means improving the health of poor groups, reducing the health differences between poorer and better-off groups, and lifting levels of health across the socioeconomic hierarchy closer to the top” (Graham & Kelly, 2004, p. 7). They present three different strategies towards tackling health inequalities, placed on a continuum. The first two strategies are targeted strategies, as they are aimed at at-risk groups, while the last is universal, as it is targeted across a large population.

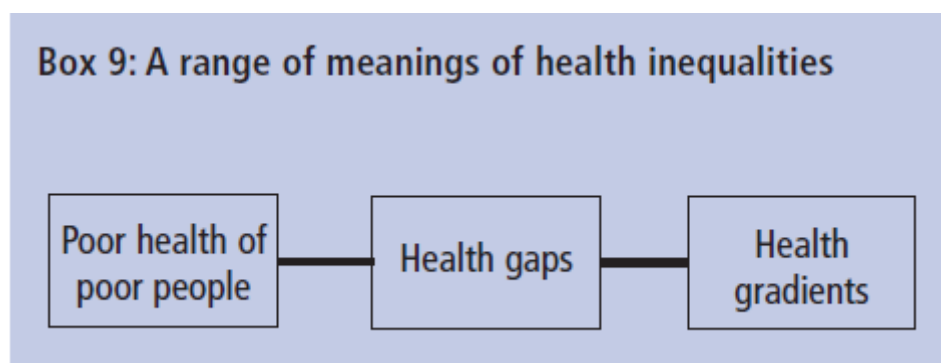


Figure 2: The continuum of the understandings of health inequalities (Graham & Kelly, 2004, p. 7)

The first strategy is to remedy health disadvantages. This involves improving the health of the poorest groups, thus the gradient will not change. Health inequalities are seen as the health consequences of being poor, or in other words, the health disadvantages which results from social disadvantage (Graham, 2004). Policies aimed just at improving the health of the poorest groups have possible negative effects on the health of other groups. It will not bring the levels of health of the poorest groups closer to the national average because the overall rates of health are improving (Graham, 2004). Thus, this strategy reaches only a minority (Graham & Kelly, 2004).

The second strategy is to narrow the health gap. This involves decreasing the gap for the poorest groups, thus the gradient will not change. Health inequalities are seen as a gap in health between the worst of and better off groups (Graham, 2004). Policies directly aimed at reducing the gap might result in obscuring what is happening to the intermediate group (Graham, 2004).

The third strategy is to reduce the health gradients. This involves a change in the gradient, and places everyone on the same level as the richest groups. In an equity perspective, this is the only right option, as it looks for systematic differences in life chances, living standards and lifestyle associated with the socioeconomic status (Graham, 2004). This is in line with the founding principle of the WHO, which states that enjoyment of the highest attainable standard of health is a fundamental human right (Graham & Kelly, 2004). It will demand universal measures, which is very politically demanding. Differential rates of improvement towards the population are

required, as the need for improvement increases at each step down the socioeconomic ladder, the gradient (Graham & Kelly, 2004). When the scale and intensity of the action on health inequalities is proportionate to the level of disadvantage, it is called proportionate universalism (Marmot et al., 2010). This strategy widens the frame of health inequality policies, by searching for the cause of health inequalities, by becoming a population-wide goal, and by setting the comprehensive goal to include remedying health disadvantages and narrowing the health gap in the broader goal of levelling the health differences caused by socioeconomic status. It needs to be pursued in tandem, one on top of the other (Graham & Kelly, 2004). The first important first step in any case is to have clarity about goals, to be clear of what is being tackled (Graham, 2004).

The European Gradient project developed an evaluation tool to assess the policies' potential to level up the health inequality gradient by addressing the social determinants of health, called the Gradient Evaluation Framework (GEF, Davies & Sherriff, 2014). It is still being tested, but it has been found useful as a tool to help stakeholders identify and implement what seems to work, for whom and under what circumstances, in an equity lens. It uses a policy circle to present the five interrelated core components: priority setting and policy formulation, pre-implementation, pilot implementation, full implementation and policy review. Davies and Sherriff (2014) emphasizes the need to apply an equity lens through all the steps, which includes identifying factors affecting the policy context, to look at their potential to be "gradient friendly".

Baum and Fisher (2014) argues that health promotion policy often fails to incorporate the social determinants of health, which recognizes that health behavior is influenced by the environmental, socioeconomic and cultural settings. Policies are often aimed at a change in some specific health behavior, which are targeted at high-risk individuals and will not improve the population health. The risks are often accumulated over a life course, and makes behavioral change more complicated. Despite these behavioral health promotion policies' limitation to address social inequities and health determinants, governments all over the world keep seeing them as attractive (Baum & Fisher, 2014). They come up with several reasons for this, amongst other that it is easier to implement behavioral messages, there could be an individualized view of health as an political belief and that it is more expensive (at least at the time). The authors stresses the importance of public health to highlight the lack of evidence for much of the health behavior aimed policies and promote the evidence for policies aimed at living conditions and other social and economic determinants of health, in order to get the government to implement means of promoting health equity (Baum & Fisher, 2014).

2.5 Intersectoral collaboration

There are many different organizations involved in public health, and that is organizations both within and outside of the health sector (Axelsson & Axelsson, 2006). This means that there is a great need for collaboration in the public health work (Axelsson & Axelsson, 2006; Helgesen & Hofstad, 2012). Examples of organizational models of collaboration, with different complexity and target groups, are information exchange, case coordination,

interagency meetings, multidisciplinary teams, partnership, co-location and pooling of budgets (Andersson, Ahgren, Axelsson, Eriksson, & Axelsson, 2011). The need of collaboration is being emphasized in terms like Health in All Policies (HiAP) and intersectoral collaboration. The health in all policies approach sees population health as something more than just a product of health sector activities (Leppo et al., 2013). It is largely determined by living conditions, societal and economic factors. Therefore, the population health will be best influenced by policies beyond the health sector (Leppo et al., 2013). HiAP is closely related to intersectoral action for health, which is the coordinated action to improve people's health or influence the determinants of health (Leppo et al., 2013). It is action from different sectors in the society, either in collaboration with the health sector or not, which is more effective than if the health sector was acting alone (Nutbeam, 1998; Peake et al., 2008). Intersectoral collaboration is central to achieve equity in health (Peake et al., 2008; Ståhl, Wismar, Ollila, Lahtinen, & Leppo, 2006).

According to Fosse (2013), some of the important explanatory factors for why it is difficult and challenging to achieve intersectoral collaboration, are structural, organizational and the increasing professionalism of occupational groups. Demands of efficiency lead to increased formalization and specialization, and time spent is duly noted. This does not leave much space for collaboration. The increased professionalism of occupation groups leads to looking at case from only one perspective, with a high sense of professional autonomy (Fosse, 2013). One of the most important societal changes to ensure intersectoral collaboration

is to change how the government on all its levels handles its affairs and that it is organized to be able to manage and facilitate the multidisciplinary area public health. To meet the complex needs of the population, collaboration and comprehensive solutions is demanded (Fosse, 2013).

2.6 Public health policies

The second international conference on health promotion was held in Adelaide in 1988, and they focused on how healthy public policy could be used as a mean to create supportive environments, and make the healthy choice the easy choice (WHO, 1988). Healthy public policy is characterized by an explicit concern for health inequities and to make health a social investment.

Reducing inequalities in health came on the Norwegian political agenda in the 1980s, along with the WHO strategy “Health for All 2000” (Fosse, 2009). Since then, several goals and strategies have been developed to reduce health inequalities, but it is not until recently that the socioeconomic gradient got the attention. In 2005, the Norwegian Directorate of Health and Social Affairs published an action plan on social inequalities in health, called the Challenge of the Gradient. Until this plan was published, the focus was mainly on marginalized groups and individual lifestyle challenges (Fosse, 2009). This action plan moved the focus towards the whole population, and the possibility for all inhabitants to attain the same level of good health. Some of the strategies were aimed to get more intersectoral focus and to increase the knowledge of social inequalities in health (Norwegian Directorate of Health and Social Affairs, 2005). In 2007,

the whitepaper Report No. 20 (2006-2007) to the Storting, the National Strategy to Reduce Social Inequalities in Health, came as a follow-up to the action plan from 2005. It had a focus on developing public health policies strategies to reduce health inequities (Fosse, 2009). The society's responsibility for the population's health is underlined, and that the developed strategies need to run across all sectors. It contained four priority areas for reducing social inequalities in health: reduce social inequalities that contribute to inequalities in health, reduce social inequalities in health and the use of health services, targeted initiatives to promote social inclusion, and develop knowledge and cross-sectoral tools (Norwegian Ministry of Health and Care Services, 2007). It shows a connection between the problem stream, the policy stream and the politics stream (Fosse & Strand, 2010).

According to Fosse and Strand (2010), more controversial politics will be needed to reach this ambitious goal about leveling the gradient. One of the things they mention is that it is necessary to have an intersectoral approach in the policy making. This is because the health, as mentioned earlier, is influenced by everything in the surroundings. Fosse and Strand (2010) also points out some challenges in regard to the implementation of the policy: the political dimension, the policy dimension and the central-local dimension. This is being supported by a report made by the World Health Promotion (Helgesen & Hofstad, 2012), on health policies targeting social determinants of health in Europe. Research has shown that social-democratic governments are more successful in reducing social inequalities in health (Navarro et al., 2003; Stegeman & Costongs, 2012), which is an

example of how the political dimension can be a challenge. In Norway, politics aimed at reducing health inequities is building on universalism and flattening the gradient (Dahl et al., 2014; Raphael, 2006). This is suitable with the characteristics of the Norwegian welfare state. We spend a lot of resources on welfare, yet the relative social health inequalities in Norway and the Nordic countries are still no smaller than in other countries. This is a signal that we need to do things differently and better (Dahl et al., 2014).

A study on implementation of a national public health policy with a focus on health determinants in two Swedish municipalities, showed that the comprehensive policy was not implementable. It was clear that an increased knowledge of the focus on health determinants was needed, as well as greater government management and negotiations, to motivate municipalities to implement and embrace these kinds of ambitious policies (Jansson, Fosse, & Tillgren, 2011). In a review of determinants and policies on health inequalities in Denmark, Diderichsen et al. (2012) emphasized the importance of making common goals and have political coordination across levels and policy areas, together with clarity about and relevance of the measures being implemented.

In the last few years, Norwegian health politics has been focusing on how ambitious goals should be turned into practice (Fosse & Strand, 2010). As mentioned above, a new public health law called “Folkehelseloven” (The Norwegian Public Health Act) came into action in the beginning of 2012, and is a part of the Coordination Reform. The Coordination Reform was initiated to initiated to “ensure a uniform and equitable health and care service to all citizens regardless of residency and economy” (MEDLEX

Norwegian Health Information, 2012, p. 3). The main purpose of the public health act is to make sure that agencies on all levels of society implement measures to reduce health inequalities and level the gradient (Lovdata, 2011). This law is built upon five basic principles: social equity in health, Health in All Policies (HiAP), sustainable development, the precautionary principle and participation (MEDLEX Norwegian Health Information, 2012). The law gives the municipalities more responsibility. They are in charge of all public health work, which means that they will have to work intersectoral to promote health (Fosse & Helgesen, 2011). They are also obligated to get an overview of the health condition of the municipality, and identify the factors that influence health. This is a prerequisite when they are going to set goals and strategies to deal with the health challenges within the municipality (MEDLEX Norwegian Health Information, 2012).

The Public Health Act is a multilevel policy, which means that it requires multilevel governance. The term multilevel governance means that it is a system where the different levels of government are fluid, negotiated and contextually defined. The actors across sectors and levels have quite egalitarian relationships, which can be seen as necessary in order to reach political goals (Fosse & Helgesen, 2011; Fosse & Helgesen, 2015). The steering between the levels is sorted into hierarchical, management and negotiation practices.

Fosse and Helgesen (2015) have looked at how the Norwegian municipalities have adopted the principles of the Public Health Act. They found that the municipalities still are not in line with national government goals, and that extra funding through national and county programs are

necessary to increase the activity on social health inequalities. However, they observed an increased awareness of the HiAP approach in the municipalities. This is in line with the findings from the evaluation project of the Coordination Reform, which suggests that the municipalities have an increased understanding of the importance of intersectoral collaboration and making overviews of the health condition (Schou, Helgesen, & Hofstad, 2014).

2.7 Norwegian municipalities

In Norway, most of the service provision aimed at children is decentralized, and is provided by the local governments (Fosse & Helgesen, 2011; Raphael, 2006). This is services like kindergartens, schools, school health services and child welfare. This means that the municipalities have both the authority and responsibility to prioritize between programs and policies (Fosse & Helgesen, 2011).

Helgesen and Hofstad (2014) did some interesting findings on different municipalities' focus on social inequalities in health, based on theoretical assumptions on determinants of health and empirical research on Norwegian municipalities. For example, their results indicate that larger municipalities acknowledge living conditions, which is connected to social inequalities in health, as the main health challenges more than the smaller municipalities. The smaller municipalities, on the other hand, acknowledge health behavior as the main health challenges more than larger municipalities. This is interesting because smaller municipalities have better

ability to handle such challenges as living conditions, but they choose not to (Helgesen & Hofstad, 2014).

According to the baseline study conducted by the Norwegian Institute for Urban and Regional Research (Helgesen & Hofstad, 2012), public health coordinators in most of the municipalities have a time position of only 10-20%. They also found that the municipalities mainly used their own economic resources when they were implementing different health promotion programs (Helgesen & Hofstad, 2012). This might lead to a lower prioritization of public health work. However, more than three-quarters of the municipalities had employed a public health coordinator before the implementation of the Public Health Act, and Hagen, Helgesen, Torp, and Fosse (2015) found that the public health coordinator was associated with implementation of HiAP.

2.8 Norwegian counties and partnership for health

The counties are responsible for supporting the municipalities in their public health work (Helgesen & Hofstad, 2012). The Law of regional authorities' tasks in the public health work of 2009 (Lovdata, 2009), which now has been replaced by the Public Health Act, states that, in addition to the municipal support, the counties are responsible for contributing to a more equal distribution of factors that directly or indirectly affect the health. They should also make an overview of the health condition in the county, and its impact factors which might create or sustain social health inequalities (Lovdata, 2009).

To create a partnership between the counties and municipalities has been a way for the counties to carry out their supportive and proactive role towards the municipalities, together with conducting competence building in the municipalities (Helgesen, 2012). A partnership for health is a voluntary and equal agreement between two parts towards reaching a common public health goal. It consists of multidisciplinary, intersectoral and committed cooperation between counties and municipalities, based on mutual trust (Norwegian Directorate of Health, 2011b). The counties are supposed to support the municipal public health work, and be a promoter of the public health work in the county. Thus, by working intersectoral, the bases for holistic, complex strategies are formed. This is strategies towards leveling social inequities in health and promotes public health, and is seen as a relevant way to strengthen the public health work (Bergem et al., 2010; Norwegian Directorate of Health, 2011b). Partnership as a working method was launched through the white paper of 2003, Report the Storting No. 16 (2002-2003) Prescription to a healthier Norway (Norwegian Ministry of Health and Care Services, 2003). It was launched as a tool to mobilize central actors in the public health work, utilize new working methods that maintain the intersectoral perspective, enhance the infrastructure of the public health work, develop strategies, and ensure political commitment and anchoring in the plans. According to the guidelines in the whitepaper the counties were supposed to be coordinator and midpoint of the partnership. The counties received stimulation means from the government to create partnerships (Norwegian Directorate of Health, 2011b). The effect of the partnership should be to attain synergies, which means that one attains more

than if the actors worked separately. The synergy effect is connected to leadership, performance, resources and settings. It is also necessary to reflect and talk about the partnership throughout the process, and evaluate the partnership throughout the process (Norwegian Directorate of Health, 2011b).

According to the report on partnership for health made by the Norwegian Directorate of Health (2011b), it was a relative large difference in the number of, and the time percentage of the positions related to public health work. There was also a difference in the means allocated to public health work. It was reported that 70 % of all municipalities had a partnership agreement with the county, and all of the counties (100 %) had partnership with at least some of its municipalities (Norwegian Directorate of Health, 2011b). The final report on partnership for health by (Bergem et al., 2010) emphasizes the importance of clarifying the meaning of the partnership from both actors. They further say that the counties strengthen their role in public health through partnerships, and the municipalities experience increased competence and better cooperation between sectors. However, both municipalities and counties experience that it is hard to get through with policies and focus on health promotion, because it might lead to increased costs on short term. Even though a focus on health promotion might lead to savings over time, it is hard to reach through with this message in an economically pressured time (Bergem et al., 2010).

2.9 Significance and research questions

This section has summarized the literature and empirical findings relevant to my study. It has shown the importance of looking at all the factors concerning health, which are the social determinants of health. Unfair distributions in health determinants are called social inequalities of health. These can be presented in a socioeconomic gradient. The gradient shows systematic differences in health status across the population. There are different ways to reduce inequalities and levelling the gradient, like universal means, HiAP, intersectoral collaborations and partnerships. The common factor for all of them is to shift the focus from the individual lifestyle factors, to the more general living conditions.

It is therefore interesting to look at counties and municipalities in relation to these concepts, and how they are working to reduce social inequalities, as a means to map the situation just before the Public Health Act came into action. This leads to the following research questions:

RQ 1: How is the counties' work towards reducing social health inequalities?

RQ 1.1: How is the work reflected in the counties' intersectoral work?

RQ 1.2: How is the work reflected in the counties' contribution to municipal public health work?

RQ 1.3: What geographic or sociodemographic factors are associated with the patterns that emerge?

RQ 2: To what degree is the work on reducing social health inequalities at the county level similar to the work at the municipality level?

RQ 2.1: How is this reflected in the focus on the social determinants of health?

RQ 2.2: How is this reflected in the focus on multilevel collaboration and partnership?

RQ 2.3: What geographic or sociodemographic factors are associated with these similarities and differences?

3. Data and methodology

3.1 Study design

This is an exploratory study, in which the purpose is to gain a deeper understanding of a phenomenon. It is usually concerned with uncovering knowledge, find out what the phenomenon consists of and develop theories which will result in a set of hypotheses or assumptions about the phenomenon (Jacobsen, 2005).

It has a cross-sectional design, and is based on survey data from NIBR's baseline study conducted in 2011 (Helgesen & Hofstad, 2012). The statistical computer program Statistical Packages for Social Sciences (SPSS) version 20 is used to do descriptive statistics to find differences or similarities between counties and municipalities. Data from existing data

sources like Statistics Norway is used to look for relationships, and to describe and characterize patterns.

3.2 Participants

3.2.1 Counties

An electronic questionnaire was sent to the public health coordinator in the different counties. The researchers had the sufficient contact information, so the questionnaire was sent directly to him or her by email. The response rate for the counties was 100%, which means that all 19 counties participated.

3.2.2 Municipalities

The researchers chose to send the questionnaire by email to the chief executive in the municipalities. Then that person chose to answer it him or herself, or to forward it to some he or she thought was most suited to answer it. The response rate for the municipalities was 58%, which means that 249 municipalities answered the whole questionnaire. However, 87% of the municipalities answered parts of the questionnaire. In the survey, Oslo's 15 districts are counted as municipalities.

3.3 Data

The survey conducted by NIBR in 2011 is a mapping of the public health work done by municipalities and counties before the Public Health Act came into action in 2012. It is meant to be a baseline for future evaluation of the municipalities' and counties' public health work. It is also supposed to provide a basis to make comparisons over time and to see how the municipal and county public health work change to reach the demands in

the Public Health Act (Helgesen & Hofstad, 2012). The data from the survey is on nominal and ordinal level.

The survey was conducted on behalf of the Norwegian Directorate of Health to map the knowledge base, priorities, organization and resources in municipal and county public health work. These themes are elaborated into seven themes: resources, challenges and strategic priorities, the making of an overview of the health condition and the factors that influence health, means in the public health work, organization, the county's role as a supporter of municipal public health work, and social inequalities in health (Helgesen & Hofstad, 2012).

The researchers define public health as the population's health status and the distribution of health in the population. They define public health work as the community's effort to affect the factors that directly or indirectly promote the population's health and well-being, prevent mental and physical diseases and injuries, or protect the community against health threats, as well as work towards a more equitable distribution of the factors that directly or indirectly affects health (Helgesen & Hofstad, 2012).

3.4 Variables

This study aims to explore the relationship between counties and municipalities, with regards to their intersectoral and multilevel collaboration. The variables of interest are related to their perception of determinants of health, intersectoral collaboration and partnership. In both the municipality survey and the county survey, there was a question about main health challenges and a question about the counties' focus areas in

their follow up of the municipal public health. These two questions have the similar list of alternatives (variables), and could be divided into four subcategories of variables. The subcategories are similar in content and theme for both the municipalities and counties. Therefore, a comparison between counties and municipalities was possible. These categories are health behavior, living conditions, social environment and physical environment (Helgesen & Hofstad, 2012).

3.4.1 Counties

3.4.1.1 The main health challenges

This is the counties' perception of the determinants of health (Helgesen & Hofstad, 2014). This come from the question: "*In which areas do the county experience the greatest challenges in the public health?*". They were able to choose more than one of the following public health themes, organized into the four categories. The four subcategories are listed below (1-4). For instance within the subcategory of health behavior, the counties could answer "*physical activity*", "*diet*" etc. or all of them.

1. Health behavior: Physical activity, diet, tobacco, alcohol and drug abuse, dental health, and sexual health.
2. Living conditions: Schools and education, housing, labor market access, poverty, and childhood environment.
3. Social environment: Participation of voluntary groups, demography, crime prevention, social networks, cultural activities, business development, and development and dissemination of knowledge.

4. Physical environment: Environmental protection, area and transport planning, communication/traffic, green spaces and recreation areas, universal design, and injuries and accidents.

3.4.1.2 The counties' focus in the follow-up of municipalities

This is the counties' perception of how they support the municipal public health work. It comes from the question: "*Which public health themes does the county focus on in relation to the municipalities?*" They were able to choose more than one of the following public health themes, which are similar to the subcategories in the variable above (see chapter 3.4.1.1)

3.4.1.3 Intersectoral working groups

This is the counties' perception about whether or not the county has established working groups towards public health issues. They were able to choose more than one of the following alternatives: "*Yes, we have working groups for general public health work*"; "*Yes, we have working groups for thematic public health issues*"; "*Yes, we have working groups which collaborate with municipalities about upper secondary schools*"; "*Yes, we have working groups for regional planning*"; "*Yes, we have working groups for competence development*"; "*Yes, we have working groups for business development*"; "*No, we do not work intersectoral*"; "*Do not know*"; "*Other*".

3.4.1.4 Most frequently participation in intersectoral working groups

This is the counties' perception about which sectors that participates most frequently in intersectoral working groups on public health issues. They

were able to choose more than one of the following alternatives: “*Upper secondary schools*”; “*Dental health*”; “*Planning*”; “*Cultural conservation*”; “*Transport*”; “*Business development*”; “*Public health*”; “*Regional development*”; “*Community development*”; “*Outdoor activities/physical activity/sports*”; “*Agriculture/food*”; “*Chief County Executive's staff*”; “*Irrelevant*”; “*Other*”.

3.4.1.5 Contribution to the municipal health work

This is the counties’ perception about in which way they follow up on the municipalities’ public health work. They were able to choose more than one of the following alternatives: “*Knowledge of health challenges*”; “*Knowledge of impact factors*”; “*Support in the municipal planning*”; “*Advice and guidance*”; “*Partnership*”; “*Competence building*”; “*Seminars, conferences, forums*”; “*Establishing experience networks between municipalities*”; “*Financial means and grants*”; “*Initiative development*”; “*Support in specific cases*”; “*No contribution*”; “*Other*”.

3.4.2 Municipalities

3.4.2.1 The main health challenges

This is the municipalities’ perception of the determinants of health (Helgesen & Hofstad, 2014). This comes from the question: “*In which areas does the municipality have the greatest public health challenges?*”. They were able to choose more than one of the following public health themes, organized into the four categories. The four subcategories are listed below (1-4). For instance within the subcategory of health behavior, the counties could answer “*physical activity*”, “*diet*” etc. or all of them.

1. Health behavior: Physical activity, diet, tobacco, and alcohol and drug abuse.
2. Living conditions: Kindergartens, schools and education, housing, labor market inclusion, poverty, mental health, health and care services, infection control, childhood environment, and child welfare.
3. Social environment: Participation of voluntary groups, demography, crime prevention, social networks, and cultural activities.
4. Physical environment: Noise, air, water and radiation, transport and communication, green spaces and recreation areas, universal design, injuries and accidents.

The variable “*Schools and education*” is listed two times, and I will use the same as NIBR, which is the one that is listed first.

3.4.2.2 The counties’ focus in the follow-up of municipalities

This is the municipalities’ perception of how the counties support their public health work. It comes from the question: “*Does the county and the county governor focus on the following themes in the follow-up of the municipality?*”. They were able to choose more than one of the following public health themes, which are similar to the subcategories in the variable above (see chapter 3.4.2.1).

It is only the response on how the county focuses in the follow-up that is interesting for this study. This is because the county governor has some other tasks and responsibilities which this study does not address.

3.4.2.3 Partnership with the county

This is the municipality's perception of a formal collaboration with the county. It comes from the question: "*Has the municipality established partnership for public health with the county?*". The response options are "Yes", "No" and "Do not know".

3.5 Data management

To ensure the best possible analysis results, the two data sets had to be processed. All the variable names were renamed to V001, V002, V003 and so on. Then all the labels were translated into English. All the values was given names, for example "*Unchecked*" and "*Checked*", and "*To a large extent*", "*To a moderate extent*", "*To a small extent*", "*Irrelevant*" and "*Do not know*". The variables with values that started at 1, then 2, etc. were recoded into variables with values that started with 0, then 1, etc. All the variables were also given the correct measure, like whether it is nominal or ordinal.

The order of the counties in the county dataset was given numbers (id). Then, a new variable named county was made in the municipality dataset, where the municipalities were given a number of which county it is in, which correlates with the numbers (id) in county dataset. Data from the Norwegian Mapping Authority (2013) was used to organize the municipalities into the right counties. Some of the municipalities were duplicated in the municipality dataset, and then one of these doubles needed to be deleted. This led to a rule, that the municipality with the most response throughout the dataset should be kept, and the double deleted. An overview

of the municipalities that were deleted is presented in the Appendix, A.1.

This led to a sample of 442 municipalities in this study.

Some characteristics were added to both datasets, which led to three new variables:

1. Population: Number of inhabitants at the 1st of January 2011.
2. Median income: The median income of households (after tax) at the 31st of December 2010. *By income means earnings, property income, taxable and tax-free transfers in a household during the calendar year. Students are not included.*
3. Education: The percentage of the population over 25 years which has completed upper secondary school or higher education at the 1st of October 2011. The data from the districts of Oslo is of the percentage of the population over 16 years instead of 25 years.

The data came from the municipal health statistics (Norwegian Institute of Public Health, 2014) and the statistical yearbook of Oslo in 2011 and 2012 (Oslo municipality, 2011, 2012), and data about population from Statistics Norway (Statistics Norway, 2012). Four municipalities, Harstad, Bjarkøy, Mosvik and Inderøy, did not get any data on median income and education. This is because these municipalities were merged after the survey was conducted 2011 (The Norwegian Mapping Authority, 2013), and then it was hard to find data on these municipalities from before the merging.

Then, two new datasets for counties and municipalities with only the relevant variables were made. To assure further data quality, a check for outliers, consistency in respondents and missing cases were conducted.

There is a large amount of missing data (the overall response-rate is presented in section 3.2). This needed to be further analyzed, to check if there was a systematic bias in the body of missing data.

3.6 Data analysis and interpretation methods

3.6.1 Missing data analysis

I made a new municipality dataset with only responses and non-responses. Those that had answered were given the value 1, and those that did not (the missing data) were given the value 0. I made categorical variables out of the continuous variables “*Population*”, “*Median income*” and “*Education*” by using the SPSS tool Visual Binning. The continuous variable “*Population*” is divided into five groups, with 20 % of the counts in each group. The groups are called “*Largest (0)*”, “*Large (1)*”, “*Intermediate (2)*”, “*Small (3)*” and “*Smallest (4)*”. The range of the population is from the largest municipality with 260 392 inhabitants to the smallest with 216 inhabitants. The continuous variable “*Education*” is divided into four groups, with 25 % of the counts in each group. The groups are called “*Highest (0)*”, “*High (1)*”, “*Low (2)*” and “*Lowest (3)*”. The range of the percentage of inhabitants with upper secondary school or higher education is from 89 % to 40 %. The continuous variable “*Income*” is divided into four groups, with 25 % of the counts in each group. The groups are called “*Highest (0)*”, “*High (1)*”, “*Low (2)*” and “*Lowest (3)*”. The range of the median income is from 546 000 NOK per year to 311 000 NOK per year.

I chose to only look at the variables “*Main health challenges*” and “*Focus area*” from the municipality dataset, as they are the two comparable

variables. I used the first response alternative within the two questions because the response rate was identical throughout the variables. A chi-square test was conducted to find a correlation between the different characteristics and missing data in the two variables. See Appendix, A.2 for detailed results. The test showed that there was a systematic bias in the data. There was a significant relationship between the population size of the municipality and the amount of non-responses. The level of non-responses increases as the municipality size decreases.

We do not know how the results would differ if more of the municipalities had responded. However, according to Johannessen, Tufte, and Christoffersen (2010), a rule of thumb within social science research is that a response rate above 50 % is a good response rate. The data is unique in its kind, so it is very interesting to look for patterns, even though there is a bias. I choose to go through with the analyses, with the missing data kept in mind.

3.6.2 Comparative side-by-side analysis

A side-by-side analysis was conducted to compare municipalities and counties to get a view of their similar and different perception. The data for each county and municipality come from individuals, and the data reflect these individual's knowledge of the issues in the survey. The unit of analysis is the county and municipality as it whole and not on individual level.

Descriptive statistics from each of the datasets are used to look for patterns, when comparing the municipalities and counties. The population,

education and income variables are added to look for demographic patterns. Independent sample t-tests and correlation analyses were conducted to check the statistical significance of the similarities and differences that might emerge. In addition, descriptive statistics is used to look for patterns in other variables to describe the relationship between counties and municipalities further, with a specific focus at counties.

Scales were constructed to conduct an independent samples t-test and correlation analyses to check if the differences and relationships between the variables were statistically significant. I used the questions of main health challenges and the counties' focus area in the follow up of the municipalities, because they have identical response alternatives. This is the case in both the municipality dataset and in the county dataset. I used the four predefined groups from the baseline report as a template when constructing the continuous variables, which are based on literature on social determinants of health (Helgesen & Hofstad, 2012). This way, it was possible to compare the scores for both counties and municipalities in the given variables. The variables within each group were summed up, and the new continuous variable for each group consisted of the mean score of these subgroup variables. This means that I got a scale for health behavior, living condition, social environment and physical environment, based on the mean scores, in both the municipality and in the county dataset. The two new scales, consisting of the same four subgroups are hereby often referred to as "*Main health challenges*" and "*Focus area*". Then, a joint case dataset was made by merging the county and municipality datasets. This was possible

because of the mean scores and the set scales for both county and municipalities.

3.7 Ethical considerations

This study use existing data which is already ethically approved for research purpose. The baseline survey conducted by NIBR was commissioned by the Norwegian Directorate of Health. The data from the survey have been made available to others via the Norwegian Social Science Data Services (NSD; Helgesen & Hofstad, 2012).

4. Results

The study is of an explorative nature, relying heavily on descriptive statistics to find patterns, of interest. The results originate mostly from descriptive statistics, like aggregated data and cross tabulations with Chi square analyses. Towards the end of the chapter, independent sample t-tests and correlation analyses are conducted. The chapter starts with the counties and the perception of their intersectoral collaboration, and then I narrow it down to the relationship between counties and municipalities.

4.1 Intersectoral working groups in the county

Intersectoral collaboration is a strategy to help reduce social inequity in health, so it is of interest to see how the counties' see their intersectoral work towards public health. The county data is used to make the two tables. In Table 1, I look at what the counties know of the establishment of intersectoral working groups, and in what sector they are placed.

Table 1
Intersectoral working groups in the county, N = 19

County	General public health work	Thematic public health work	Upper secondary school	Regional planning	Competence development	Business development
Hedmark	1	1	0	1	0	0
Hordaland	0	0	0	0	0	0
Telemark	0	1	0	0	0	0
Oppland	0	0	1	1	0	0
Oslo	1	0	0	0	0	0
Sogn og Fjordane	0	0	0	1	0	0
Rogaland	0	1	0	1	0	0
Sør-Trøndelag	0	1	1	0	0	0
Akershus	1	1	0	0	0	0
Vest-Agder	1	0	0	1	0	0
Nord-Trøndelag	1	1	1	1	1	0
Nordland	1	0	1	1	1	0
Vestfold	1	0	0	0	0	1
Troms	1	0	0	0	0	0
Buskerud	0	1	0	0	0	0
Finnmark	1	0	0	1	0	0
Møre og Romsdal	1	1	0	0	0	0
Aust-Agder	1	0	0	0	0	0
Østfold	1	1	1	1	0	0
Total	12	9	5	9	2	1

Note: The counties were able to cross off for more than one alternative of what kind of intersectoral working group they have. The value 1 means that the county has checked off for that alternative. The value 0 means that the county has not checked off for that alternative.

Some interesting features about Table 1 is that most of the counties respond that they have general public health work as an established intersectoral working group. Another interesting thing is that Hordaland has not checked any of the alternatives. They wrote in the open ended question about establishment of intersectoral working groups:

“Intersectoral working group closed down as it functioned poorly. In the planning process of considering a new organization [of the working group (author’s note)]”

To summarize, 18 out of 19 counties have an intersectoral working group towards public health issues. Most of the counties, 12 out of 19, report that they have an intersectoral working group for general public health work.

In Table 2, I look at which sectors the counties report that most frequently participate in intersectoral working groups. In a social determinants view, these seven sectors reported to most frequently participate in intersectoral working groups are seen as particularly interesting: *“Upper secondary schools”*, *“dental health”*, *“planning”*, *“public health”*, *“regional development”*, *“community development”*, and *“outdoor activities/physical activity/sports”*. This is because they are all especially targeted at children and youth, or living conditions, and thus seen as important towards reducing social health inequalities (Davies & Sherriff, 2014; Graham & Kelly, 2004). There are 13 intersectoral working group options in total. The population and education variables were brought in to look for any sociodemographic patterns. The population variables range from 0 (largest) to 4 (smallest). The education variables range from 0 (highest) to 3 (lowest). See chapter 3.6.1 for more details. The main point of the table is to look for patterns in the counties intersectoral work.

Table 2
Most frequently participation in intersectoral working groups, N = 19

County	Total (13 options)	Upper secondary school	Dental health	Planning	Public health	Regional development	Community development	Outdoor activities etc.	Population	Education
Hedmark	7	1	1	1	1	1	0	1	2	3
Hordaland	1	0	0	0	0	0	0	0	0	1
Telemark	1	1	0	0	0	0	0	0	3	2
Oppland	5	1	1	1	1	0	0	1	3	3
Oslo	4	0	1	1	0	0	0	1	0	0
Sogn og Fjordane	10	1	1	1	1	1	1	1	4	1
Rogaland	9	1	1	1	1	1	0	1	1	1
Sør- Trøndelag	5	1	1	0	1	0	0	1	1	1
Akershus	3	1	1	0	0	0	0	1	0	0
Vest-Agder	6	0	0	1	1	1	1	1	3	1
Nord- Trøndelag	4	0	0	1	1	1	0	1	4	2
Nordland	7	1	1	1	1	1	0	1	2	3
Vestfold	6	1	1	0	1	1	0	0	2	1
Troms	6	1	1	1	1	0	0	1	3	2
Buskerud	5	0	1	1	1	0	0	1	1	2
Finnmark	3	1	1	0	1	0	0	0	4	3
Møre og Romsdal	6	1	1	0	1	0	0	1	2	2
Aust-Agder	9	1	1	1	1	1	0	1	4	1
Østfold	3	0	1	1	1	0	0	0	1	3
Total		13	15	12	15	8	2	14		

Note: The counties were able to cross off for more than one alternative of which sectors that most frequently participate in the intersectoral working groups. The value 1 means that the county has checked off for that alternative. The value 0 means that the county has not checked off for that alternative. In the first column, the value represents how many of the total number of alternatives the county has checked off for. In the population variable, the value 0 equals largest population size, 1 equals large, 2 equals intermediate, 3 equals small and 4 equals smallest. In the education variable, the value 0 equals highest level of education, 1 equals high, 2 equals low and 3 equals lowest.

Generally it looks like the counties report of frequent participation in the groups of particular interest. All counties, except for one, seem to report that most of the important groups are participating in intersectoral working groups. When I looked for a connection between the important groups and population and education, I found that the three largest counties, Hordaland, Oslo and Akershus, have fewer of these important intersectoral groups

checked. They have a lower response rate of important groups in spite of the highest education and largest population.

4.2 Partnership with the county

4.2.1 Partnership with the county

First, by using the municipality data, I could look for how many municipalities have a partnership with the county. Of the 261 municipalities that responded to the question about partnership with the county, 203 municipalities checked “*Yes*”. This is a response rate of 77.8 %. In the report from the Norwegian Directorate of Health about partnerships, it is stated that around 70% of the municipalities have entered a partnership agreement with the county. In other words, the results are consistent. 12.6 % of the municipalities checked “*No*”, and 9.6 % checked “*Do not know*”. It is particularly interesting that almost 10% of the municipalities do not know whether or not they are in a partnership with the county.

Second, by using the county data, I could look for what the counties state that they do to contribute to municipal public health work.

Table 3
The counties' contribution to municipal health work,
N = 19

	n
Knowledge of health challenges	16
Knowledge of impact factors	16
Support in the municipal planning	17
Advice and guidance	19
Partnership	14
Competence building	13
Seminars, conferences, forums	19
Establishing experience networks	19
Financial means and grants	18
Initiative development	17
Support in specific cases	18
No contribution	1

Note: The counties were able to cross off for more than one alternative of how they contribute to the municipal public health. It shows the total number of counties that has checked off for each alternative.

The main point of Table 3 is to explore what the counties state that they do to help the municipalities in their public health work. Most of the counties support the municipal public health work in many ways. 13 counties say that they contribute to the municipal public health through competence building. However, earlier in the survey they were asked about public health coordinators and 18 counties stated that “*competence building*” was one of their main work tasks. Only 14 have stated that they have formalized partnerships, while according to the partnership report, all counties have partnerships with at least some municipalities.

Another interesting feature of the table is that Sogn og Fjordane checked all the boxes, including “*No contribution*”. They wrote in the open ended question about contribution to the municipal public health work:

“We are in a development and strengthening phase when it comes to the first two checkpoints.”

This finding is also dealt with in the methodological limitations, in chapter 5.3.

4.2.2 Relationship between the partnership with the county and the population size

Using the municipality data, I conducted a Chi square test for independence to find the relationship between having a partnership with the county and the population size:

The sample, N, is 261. 59.0 % of the municipalities have responded to the question about partnership with the county, while 41.0 % has not, within the five population groups. There is a significant relationship between response in the variable *“Partnership for public health with the county”* and the population size of the municipality at the .05 level. See Table 4.

Table 4

Chi Square analysis of the relationship between municipalities with a partnership with the county and the municipalities' population size, N=261

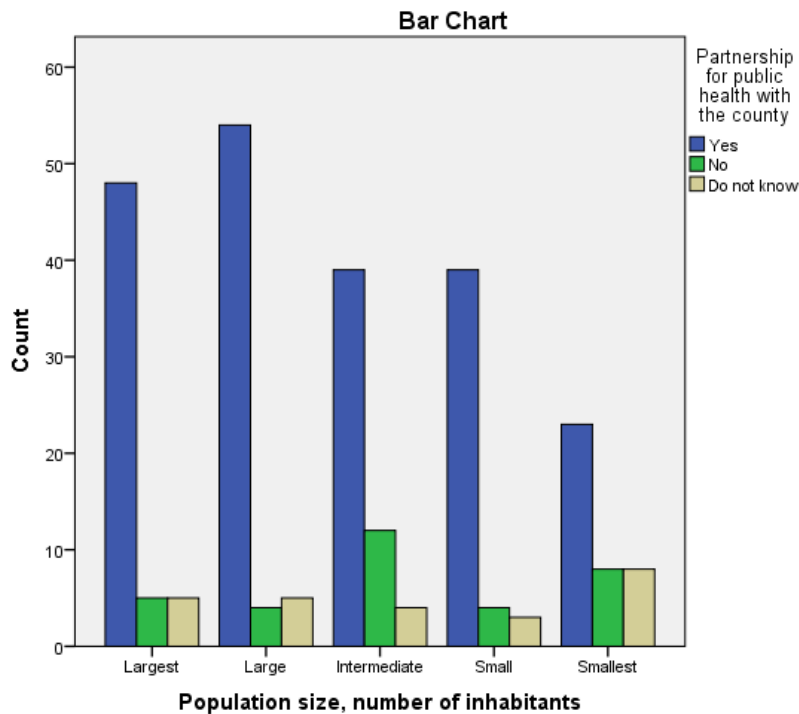
	n	Chi Square value	p	df
Partnership for public health with the county	261	17.80	.02*	8

*p < .05

The bar chart, see Figure 4, shows that the large municipalities have the highest rate of “Yes” responses, while the smallest municipalities have

the lowest rate of “Yes” responses. 85.7 % of the large municipalities responded that they have a partnership for public health with the county, whereas 59.0 % of the smallest municipalities responded that they have a partnership. We can see a pattern in the bar chart where the “Yes” response rate decreases as the size of the municipality decreases. The largest municipalities do not follow this pattern as they have a lower count of “Yes” responses than the large municipalities.

Figure 4



To summarize the findings on partnership, most of the municipalities say that they have a formalized partnership with the county, whereas only 14 counties say that they contribute to the municipal health work through partnership. Most of large municipalities have a partnership with the county, but this decreases as the municipality size decreases. The smallest

municipalities are the ones with the lowest response rate of whether or not they have a partnership.

4.3 Comparative analysis between counties and municipalities –

Observations

I conducted a comparative side-by-side analysis by comparing the aggregated answers from all the municipalities within a county, to that of the answers from the county itself. The main purpose is to look for patterns by comparing the categories health behavior, living condition and social and physical environment. These categories come from the NIBR report (Helgesen & Hofstad, 2012). This means that I look for patterns between the responses of the municipalities divided into their respective counties, and counties, within each of these categories. I looked at one category at the time. I also looked at the aggregated data for both counties and municipalities nationwide.

4.3.1 The counties' focus in the follow-up of the municipalities

The main purpose of this observation is to see what the municipalities report that their county focuses on in their follow-up of the municipal health work, and what the counties say that they focus on.

In the municipalities, the most frequently mentioned category of importance is “*health behavior*”. In fact, 17 out of 19 municipalities divided into their respective counties with most responses within the category of “*health behavior*”. If we look at the counties' own responses, 9 out of 19, have the most responses within this category.

It is mostly counties that have the highest score on topics within the focus area that go under other categories than “*health behavior*”. 5 out of 19 counties mention “*living conditions*” and 8 out of 19 mention “*social or physical environment*”. Table 4 shows the total of the categories with the highest scores, from all of the counties and municipalities within counties. It is possible to have more than one main category. See Appendix, A.3, for an overview of all the counties and municipalities within counties.

Table 5
A comparison over the counties' view of their focus in the follow-up of the municipalities and the municipalities within the county's view of the counties' focus in their follow-up.

Category	<u>County</u>		Category	<u>Municipalities</u>	
	The counties' focus in the follow-up of the municipalities, N = 19			The counties' focus in the follow-up of the municipalities, N = 19	
	n	%		n	%
Health behavior	9	47 %	Health behavior	17	89 %
Living conditions	5	26 %	Living conditions	0	0 %
Social environment	3	16 %	Social environment	0	0 %
Physical environment	5	26 %	Physical environment	2	11 %

Note: The percentage of the total score of each category, weighted for the number of response alternatives. The municipalities were also able to check for county governors' focus in the follow-up, but that is not of interest here. Each county is compared only with its own municipalities.

Nationwide, in the aggregated municipality sample, health behavior topics are on top three. 51.5% report “*physical activity*”, 41.2% report “*diet*” and 34.7% report “*tobacco*”. In the aggregated county sample, “*physical activity*”, which is a health behavior topic, is on top with 18 out of 19 counties. This is followed by “*schools and education*” with 15 out of 19 counties, “*development and dissemination of knowledge*” with 15 out of 19

counties and “*green spaces and recreation areas*” with 15 out of 19 counties.

4.3.2 *Similar perceptions of the focus areas*

I already know what the municipalities and counties say is their main focus in the follow-up of municipal health work, and we now turn to see whether the municipalities within a county actually report that the follow-up from their county is in accordance with this. Most counties and municipalities within the counties have a similar perception of what the counties’ focus area in the follow-up of the municipalities is.

12 out of 19 counties and municipalities within the counties share the perception. 9 of these 12 couples have a focus on “*health behavior*” and 3 of these 12 have a focus on “*social or physical environment*”.

7 out of 19 counties and municipalities within the counties have different perception of the focus areas. Since most counties and municipalities have similar views on focus, and what the follow-up consists of, it is particularly interesting to take a further look at those few who stick out. These seven groups were checked for sociodemographic factors to see if there was a connection between them. However, no specific patterns emerge. It is a good distribution of the population, education and income variables across the seven counties. Thus, these sociodemographic factors could not show any connection between the seven groups of counties and municipalities, to help explain why the counties and the municipalities within the counties have a different perception of the focus area.

4.3.3 Connection to the main health challenges

There is a connection between what the counties and municipalities experiences as their main health challenges and their perception of the counties' focus in the follow-up of the municipalities. Almost all the municipalities within counties have listed health behavior topics as both top main health challenges and top main focus areas. 7 out of 19 counties have not listed the same top main health challenges and the top main focus areas. This means that around 60 % of the counties have a similar perception of what they see as their main health challenge and what they see as their focus area in the follow-up of the municipal health work. Two of these seven counties did not respond to the question about main health challenges at all.

4.3.4 Summary

A summary of comparative analysis from the observation data is that most of the counties and municipalities report that health behavior topics is mainly in focus in the counties' follow up of the municipalities. Most of the counties and the municipalities within these counties share the perception about what the focus area is, and this is mainly "*health behavior*". It does not emerge any particular sociodemographic pattern for those municipalities and counties who do not share the same perception of the focus area.

Almost all the municipalities divided into counties have a similar perception of what they see as their main health challenge and what they say the counties focus on the follow-up, and that is "*health behavior*". Around 60 % of the counties have a similar perception of the main health challenges in the county and their focus area in the follow up of municipal health work.

4.4 Comparative analysis between counties and municipalities – Analyses

Because some interesting patterns emerged from the observation based comparative analyses above, I wanted to run some of these patterns through statistical tests. I ran an independent samples t-test to check if there was a statistically significant difference between what the counties' and municipalities report as their main health challenge. Then I did the same for the counties' focus area in the municipal health work. Both analyses were conducted in a joint dataset to check for affiliation; to see if the respondents are from a county or a municipality. I ran a correlation analysis to check if there was a statistically significant relationship between the perception of main health challenge and the counties' focus area in the follow-up of municipal health work, in the county dataset and municipality dataset separately.

4.4.1 Preliminary analyses

Before conducting the analyses, I needed to do some preliminary analyses. A reliability test of the scales had to be conducted, see chapter 3.6.2 for details of the scales. When checking the reliability of a scale, the scale's internal consistency is looked at. It is measuring how well the items in the scale goes together, and whether or not they are measuring the same underlying construct (Pallant, 2010). Three reliability tests were conducted. The first was done to check the scales in the county dataset, the second in the municipality dataset and the third in the joint case dataset.

Table 6
Preliminary analysis of the main health challenges scale

Main health challenges	County	Municipality	Joint case
Cronbach's Alpha	.77	.42	.46
Mean inter-item correlation	.48	.17	.21
Range	.31-.61	.04-.32	.08-.36

Note: This is a preliminary analysis of the scale “Main health challenges”, which consists of the items health behavior, living conditions, social environment and physical environment. It looks at the scale created in the county dataset, the municipality dataset and the dataset with both county and municipality response.

Table 7
Preliminary analysis of the counties' focus in the follow-up of municipal public health variables

Focus area	County	Municipality	Joint case
Cronbach's Alpha	.60	.79	.79
Mean inter-item correlation	.28	.55	.55
Range	.11-.52	.40-.69	.42-.69

Note: This is a preliminary analysis of the scale “Focus area”, which consists of the items health behavior, living conditions, social environment and physical environment. It looks at the scale created in the county dataset, the municipality dataset and the dataset with both county and municipality response.

The Cronbach’ alpha value should ideally be above .7. However in this case, when it is a short scale consisting of only four items, the mean inter-item correlation should also be assessed. An optimal range for the inter-item correlation is between .2 and .4 (Pallant, 2010). The reliability requirements for both the scales in the county dataset are close to fulfilled. The Cronbach’ alpha value for the “*Focus area*” scale in both the municipality dataset and in the joint case dataset is considered acceptable. The inter-item correlation however, is not. The values in the municipality dataset and in the joint case dataset will always be quite similar, because of the fact that there are mostly municipalities in the joint case dataset, and only 19 counties. All over, these values are not optimal, however, seen as

approved as the most important thing is to look for patterns and indications in the data. As I go along with the analyses, I keep these doubtful values in the back of my head.

Assessing normality, to check for normal distribution, is another requirement before conducting the analyses. A normality assertion of the continuous variables was conducted for all three datasets.

Table 8
Preliminary analysis of the main health challenges variables

Main health challenges	County	Municipality	Joint case
Kolmogorov-Smirnov, Sig.	.20	.006	.002

Note: This is a preliminary analysis of the scale “Main health challenges”, which consists of the items health behavior, living conditions, social environment and physical environment. It looks at the scale created in the county dataset, the municipality dataset and the dataset with both county and municipality response.

Table 9
Preliminary analysis of the counties' focus in the follow-up of municipal public health variables

Focus area	County	Municipality	Joint case
Kolmogorov-Smirnov, Sig.	.20	.000	.000

Note: This is a preliminary analysis of the scale “Focus area”, which consists of the items health behavior, living conditions, social environment and physical environment. It looks at the scale created in the county dataset, the municipality dataset and the dataset with both county and municipality response.

The Kolmogorov-Smirnov value should be above the significance level of .05 to propose normality. This means that we should find a non-significant result (Pallant, 2010). The values for both the scales in the county dataset indicate normality. The values for both the scales in the municipality and in the joint case dataset are suggesting a violation of normality. However, it is quite common to find a significant Kolmogorov-

Smirnov value when the sample is large, as it is in these two datasets (Pallant, 2010).

When assessing normality, inspecting graphs is an important way to see the actual shape of the distribution. All of my histograms showed close to bell-shaped distribution, however a bit skewed. The normal probability plots were also indicating normality, with exception of a bit longer and skewed tail than optimal. In conclusion, the scales are seen as reasonably normal distributed; however again, I am noting throughout the analyses that the results are not optimal.

4.4.2 Independent-Samples T Test

An independent-samples t-test was conducted in the joint case dataset to compare the four different main health challenge scores for counties and municipalities, and to compare the four different focus area scores for counties and municipalities, here known as affiliation.

An assumption of the t-test Homogeneity of variance, and Levene's test for quality of variance will check this. The statistical program SPSS, gives the output of two tests when conducting an independent samples t-test. One is for when equal variances is assumed, and the other is for when equal variances is not assumed. This means that SPSS gives out an alternative t-value which compensates for the cases where the variances are not the same (Pallant, 2010).

1 Is there a significant difference in the mean scores of the perception of *health behavior* as main health challenge for counties and municipalities?

Equal variances assumed. There is no significant difference in scores for counties ($M = .36, SD = .35$) and municipalities ($M = .44, SD = .34; t(319) = -1.01, p = .31$, two-tailed). The magnitude of the difference in the means (mean difference = $-.08$, 95% $CI: -.24$ to $.08$) is very small (eta squared = $.003$) (Pallant, 2010). This means that only .3% of the variance in health behavior is explained by affiliation.

2 Is there a significant difference in the mean scores of the perception of *living conditions* as main health challenge for counties and municipalities?

Equal variances not assumed. There is a significant difference in scores for counties ($M = .41, SD = .29$) and municipalities ($M = .25, SD = .19; t(19.03) = 2.33, p = .03$, two-tailed). The magnitude of the difference in the means (mean difference = $.16$, 95% $CI: .02$ to $.30$) is small (eta squared = $.017$) (Pallant, 2010). This means that 1.7 % of the variance in living conditions is explained by affiliation.

3 Is there a significant difference in the mean scores of the perception of *social environment* as main health challenge for counties and municipalities?

Equal variances assumed. There is a significant difference in scores for counties ($M = .39, SD = .21$) and municipalities ($M = .22, SD = .21; t(319) = 3.49, p = .001$, two-tailed). The magnitude of the difference in the means (mean difference = $.17$, 95% $CI: .07$ to $.26$) is small (eta squared = $.037$) (Pallant, 2010). This means that 3.7% of the variance in environment is explained by affiliation.

4 Is there a significant difference in the mean scores of the perception of *physical environment* as main health challenge for counties and municipalities?

Equal variances not assumed. There is a significant difference in scores for counties ($M = .32, SD = .29$) and municipalities ($M = .15, SD = .19; t(18.91) = 2.43, p = .025$, two-tailed). The magnitude of the difference in the means (mean difference = .17, 95% *CI*: .02 to .31) is small (eta squared = .018) (Pallant, 2010). This means that 1.8% of the variance in physical environment is explained by affiliation.

T-tests 1 to 4 are presented in Table 10 below.

Table 10
Difference in the mean scores of the perception of main health challenges between counties and municipalities, N = 321

	Counties		Municipalities		df	t	p	Eta-squared ^a
	M	SD	M	SD				
Health behavior	.36	.35	.44	.34	319	-1.01	.31	.003
Living conditions	.41	.29	.25	.19	19.03	2.33	.03*	.017
Social environment	.39	.21	.22	.21	319	3.49	.001***	.037
Physical environment	.32	.29	.15	.19	18.91	2.43	.025*	.018

* $p < .05$

*** $p < .001$

^a effect size = .01 small, .06 moderate, .14 large

5 Is there a significant difference in the mean scores of the perception of *health behavior* as the counties' focus area in their follow-up of municipalities for counties and municipalities?

Equal variances not assumed. There is a significant difference in scores for counties ($M = .57, SD = .26$) and municipalities ($M = .39, SD = .41; t(24.95) = 2.75, p = .01$, two-tailed). The magnitude of the difference in the means (mean difference = .18, 95% *CI*: .05 to .32) was small (eta squared = .026) (Pallant, 2010). This means that 2.6% of the variance in health behavior is explained by affiliation.

6 Is there a significant difference in the mean scores of the perception of *living conditions* as the counties' focus area in their follow-up of municipalities for counties and municipalities?

Equal variances not assumed. There is a significant difference in scores for counties ($M = .41, SD = .29$) and municipalities ($M = .14, SD = .21; t(19.42) = 4.05, p = .001$, two-tailed). The magnitude of the difference in the means (mean difference = .27, 95% *CI*: .13 to .41) was small (eta squared = .055) (Pallant, 2010). This means that 5.5% of the variance in living conditions is explained by affiliation.

7 Is there a significant difference in the mean scores of the perception of *social environment* as the counties' focus area in their follow-up of municipalities for counties and municipalities?

Equal variances assumed. There is a significant difference in scores for counties ($M = .50, SD = .17$) and municipalities ($M = .18, SD = .25; t(279) = 5.36, p = .000$, two-tailed). The magnitude of the difference in the means (mean difference = .32, 95% *CI*: .20 to .43) was moderate (eta squared = .093) (Pallant, 2010). This means that 9.3% of the variance in social environment is explained by affiliation.

8 Is there a significant difference in the mean scores of the perception of *physical environment* as the counties' focus area in their follow-up of municipalities for counties and municipalities?

Equal variances assumed. There is a significant difference in scores for counties ($M = .47, SD = .25$) and municipalities ($M = .22, SD = .29; t(279) = 3.77, p = .000$, two-tailed). The magnitude of the difference in the means (mean difference = .26, 95% *CI*: .12 to .39) was small (eta squared = .048) (Pallant, 2010). This means that 4.8% of the variance in physical environment is explained by affiliation.

T-tests 5 to 8 are presented in Table 11 below.

Table 11
Difference in the mean scores of the perception of focus area between counties and municipalities, N = 281

	Counties		Municipalities		df	T	p	Eta-squared ^a
	M	SD	M	SD				
Health behavior	.57	.26	.39	.41	24.95	2.75	.01**	.026
Living conditions	.41	.29	.14	.21	19.42	4.05	.001***	.055
Social environment	.50	.17	.18	.25	279	5.36	.000***	.093
Physical environment	.47	.25	.22	.29	279	3.77	.000***	.048

** $p < .01$

*** $p < .001$

^a effect size = .01 small, .06 moderate, .14 large

In conclusion, all the independent samples t-tests showed a significant difference in the mean scores for counties and municipalities expect for one. The first test showed that there is not a statistically significant difference in the mean scores for counties and municipalities in “*health behavior*”. The measure of effect size, eta, for most of the tests is small. Except for the counties' perception of “*social environment*” as a

focus area in the follow-up, where the effect size is moderate and 9.3 %. In other words, “*social environment*” is the factor out the four that have the most different responses on what the counties’ focus in the follow-up is, between municipalities and counties.

4.4.3 Correlations

The correlation will give us a better insight in what degree the counties’ perception of the main health challenges is the same as the focus area in the follow-up of municipal health work. The same applies to the municipalities and in what degree their perception of the main health challenges is the same as their perception of the counties’ focus area in their follow-up.

Previously, I have looked at aggregated data that showed that there is an overlap between the focus area and the main health challenges. Therefore, I would like to test to check if this is statistically significant.

In order to check for correlations, we need to evaluate the assumptions. The assumptions of correlation are linearity and homoscedasticity. Linearity means that the relationship between two variables should be linear, and homoscedasticity means that the variability in one variable should be equal at all values of the other variable (Pallant, 2010). When performing correlation analyses, it is important to check these assumptions by assessing a scatterplot. This will show outliers, the distribution of data points, and their direction. Linearity is showed by whether or not there is a line in the data points, and homoscedasticity is showed by the thickness of the data points (Pallant, 2010). By inspecting the scatterplots, it is safe to say that the data points were spread all over the

place, which suggests a very low correlation. Since most of the assumptions are violated, I will use the Spearman Rank Order Correlation. This is a non-parametric alternative to the more common Pearson product-moment correlation, which is useful when the data does not meet the criteria for Pearson correlation (Pallant, 2010). An assumption here is that it is a monotonic relationship between the two variables that are analyzed. It is not clear from the scatterplot that this assumption is met, but I will just assume that it is.

The relationship between the four different perceptions about main health challenges and the four similar groups of focus areas in the counties' follow-up of municipalities was investigated using Spearman's correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity; however, the two latter indicated a very low correlation. Nevertheless, the analyses were still conducted as it was interesting to see if they showed any patterns.

4.4.3.1 Correlations; county

1 Is there a relationship between the perception of *health behavior* as main health challenge and the perception of *health behavior* as the counties' focus area in their follow-up of municipalities?

There is a weak, non-significant monotonic relationship between the two variables, $\rho = .35$, $n = 19$, $p = .14$. The positive correlation is indicating a relationship between the counties' perception of health behavior as main health challenge and their perception of health behavior as focus area, but we would need a greater effect to conclude.

2 Is there a relationship between the perception of *living conditions* as main health challenge and the perception of *living conditions* as the counties' focus area in their follow-up of municipalities?

There is a weak, negative, non-significant monotonic relationship between the two variables, $\rho = -.36$, $n = 19$, $p = .13$. The negative correlation is indicating a relationship between the counties' perception of living condition as main health challenge and their perception of living condition as focus area, but we would need a greater effect to conclude.

3 Is there a relationship between the perception of *social environment* as main health challenge and the perception of *social environment* as the counties' focus area in their follow-up of municipalities?

There is a very weak, non-significant monotonic relationship between the two variables, $\rho = .09$, $n = 19$, $p = .71$. The counties' perception of social environment as main health challenge is not associated with their perception of social environment as focus area. It shows almost no pattern.

4 Is there a relationship between the perception of *physical environment* as main health challenge and the perception of *physical environment* as the counties' focus area in their follow-up of municipalities?

There is a weak, non-significant monotonic relationship between the two variables, $\rho = .34$, $n = 19$, $p = .16$. The positive correlation is indicating a relationship between the counties' perception of physical environment as main health challenge and their perception of physical environment as focus area, but we would need a greater effect to conclude.

Table 12

The correlation between main health challenges and focus area, county dataset

	Main health challenges HB	Main health challenges LC	Main health challenges SE	Main health challenges PE
Focus area HB	.35			
Focus area LC		-.36		
Focus area SE			.71	
Focua area PE				.34

In conclusion, there are no statistically significant relationships between the main health challenges and the focus area, in the county dataset. In general, there is a weak connection, which means that I cannot conclude whether or not the counties' perception of the main health challenges is the same as the counties' perception of their focus area in the follow-up of municipal health work.

4.4.3.2 Correlations; municipality

1 Is there a relationship between the perception of *health behavior* as main health challenge and the perception of *health behavior* as the counties' focus area in their follow-up of municipalities?

There is a very weak, non-significant monotonic relationship between the two variables, $\rho = .09$, $n = 262$, $p = .16$. The municipalities' perception of health behavior as main health challenge is not associated with their perception of health behavior as focus area. It shows almost no pattern.

2 Is there a relationship between the perception of *living conditions* as main health challenge and the perception of *living conditions* as the counties' focus area in their follow-up of municipalities?

There is a very weak, non-significant monotonic relationship between the two variables, $\rho = .12$, $n = 262$, $p = .05$. The municipalities' perception of living condition as main health challenge is not associated with their perception of living condition as focus area. It shows almost no pattern.

3 Is there a relationship between the perception of *social environment* as main health challenge and the perception of *social environment* as the counties' focus area in their follow-up of municipalities?

There is a very weak, negative, non-significant monotonic relationship between the two variables, $\rho = -.01$, $n = 262$, $p = .91$. The municipalities' perception of social environment as main health challenge is not associated with their perception of social environment as focus area. It shows almost no pattern.

4 Is there a relationship between the perception of *physical environment* as main health challenge and the perception of *physical environment* as the counties' focus area in their follow-up of municipalities?

There is a weak, significant monotonic relationship between the two variables, $\rho = .24$, $n = 262$, $p < .0005$. The municipalities' perception of physical environment as main health challenge is associated with their perception of physical environment as focus area.

Table 13
The correlation between the main health challenges and focus area, municipality dataset

	Main health challenges HB	Main health challenges LC	Main health challenges SE	Main health challenges PE
Focus area HB	.09			
Focus area LC		.12		
Focus area SE			.91	
Focus area PE				.24**

** $p < .001$

In conclusion, there is a significant relationship between the municipalities' perception of "*physical environment*" as the main health challenge and the municipalities' perception of "*physical environment*" as the counties' focus area in their follow-up. The relationship is weak. As for the rest, there seems to be a very weak pattern in the relationships, which means that I cannot conclude whether or not the perception of the main health challenges is the same as the focus area.

4.5 Summary

In summary, the data shows that the counties work intersectoral towards public health issues, and that most of the municipalities have a formalized partnership with the counties. However, only 14 of the 19 counties report that they contribute to municipal health work through partnerships. Most of large municipalities have a partnership with the county, but this decreases as the municipality size decreases. The smallest municipalities are the ones with the lowest response rate of whether or not they have a partnership.

The comparative side-by-side analyses showed that "*health behavior*" was mainly reported as both a main health challenge and a focus area. No patterns emerged when I checked for sociodemographic explanations of the similarities and differences.

Initially in the comparative side-by-side analyses, it looked like there were many connections between the counties' and the municipalities' responses, but as I went further into the data, the connections seemed to be more sporadic. In conclusion, there was not a significant difference between

the perception of *“health behavior”* as a main health challenge between counties and municipalities. *“Social environment”* as a focus area had the most different perception between municipalities and counties. Also, there were no significant relationships between the municipalities’ and counties’ similar perceptions of main health challenges and focus area, except for *“physical environment”*.

5. Discussion

This chapter connects the purpose of this study and its results, to the literature on the field. The chapter is structured after the research questions, as a way of seeing the connection between findings and literature more clearly. The two main research questions aim to map the counties’ work on reducing social health inequalities and to what degree this perception is similar to the perception at the municipal level. This follows directly from the purpose of this study, which is to get a better understanding of the municipalities’ and counties’ knowledge about health challenges prior to the implementation of the Norwegian Public Health Act of 2012. By “the work towards reducing social inequalities”, I mean a focus on living conditions, which are some of the root causes of health. The first part of the discussion looks at the counties and their role towards the municipalities. The second part discusses the degree of consistency between the counties’ view of their role towards the municipalities and the municipalities’ view of the counties’ role towards them. I look at the role in connection to social determinants of

health, intersectoral and multilevel collaboration and partnership. The last part looks at the methodological limitations of this study.

5.1 The counties' work on reducing social health inequalities

5.1.1 The counties' intersectoral work

This section explores how the counties' work towards reducing health inequalities, and how this is reflected in their intersectoral work. The data shows that the counties utilize intersectoral collaboration towards public health issues. Intersectoral working groups are necessary to attain structural change. The intersectoral working groups are based on intersectoral collaboration, which is coordinated action to influence the determinants of health. Thus, central to achieve equity in health (Leppo et al., 2013).

Therefore, it is interesting to see how the counties report that they work intersectoral.

18 out of 19 counties have an intersectoral working group for public health issues. Most of the counties, 12 out of 19, report that they have an intersectoral working group for general public health work. Thus, the counties mainly report that they have intersectoral working groups directed at concrete public health work. The data is from before the Public Health Act was implemented, and Schou et al. (2014) argues that the understanding of certain concepts, like public health, has been improved and there is more consensus on the meaning than prior to the Public Health Act. This leads to another question, namely what the counties perceive as general public health work. Maybe they think of general public health work as working directed at physical activity, diet, drug abuse and so on. In other words, working

groups with a focus on individual health behavior instead of structural living conditions. It would be interesting to explore this further. According to the Norwegian policy, we would want them to have more intersectoral working groups outside of the general public health, outside of the mere health sector, to really embrace the HiAP perspective (Leppo et al., 2013).

The counties report of frequent participation from other sectors than mere health in their intersectoral working groups. In a social determinants of health perspective, certain groups are viewed as particularly important. These are upper secondary schools, dental health, planning, public health, regional development, community development, sports and outdoor activities. They all have the ability to create supportive environments (Davies & Sherriff, 2012). It therefore seems like the counties are good at including the sectors which are important supporters for reducing social health inequities, into their intersectoral working groups (Graham & Kelly, 2004).

Most of these groups are directly aimed at children and youth. The childhood conditions affect the health later in life, and health inequalities can be seen in a socioeconomic gradient (Stegeman, Barbareschi, & Costongs, 2012). In a life course perspective it is important to focus on policies affecting future health inequality (Davies & Sherriff, 2011).

According to national strategies and legislation, the goal is to reduce social inequality in health. It seems that the counties are trying to ensure this, for instance by intersectoral collaboration including sectors aimed at children and youth. It seems that the counties understand that it is necessary

to work intersectorally towards social inequalities in health. The intersectoral work mainly takes place in groups working towards general public health, more than thematic public health. Still, the most important groups aimed at children and youth participate in these groups.

5.1.2 The counties' contribution to municipal public health work

This section explores how the counties' work towards reducing health inequalities is reflected in their support to municipal public health work and through partnerships. The counties report that they do a lot to contribute to the municipal public health. For instance, 16 out of 19 say that they contribute to the knowledge of health challenges and impact factors.

According to the law of regional authorities' tasks in the public health work, the counties are responsible of having the necessary overview of the health status of the county and those factors which may affect this, including aspects of development that can create or maintain social inequalities in health (Lovdata, 2009). If they understand the question correctly, and keep the law in mind, they should have a focus on living conditions as health challenges. 17 out of 19 support the municipal planning process, where they should bring in a focus on living conditions, as one of their tasks towards the municipalities is to be a promoter of public health work, with an overview of factors affecting social inequalities in health. The same goes for their contribution to municipal public health work with advice and guidance, where 19 out of 19 counties say that they do.

Even though the counties report that they do a lot towards the municipal public health, it should have been a larger response rate on

“competence building”, as only 13 out of 19 counties responded to this. According to the question about public health coordinators, 18 counties state that *“competence building”* is one of their main work tasks (Helgesen & Hofstad, 2012). This might mean that they know that they have competence building as a work task, but does not do it in practice. There is a disproportion between what they perceive as a main contribution task, and what they specifically report that they do to contribute to the municipal public health. This might be a result of lack of resources or competence. They largely use their own funds in the public health work (Helgesen & Hofstad, 2012), hence the competence building towards the municipalities might be given lower priority.

Only 14 counties stated that they have formalized partnerships, while according to the partnership report from the Norwegian Directorate of Health (2011b), all counties have partnerships with at least some of their municipalities. The law of 2009 also says that the counties should be pushing for and coordinate health promotion in the county, through alliances and partnerships and by supporting municipal public health (Lovdata, 2009). Because all of the counties had established partnership with some of their municipalities in 2011, the same year as the baseline study was conducted, we would expect that 19 out of 19 counties reported *“Yes”* on the question about partnership. Maybe they are unclear about their role and that they do not call their relationship with the municipalities a formalized partnership, that there is a misunderstanding of the concept.

Of the 261 municipalities that responded to the question about partnership with the county, 203 municipalities checked *“Yes”*. This is a

response rate of 77.8 %. It is interesting that almost 10% of the municipalities do not know whether or not they are in a partnership with the county. An assumption of why the municipalities do not know whether or not they have a partnership might be that the communication between the county and municipality is poor, or maybe the respondents lack information about this particular subject when responding to the questionnaire. It seems that there are uncertainties of what a partnership is and what it includes, as so many counties and municipalities have said that they do not have or do not know if they have a partnership. A partnership with expectations from both parties will be able to facilitate the reduction of social inequalities, and would make it easier to achieve goals jointly (Bergem et al., 2010). Therefore, we would hope that more counties knew about or actually had a partnership with the municipalities.

The counties have an important role towards the municipalities in supporting their public health work, and it seems that they do a lot. Based on these questions, we do not know whether or not the contribution is with a health behavior focus or a living condition focus. Multilevel governance is a means in the reduction of social health inequalities, as actions from all levels of society is necessary to level the gradient. The counties therefore have an obligation towards the municipalities, to guide them in the direction of reducing social health inequalities by looking at structure and living condition. This has been on the political agenda for many years (Fosse, 2009).

5.1.3 Geographic and sociodemographic explanations

This section explores the geographic and sociodemographic factors that are associated with the patterns that emerged in the analyses. One of the patterns that emerged from the data was that the three largest counties, in population, Hordaland, Oslo and Akershus, have a lower response rate of important groups in the intersectoral working groups, in spite of having the highest education and largest population. In general, it is thought that there are more living condition related problems in urban than rural areas (Helgesen & Hofstad, 2014), therefore we would anticipate more inclusion of sectors like upper secondary school, that are a great contributor to the reduction of social inequalities in health (Stegeman et al., 2012).

The second pattern that emerged was that there is a significant relationship between response in the variable *“Partnership for public health with the county”* and the population size of the municipality. The *“Yes”* response rate to partnership decreases as the size of the municipality decreases. Systematically, the smallest municipalities, which we maybe would have thought needed more help and support from the counties because they have fewer resources to spend on public health, do not have a formalized collaboration with the counties. This coincides with what Bergem et al. (2010) found in their partnership evaluation. They argue that the reason for why the smaller municipalities do not enter partnerships is that it demands a lot of administrative capacity. Small municipalities usually have small administrative capacity, and chooses to use it on something else than partnership for public health (Bergem et al., 2010).

5.2. Similar or different work towards reducing social health inequalities at the county level and municipal level

5.2.1 The focus on social determinants of health in multilevel collaboration

This section explores to what the degree there is a consistency in the work towards reducing social health inequalities between the county level and the municipal level, and how this is reflected in their focus on social determinants of health and in their multilevel collaboration.

Social inequalities in health are directly or indirectly formed by social, economic and environmental factors, which all can change (Dahlgren & Whitehead, 2006). Thus, taking action towards the social determinants of health is needed to reduce inequalities in health (Marmot et al., 2012). This means that to create supportive environments, which is to improve material and social conditions where people work and live, all the factors or determinants that affect health need to be taken into consideration (Dahlgren & Whitehead, 1991). It is all about tackling the unfair distribution of determinants of health (Graham & Kelly, 2004). Social health inequalities are connected to the socioeconomic status, which is forming a gradient which goes through all levels of society. To level the gradient, it is necessary to focus on the structures surrounding people, like housing, education, employment, which are living conditions, rather than only their individual health behavior (Graham, 2004).

Helgesen and Hofstad (2014) included a list of public health themes, which are related to the determinants of health. The list of public health themes was based on theories and empirical research on health

determinants, in relation to inclusion, health behavior, the physical traits of a place, planning, general service provision and educational services. These public health themes were the response alternatives in the questions about main health challenges and the county's focus area in the follow-up of municipal public health, in the questionnaires sent to the municipalities and counties. Thus, when looking at the response on main health challenges and focus area, I look at the determinants of health. These determinants are divided into four categories: health behavior, living condition, social environment and physical environment.

The results from comparing the counties and municipalities showed that health behavior topics were mainly reported as both main health challenges and focus areas. In fact, 17 out of 19 counties (municipalities divided into their respective counties) have municipalities with most responses within the health behavior topics. When looking at the counties themselves, 9 out of 19, have the most responses within health behavior topics. Thus, it is mainly counties that have reported topics within the focus area that go under other categories. This would suggest that the counties tend to be a bit more updated on politics to reduce social inequities in health, but have not necessarily brought it down to municipal level.

I also looked at whether the report of their perceived main health challenge was similar to the perceived focus area in the counties' follow-up of municipal public health. 17 out of the 19 municipalities within their respective counties have listed health behavior topics as both top main health challenges and top main focus areas. Around 60 % of the counties have a similar perception of what they see as their main health challenge

and what they see as their focus area in the follow-up of the municipal health work. This means that health behavior topics are both seen as a health challenge and focus area, which is not in accordance with what we need to focus on to reduce social inequities in health. When statistically testing the relationship between the municipalities' and counties' perception of main health challenge and the municipalities' and counties' perception of the counties' focus area in their follow-up, the relationship was not significant for health behavior or living conditions. Therefore, I cannot conclude whether or not the perception of the main health challenges is the same as the focus area. Nevertheless, there seems to be a very weak pattern in the relationships. The municipalities mainly report that the counties are helping them with individual lifestyle issues, instead of the structural living conditions. The counties should have been well prepared, through for instance seminars with the Norwegian Directorate of Health, not to mention The Law of regional authorities' tasks in the public health work of 2009, to know that the Norwegian health promotion policy is about reducing social health inequalities (Bergem et al., 2010; Norwegian Ministry of Health and Care Services, 2007). Then, it would seem that this knowledge has not reached the lowest the level of government, the municipalities. At least from what they report.

To take a further look into this assumption, I look at whether the perception of focus area is similar between counties and municipalities within their respective county. Most counties and municipalities within the counties, 12 out of the 19 pairs, have a similar perception of what the counties' focus area in the follow-up of the municipalities is. This is mainly

health behavior topics. When testing statistically whether or not there was a difference between the counties' and municipalities' perception about main health challenges and focus area, all the independent samples t-tests showed a significant difference in the mean scores for counties and municipalities except for one. The first test showed that there is not a statistically significant difference in the mean scores for counties and municipalities within health behavior topics. An interpretation of this is might be that the counties and municipalities almost have the same mean scores for health behavior topics as main health challenge. Again, the focus on health behavior topics shines through. However, the fact that the counties and municipalities mainly perceive the main health challenges and the focus area differently, show that there might be a lack of communication and mutual understanding.

In the question about main health challenges, the counties and municipalities were asked to mark the items they considered as most important health challenges. This is not the same as what they in fact prioritize (Helgesen & Hofstad, 2014). However, when looking at the municipalities' response of their main priorities in their public health work, health behavior comes on top (Helgesen & Hofstad, 2012). A focus on health behavior is important, however, that is not the most important focus in the Norwegian health promotion policies. In a reduction of social inequalities perspective, the most important factor is living conditions, which might affect health behavior later in life. Baum and Fisher (2014) argue that policies too often are aimed at a change in some specific health behavior, without incorporating the social determinants of health. This is

consistent with my findings. The behavioral approaches to policies seem to be more appealing than the policies addressing the social factors shaping health, the social determinants. Even though the public health advocates and researchers and evidence show that intensive behavioral change strategies do not have a significant effect on the overall population health (Baum & Fisher, 2014). These structural changes that are demanded usually take a lot longer time, is hard to measure and more expensive.

According to Graham and Kelly (2004), the evidence of the link between socioeconomic position and health has resulted in a policy response that recognizes the social gradient in health, and therefore does not only look at the socially excluded people, but also those who are relatively disadvantaged in health terms. This approach might lead to major improvements in these people's health, together with proportionate savings for the health care system (Graham & Kelly, 2004). Thus, it will reach a larger part of the population. The policies should contain universal measures, and an assessment of the cause of the social inequalities in health. The universal measures are strategies applied across a large population, and not only targeted at socially excluded groups. Universal measures are a part of the Norwegian welfare state (Dahl et al., 2014; Norwegian Ministry of Health and Care Services, 2007). Maybe the municipalities and counties take it for granted, instead of it being a means to reduce social inequalities in health. This might affect their response which is mainly a focus on mainly health behavior.

In the proposal to the Public Health Act of 2012, the government wanted to emphasize the need to reduce social inequalities in health and

enhance the public health. They wanted to give the municipalities and counties tools to be prepared for the future health challenges (Norwegian Ministry of Health and Care Services, 2010). Social inequalities in health have different understandings and are hard to address. It is a politically loaded field, as a complex matter needs complex measures. The complexity of health inequalities makes multilevel collaboration particularly important in public health (Exworthy, Berney, & Powell, 2002), especially with the governance system in Norway. Then, is the perception of the work towards reducing social health inequalities similar between the municipalities and counties? The counties have a great impact on the municipalities. They tend to answer in the same manner. When the municipalities report that their advisors, the county, mainly focuses on health behavior, this might signal a possible contributory cause of why the municipal public health work has come up short – at least considering reducing social health inequalities. However, many counties reported in the open-ended questions that they were in a development face towards supporting the municipal public health work. Taking into consideration that the data was collected before the Public Health Act came into action, there could be a movement towards a greater focus on living conditions in today's focus areas. The results from an evaluation of the effect of the Coordination Reform indicate a sharpened focus within the municipalities on the importance of public health work, intersectoral collaboration and health in all policies. However, it seems that individual health behavior topics are still the main focus (Schou et al., 2014).

5.2.2 Geographic and sociodemographic explanations

This section explores the geographic and sociodemographic factors associated with the patterns that emerged from the analyses. I found that the sociodemographic factors could not show any clear connections to help explain why some of the counties and their respective municipalities had a different perception of the focus area. When comparing those counties and municipalities in their respective counties with different perception of focus area when looking at the four classes of median income, no pattern emerged. No particular pattern emerged when looking at the four classes of education. In the end, I looked at geography, but no pattern emerged there either.

5.3 Methodological limitations

There are several limitations in this study. First, it is not known who answered the municipality questionnaire or what kind of responsibilities or tasks that respondent had at the time. For ethical reasons, demanded by the Norwegian Social Science Data Services, the surveys were sent to the mail reception in the municipalities, but addressed to the chief executives of the municipality. Then we must assume that the person has something to do with the public health work. Also, it is not certain that all the respondents have a good understanding of relatively new terms like “social inequities in health”. As mentioned in a previous chapter, the social inequities in health have different understandings and are hard to address. It is a politically loaded field, and complex problems are hard to measure. This is a feature of social science research. Also, the Norwegian Directorate of Health was

highly involved in creating the survey. This influenced the way the questions have been asked. For instance, in many of the questions the language is heavily bureaucratic and hard to comprehend.

One of the clear patterns that emerge is that by far it is the largest municipalities that have the greatest response rate. This is problematic for external validity, as it is not random, thus problematic for generalization. We cannot expect that the small municipalities that did not respond would have had the same answers as the larger municipalities, if they had responded to the survey.

In general, the percentage of non-responses increase as the questions gets further into the survey. This indicates that some of those who started to answer the survey drop off after a while. Maybe they are unsure of what their responsibilities and work tasks are and what is expected of them. Also, they could be unsure of what they in fact are supposed to answer. For instance, Sogn og Fjordane checked all the boxes at one of the questions in the county survey, including “*No contribution*”. It is the same with issue on the question about partnership in the county survey, where too few counties have checked “*Yes*”. At least according to the numbers in the partnership report from the Norwegian Directorate of Health from 2011.

Another issue is that it is the counties’ and municipalities’ perception of the questions that is being measured. They might see childhood environment as a part of for example physical activity. Then it will only be counted as health behavior. I cannot say anything more than what the data directly shows, which in this case is mainly a focus on health behavior.

Whether or not they see living condition topics under health behavior topics we cannot know without conducting an interview. What does a yes mean, and what does a no mean? Do they understand the question in the same way? A challenge in designing surveys like this is to find a balance between the consideration of covering the complexity of public health and the consideration of the respondents capacity to respond (Schou et al., 2014).

Another limitation is that because this is an exploratory study, it is not possible to draw any concrete conclusions about causality or relationships. However, the study might give an indication of causality and relationships (Saks & Allsop, 2007). Then it is possible to make new hypotheses or assumptions for further research.

6. Conclusion

This study is based on data collected prior to the implementation of the Public Health Act of 2012. The goal of this study is to explore the relationship between counties and municipalities and their role towards each other in regards to reducing health inequalities, prior to the implementation of the Public Health Act. The data shows that counties offer much support to the municipalities, and that there is much intersectoral work towards public health. However, from a Health in All Policies perspective we would have liked to see that their intersectoral work moved away from the general public health work and towards including more and other sectors. As of now, it seems that much of the intersectoral work towards public health is focused on individual health behavior, as that is mainly the feature of

general public health. From a public health perspective we would also have liked to see that they contributed with competence building, and that they had a better overview of their partnership agreements, and that they knew if they actually had a partnership or not.

The counties' work towards reducing inequalities is somewhat reflected in their intersectoral work and their contributions towards municipal public health. The counties have a lot of responsibility towards municipal public health and mapping the health challenges in their municipalities, which is important in the reduction of social inequalities in health (Lovdata, 2009). They have a responsibility of monitoring and reporting on allocation letters from the government and other national guidelines and strategies, to implement measures, working with municipalities and ensuring that the municipalities performs their allocated tasks.

The work on reducing social health inequalities at the county level is quite similar to the work at the municipal level. They should have prioritized, focused on, and perceived living conditions as main health challenges more than health behavior, to reduce social health inequalities. It might be easier for the local and regional leaders to get through on short-term goals towards individual health behavior. These goals and measures are often cheaper and easier to measure, than structural changes, which are more expensive (here and now) and might take 15-20 years before you see any effect.

The national guidelines go through the counties and down to the municipalities. The counties seem to have more control over the political guidelines, but they do not necessarily bring the message down to the municipal level. The municipalities need explicit support, political pressure and extra funding through national and county targeted programs to increase activity to reduce social health inequalities (Fosse & Helgesen, 2015).

Have the counties taken on this advisory role as the national guidelines for many years have wanted them to take? What will the counties' role in the public health work now onwards consist of? Based on the research conducted for her Master's thesis on Norwegian county plans after the implementation of the Public Health Act, Shandiz (2015) found that the counties still have not been able to fulfill the goals of the national policy. This means that the issues discussed in throughout this study still are relevant today. When the counties keep focusing on for example implementing healthy living centers, it is natural that the municipalities will follow on the same path. They still struggle to keep a focus on the health gradient, reduction of social health inequalities and health in all policies. Then it is hard to expect the municipalities to do these things. This means that the counties still have a way to go to really take on its advocacy role towards the municipalities, to both inspire and push them to move the public health focus towards structural living conditions.

REFERENCES

- Mapping the health challenges of their own municipalities Axelsson, R., & Axelsson, S. B. (2006). Integration and collaboration in public health—a conceptual framework. *The international journal of health planning and management*, 21(1), 75-88.
- Bambra, C., Gibson, M., Sowden, A., Wright, K., Whitehead, M., & Petticrew, M. (2010). Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews. *Journal of epidemiology and community health*, 64(4), 284-291.
- Baum, F. (2007). Cracking the nut of health equity: top down and bottom up pressure for action on the social determinants of health. *Promotion & Education*, 14(2), 90-95.
- Baum, F., & Fisher, M. (2014). Why behavioural health promotion endures despite its failure to reduce health inequities. *Sociology of health & illness*, 36(2), 213-225.
- Bergem, R., Ouff, S. M., Aarflot, U., Hanche-Dalseth, M., Vestby, G. M., Hofstad, H., & Helgesen, M. K. (2010). Partnerskap for folkehelse og Helse i plan. Sluttrapport [Partnership for health and Health in Plan. Final report].
- Braveman, P., & Gruskin, S. (2003). Defining equity in health. *Journal of epidemiology and community health*, 57(4), 254-258.
- Consortium, D. (2010). The story of DETERMINE: Mobilising Action for Health Equity in the EU. *Brussels: EuroHealthNet*.
- Dahl, E., Bergsli, H., & van der Wel, K. (2014). Sosial ulikhet i helse: En norsk kunnskapsoversikt [Social inequalities in health: A Norwegian

knowledge report]. *Oslo: Høgskolen i Oslo og Akershus, Fakultet for samfunnsfag/Sosialforsk.*

- Dahlgren, G., & Whitehead, M. (1991). *Policies and Strategies to Promote Social Equity in Health*. Stockholm: Institute for Future Studies.
- Dahlgren, G., & Whitehead, M. (2006). Levelling up (part 2): a discussion paper on concepts and principles for tackling social inequities in health. *Copenhagen: WHO*.
- Davies, J. K., & Sherriff, N. (2014). Assessing public health policy approaches to level-up the gradient in health inequalities: the Gradient Evaluation Framework. *Public health, 128*(3), 246-253.
- Davies, J. K., & Sherriff, N. (2011). The gradient in health inequalities among families and children: a review of evaluation frameworks. *Health Policy, 101*(1), 1-10.
- Davies, J. K., & Sherriff, N. (2012). Evaluating policies: Applying the gradient equity lens. In I. Stegeman & C. Costongs (Eds.), *The Right Start to a Healthy Life: EuroHealthNet*.
- Davies, P. (2006). Exploratory Research. In V. Jupp (Ed.), *The Sage dictionary of social research methods*: Sage Publications Limited.
- Diderichsen, F., Andersen, I., Manuel, C., Andersen, A.-M. N., Bach, E., Baadsgaard, M., . . . Jørgensen, T. (2012). Health Inequality-determinants and policies. *Scandinavian journal of public health, 40*(8 suppl), 12-105.
- Exworthy, M., Berney, L., & Powell, M. (2002). 'How great expectations in Westminster may be dashed locally': the local implementation of

- national policy on health inequalities. *Policy & Politics*, 30(1), 79-96.
- Fosse, E. (2009). Norwegian public health policy: revitalization of the social democratic welfare state? *International Journal of Health Services*, 39(2), 287-300.
- Fosse, E. (2011). Different Welfare States—Different Policies? An Analysis of the Substance of National Health Promotion Policies in Three European Countries. *International Journal of Health Services*, 41(2), 255-272.
- Fosse, E. (2013). Forvaltning og profesjon: Hindringer for å utvikle det tverrsektorielle folkehelsearbeidet? [Management and professions: Obstacles to develop intersectoral public health work]. In R. Axelsson & S. B. Axelsson (Eds.), *Om Samverkan – för utveckling av hälsa och välfärd. [About cooperation - to develop health and welfare]*. Lund: Studentlitteratur.
- Fosse, E., & Helgesen, M. (2011). *Addressing the social determinants of health: Multilevel governance of policies aimed at families with children (SODEMIFA)*. Project description spring 2012. HEMIL, UiB.
- Fosse, E., & Helgesen, M. K. (2015). How can local governments level the social gradient in health among families with children? The case of Norway. *International Journal of Child, Youth and Family Studies*, 6(2), 328-346.
- Fosse, E., & Strand, M. (2010). Politikk for å redusere sosiale ulikheter i helse i Norge: Fornyet politisering av folkehelse spørsmål. [Politics

- towards reducing social inequalities in health in Norway: A renewed politicization of public health issues] *Tidsskrift for velferdsforskning* 13(1), 14-25.
- Graham, H. (2004). Tackling inequalities in health in England: remedying health disadvantages, narrowing health gaps or reducing health gradients? *Journal of Social Policy*, 33(01), 115-131.
- Graham, H., & Kelly, M. P. (2004). *Health inequalities: concepts, frameworks and policy*. London: Health Development Agency
- Graham, H., & Power, C. (2004). Childhood disadvantage and health inequalities: a framework for policy based on lifecourse research. *Child: care, health and development*, 30(6), 671-678.
- Green, J., & Tones, K. (2010). *Health promotion: planning and strategies*. Los Angeles: Sage.
- Hagen, S., Helgesen, M., Torp, S., & Fosse, E. (2015). Health in All Policies: A cross-sectional study of the public health coordinators' role in Norwegian municipalities. *Scandinavian journal of public health*, 1403494815585614.
- Helgesen, M., & Hofstad, H. (2012). Regionalt og lokalt folkehelsearbeid. Ressurser, organisering og koordinering. [Regional and local public health work. Resources, organization and coordination.] *NIBR-rapport 2012:13*. Oslo.
- Helgesen, M. K. (2012). Styring av folkehelsepolitikk i relasjonen mellom stat, fylkeskommuner og kommuner [Management of public health policy in relations between the state, counties and municipalities]. In G. S. Hanssen, J. E. Klausen & O. Langeland (Eds.), *Det regionale*

Norge 1950 - 2050 [Regional Norway 1950 - 2050]: Abstrakt forlag AS.

Helgesen, M. K., & Hofstad, H. (2014). Determinants in Norwegian Local Government Health Promotion—Institutional Perspectives.

Technology, Communication, Disparities and Government Options in Health and Health Care Services (Research in the Sociology of Health Care, Volume 32) Emerald Group Publishing Limited, 32, 143-180.

Jacobsen, D. I. (2005). *Hvordan gjennomføre undersøkelser?: innføring i samfunnsvitenskapelig metode* [How to conduct research?: introduction to social science methodology] (Vol. 2): Høyskoleforlaget Kristiansand.

Jansson, E., Fosse, E., & Tillgren, P. (2011). National public health policy in a local context—Implementation in two Swedish municipalities. *Health Policy, 103*(2), 219-227.

Johannessen, A., Tufte, P. A., & Christoffersen, L. (2010). Introduksjon til samfunnsvitenskapelig metode [Introduction to social science methodology]. Abstrakt: Oslo

Koh, H. K., Oppenheimer, S. C., Massin-Short, S. B., Emmons, K. M., Geller, A. C., & Viswanath, K. (2010). Translating research evidence into practice to reduce health disparities: a social determinants approach. *Journal Information, 100*(S1).

Leppo, K., Ollila, E., Pena, S., Wismar, M., & Cook, S. (2013). Health in all policies. *Seizing Opportunities, Implementing Policies. Helsinki: Ministry of Social Affairs and Health.*

- Lovdata. (2009). Lov om fylkeskommuners oppgaver i folkehelsearbeidet [Law on regional authorities' tasks in the public health work] Retrieved June 2015, from Lovdata: <https://lovdata.no/dokument/LTI/lov/2009-06-19-65>
- Lovdata. (2011). Lov om folkehelsearbeid [The Norwegian Public Health Act] Retrieved March 2013, from Ministry of Health and Care Services: <https://lovdata.no/dokument/NL/lov/2011-06-24-29>
- Marmot, M. (2005). Social determinants of health inequalities. *Lancet*, 365(9464), 1099-1104.
- Marmot, M. (2007). Achieving health equity: from root causes to fair outcomes. *The Lancet*, 370(9593), 1153-1163.
- Marmot, M., Allen, J., Bell, R., Bloomer, E., & Goldblatt, P. (2012). WHO European review of social determinants of health and the health divide. *The Lancet*, 380(9846), 1011-1029.
- Marmot, M., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M., & Geddes, I. (2010). Fair society, healthy lives: Strategic review of health inequalities in England post-2010.
- MEDLEX Norwegian Health Information. (2012). *Folkehelseloven med merknader og forskrifter [The Public Health Act with notices and regulations]*. MEDLEX Norsk helseinformasjon: Oslo.
- Mittelmark, M. B., Kickbusch, I., Rootman, I., Scriven, A., & Tones, K. (2007). Health Promotion. In H. K. Heggenhougen (Ed.), *The Encyclopedia of Public Health*. Oxford: Elsevier, Ltd.
- Navarro, V., Borrell, C., Benach, J., Muntaner, C., Quiroga, A., Rodriguez-Sanz, M., . . . Palarin, M. I. (2003). The importance of the political

and the social in explaining mortality differentials among the countries of the OECD, 1950-1998. *International Journal of Health Services*, 33(3), 419-494.

Norwegian Directorate of Health. (2011a). Oversikt over helsetilstanden og påvirkningsfaktorene [Summary of health status and impact factors] Retrieved January 2013, from <http://helsedirektoratet.no/folkehelse/folkehelsearbeid/oversikt-helseutfordringer/Sider/default.aspx>

Norwegian Directorate of Health. (2011b). *Partnerskap som arbeidsform i regionalt folkehelsearbeid - med oversikt over fylkeskommuners organisering av folkehelsearbeidet* [Partnership as a working method in the regional public health work - with an overview of the counties' organization of the public health work]. Oslo: Helsedirektoratet.

Norwegian Directorate of Health and Social Affairs. (2005). *Gradientutfordringen* [The Gradient Challenge]. Oslo: Sosial- og helsedirektoratet.

Norwegian Institute of Public Health. (2014). Kommnehelse. Kunnskap for folkets helse. [Municipal health. Knowledge for the health of the people] Retrieved January 2014, from Kommnehelse: <http://khs.fhi.no/webview/>

Norwegian Ministry of Health and Care Services. (2003). Stortingsmelding nr. 16 (2002-2003) Resept for et sunnere Norge [Report No. 16 to the Storting (2002-2003): Prescription for a healthier Norway]

Recommendation from the Norwegian Ministry of Health and Care Services.

Norwegian Ministry of Health and Care Services. (2007). Report No. 20 (2006-2007) to the Storting: National strategy to reduce social inequalities in health. *Recommendation from the Norwegian Ministry of Health and Care Services.*

Norwegian Ministry of Health and Care Services. (2010). *Forslag til ny folkehelselov - Samhandlingsreformen [Proposed new public health act - Coordination reform]*. Oslo.

Nutbeam, D. (1998). Health promotion glossary. *Health Promotion International*, 13(4).

Oslo municipality. (2011). *Statistical Yearbook of Oslo 2011*. Oslo: Retrieved from The Municipality of Oslo. Development and Improvement Authority: http://www.utviklings-og-kompetanseetaten.oslo.kommune.no/getfile.php/utviklings-%20og%20kompetanseetaten%20%28UKE%29/Internett%20%28UKE%29/Dokumenter/Oslostatistikken/Statistisk%20%20C3%A5rbok/2011/UKE_Statistikk_2011.pdf.

Oslo municipality. (2012). *Statistical Yearbook of Oslo 2012*. Oslo: Retrieved from The Municipality of Oslo. Development and Improvement Authority: http://www.utviklings-og-kompetanseetaten.oslo.kommune.no/getfile.php/utviklings-%20og%20kompetanseetaten%20%28UKE%29/Internett%20%28UKE%29/Dokumenter/Oslostatistikken/Statistisk%20%20C3%A5rbok/2012/UKE_Statistikk_2012.pdf.

- Pallant, J. (2010). *SPSS Survival Manual 4th edition-A step by step guide to data analysis using the SPSS program*. Maidenhead, England: Open University Press/McGraw-Hill.
- Peake, S., Gallagher, G., Geneau, R., Smith, C., Herel, M., Fraser, H., . . . Barr, V. (2008). Health equity through intersectoral action: an analysis of 18 country case studies: Ottawa, Public Health Agency of Canada and Geneva, World Health Organization.
- Raphael, D. (2006). Social determinants of health: present status, unanswered questions, and future directions. *International Journal of Health Services*, 36(4), 651-677.
- Saks, M., & Allsop, J. (2007). *Researching health: Qualitative, quantitative and mixed methods*: Sage Publications Limited.
- Schou, A., Helgesen, M. K., & Hofstad, H. (2014). Samhandlingsreformens effekt på kommunen. *American Journal of Public Health*, 93(9), 1451-1456.
- Shandiz, K. N. (2015). *Norske fylkeskommuner - Med sosiale ulikheter og "Helse i alt vi gjør" på agendaen? [Norwegian counties - Are social inequalities and health in all policies on the agenda?]*. Master's degree, University of Bergen, Bergen.
- Statistics Norway. (2012). Folkemengd 1. januar 2012 og endringane i 2011. [Population size 1st of January 2012 and changes in 2011] Retrieved January 2014, from Statistisk sentralbyrå: <http://www.ssb.no/a/kortnavn/folkendrkv/arkiv/tab-2012-02-23-02.html>

- Stegeman, I., Barbareschi, G., & Costongs, C. (2012). Health inequalities among children, young people and families in the EU. In I. Stegeman & C. Costongs (Eds.), *The Right Start to a Healthy Life: EuroHealthNet*.
- Stegeman, I., & Costongs, C. (Eds.). (2012). *The Right Start to a Healthy Life: EuroHealthNet*.
- Ståhl, T., Wismar, M., Ollila, E., Lahtinen, E., & Leppo, K. (2006). Health in all policies. *Prospects and potentials. Helsinki: Finnish Ministry of Social Affairs and Health*.
- The Norwegian Mapping Authority. (2013). Fylkes- og kommuneoversikt. [Overview of the counties and municipalities] Retrieved December 2013, from Kartverket: <http://www.kartverket.no/Kunnskap/Fakta-om-Norge/Fylker-og-kommuner/Tabell/>
- The Research Council of Norway. (2012). Addressing the social determinants of health. Multilevel governance of policies aimed at families with children Retrieved January 2013, from <http://www.forskningsradet.no/servlet/Satellite?c=Prosjekt&cid=1253972098517&pagename=ForskningsradetNorsk/Hovedsidemal&p=1181730334233>
- Whitehead, M. (1991). The concepts and principles of equity and health. *Health Promotion International*, 6(3), 217-228. doi: 10.1093/heapro/6.3.217
- WHO. (1986). Ottawa Charter for Health Promotion. *First International Conference on Health Promotion. Ottawa, 21 November 1986*, from

<http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index.html>

WHO. (1988). Adelaide Recommendations on Healthy Public Policy.

Second International Conference on Health Promotion. Ottawa, April 1988, from

<http://www.who.int/healthpromotion/conferences/previous/adelaide/en/index6.html>

WHO. (2008). *Closing the gap in a generation: health equity through action on the social determinants of health*: World Health Organization.

WHO. (2010a). Glossary of terms used. *Health Impact Assessment*

Retrieved October 2012, from

<http://www.who.int/hia/about/glos/en/index1.html>

WHO. (2010b). Key concepts. *Commission on Social Determinants of*

Health: Social determinants of health Retrieved October 2012, from

http://www.who.int/social_determinants/final_report/key_concepts_en.pdf

WHO. (2012). The social determinants of health Retrieved October 2012,

from http://www.who.int/social_determinants/en/

WHO. (no date). Social determinants Retrieved October 2012, from

<http://www.euro.who.int/en/what-we-do/health-topics/health-determinants/social-determinants>

Wilkinson, R. G., & Marmot, M. G. (2003). *Social determinants of health: the solid facts*: World Health Organization.

APPENDIX

A.1 Data

The municipalities which was listed double, and where one needed to be deleted was: Gamle Oslo, Aurskog-Høland, Kristiansand, Leirfjord, Røst, Hattfjelldal, Sortland, Harstad, Hemsedal, Vestnes, Rakkestad, Kvænangen and Askøy. Also, two of the municipalities were listed as “No email provided”, and these two were Karmøy and Lødingen. Unfortunately, it was not possible to identify which one was which, and therefore these were deleted.

A.2 Missing data analysis

A.2.1 The relationship between non-response and the population in the municipalities

A.2.1.1 The main health challenges

The sample, N, is 442, which means that there is data of the population in all the municipalities in the survey. 68.3 % of the municipalities have responded to the questions about main health challenges, while 31.7 % has not, within the five population groups.

Group 0, 1 and 2 have a lower observed count than expected, and group 3 and 4 have a higher observed count than expected. The biggest difference between observed and expected count is in group 1 (Large), where observed count is 19 and expected count is 27.9. Group 1 (Large) has 21.6 % non-responses, which is the lowest percentage of non-responses amongst the

groups. Group 4 (Smallest) has 41.6 % non-responses, which is the highest percentage of non-responses amongst the groups.

The Pearson Chi-Square value is 12.176 with a significance level of .016, which is lower than the alpha value of .05. This means that there is a significant relationship between non-response in the variable “Main health challenges” and the population size of the municipality.

The bar chart shows that the large municipalities have the lowest count of non-responses, while the smallest municipalities have the highest count of non-responses. We can also see a pattern where the non-response rate increases as the size of the municipality decreases. The largest municipalities do not follow this pattern as they have a higher count of non-responses than the large municipalities.

A.2.1.2 The counties' focus in the follow-up on municipalities

The sample, N, is 442, which means that there is data of the population in all the municipalities in the survey. 59.3 % of the municipalities have responded to the questions about the counties' follow-up on municipalities, while 40.7 % has not, within the five population groups.

Group 0, 1 and 2 have a lower observed count than expected, and group 3 and 4 have a higher observed count than expected. The biggest difference between observed and expected count is in group 4 (Smallest), where observed count is 50 and expected count is 36. Group 1 (Large) has 27.3 % non-responses, which is the lowest percentage of non-responses amongst the groups. Group 4 (Smallest) has 55.1 % non-responses, which is the highest percentage of non-responses amongst the groups.

The Pearson Chi-Square value is 18.559 with a significance level of .001, which is lower than the alpha value of .05. This means that there is a significant relationship between non-response in the variable “*Follow-up on municipalities*” and the population size of the municipality.

The bar chart shows a clear tendency of that the large municipalities have the lowest count of non-responses, while the smallest municipalities have the highest count of non-responses. There is a pattern that shows that the non-response rate increases as the size of the municipality decreases.

However, the largest municipalities do not follow this pattern as they have a higher count of non-responses than the large municipalities.

A.2.2 The relationship between non-response and the completion of upper secondary school or higher education the municipalities

A.2.2.1 The main health challenges

The sample, N, is 438, which means that four of the municipalities in the survey are missing. 68.7 % of the municipalities have responded to the questions about the main health challenges, while 31.3 % has not, within the four education groups.

Group 0 and 1 have a lower observed count than expected, and group 2 and 3 have a higher observed count than expected. The biggest difference between observed and expected count is in group 1 (High), where observed count is 41 and expected count is 35. Group 1 (High) has 25.7 % non-responses, which is the lowest percentage of non-responses amongst the groups. Group 3 (Lowest) has 36.6 % non-responses, which is the highest percentage of non-responses amongst the groups.

The Pearson Chi-Square value is 4.832, with a significance level of .184.

This means that the relationship is not significant on a .05 level. However, the bar chart shows a tendency of an increase of non-responses as the education level decreases.

A.2.2.2 The counties' focus in the follow-up on municipalities

The sample, N, is 438, which means that four of the municipalities in the survey are missing. 59.6 % of the municipalities have responded to the questions about the counties' focus in the follow-up on municipalities, while 40.4 % has not, within the four education groups.

Group 0, 1 and 2 have a lower observed count than expected, and group 3 have a higher observed count than expected. The biggest difference between observed and expected count is in group 3 (Lowest), where observed count is 56 and expected count is 45.3. Group 0 (Highest) has 33 % non-responses, which is the lowest percentage of non-responses amongst the groups. Group 3 (Lowest) has 50 % non-responses, which is the highest percentage of non-responses amongst the groups.

The Pearson Chi-Square value is 6.801, with a significance level of .079.

This means that the relationship is not significant on a .05 level.

The bar chart shows a slightly different pattern, than the other bar charts have done. There is an increase in non-responses from group 0 to 1, and from group 2 to 3, but a slightly decrease from group 1 to 2. There is still a tendency of an increase of non-responses as the education level decreases.

A.2.3 The relationship between non-response and the median income in the municipalities

A.2.3.1 The main health challenges

The sample, N, is 438, which means that four of the municipalities in the survey are missing. 68.7 % of the municipalities have responded to the questions about main health challenges, while 31.3 % has not, within the four income groups.

Group 0, 1 and 2 have a lower observed count than expected, and group 3 have a higher observed count than expected. The biggest difference between observed and expected count is in group 3 (Lowest), where observed count is 42 and expected count is 34.4. Group 1 (High) has 27 % non-responses, which is the lowest percentage of non-responses amongst the groups. Group 4 (Smallest) has 38.2 % non-responses, which is the highest percentage of non-responses amongst the groups.

The Pearson Chi-Square value is 3.706, with a significance level of .295. This means that the relationship is not significant on a .05 level. However, the bar chart shows a tendency of an increase of non-responses as the median income decreases. The municipalities with the highest median income, group 0, do not follow this pattern as they have a slightly higher count of non-responses than the large municipalities.

A.2.3.2 The counties' focus in the follow-up on municipalities

The sample, N, is 438, which means that four of the municipalities in the survey are missing. 59.6 % of the municipalities have responded to the

questions about the counties' follow-up on municipalities, while 40.4 % has not, within the four income groups.

Group 0 and 1 have a lower observed count than expected, and group 2 and 3 have a higher observed count than expected. The biggest difference between observed and expected count is in group 3 (Lowest), where observed count is 53 and expected count is 44.5. Group 1 (High) has 34.2 % non-responses, which is the lowest percentage of non-responses amongst the groups. Group 4 (Smallest) has 48.2 % non-responses, which is the highest percentage of non-responses amongst the groups.

The Pearson Chi-Square value is 4.820, with a significance level of .185.

This means that the relationship is not significant on a .05 level. However, the bar chart shows a tendency of an increase of non-responses as the median income decreases. The municipalities with the highest median income, group 0, do not follow this pattern as they have a slightly higher count of non-responses than the large municipalities.

A.3 The counties' focus in the follow up of municipalities, by county

A comparison over the counties' view of their focus in the follow-up of the municipalities and the municipalities *within* the county's view of the counties' focus in their follow-up.

Category	Akershus						
	County			Municipalities			
	Total response alternatives	The counties' focus in the follow-up of the municipalities		Category	Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 14	
	n	%			n	%	
Health behavior	6	1	17 %	Health behavior	56	12	21 %
Living conditions	5	1	20 %	Living conditions	154	32	21 %
Social environment	7	5	71 %	Social environment	70	19	27 %
Physical environment	6	1	17 %	Physical environment	70	21	30 %

Aust-Agder							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 10	
		n	%			n	%
Health behavior	6	6	100 %	Health behavior	40	11	28 %
Living conditions	5	5	100 %	Living conditions	110	10	9 %
Social environment	7	3	43 %	Social environment	50	4	8 %
Physical environment	6	2	33 %	Physical environment	50	9	18 %

Buskerud							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 13	
		n	%			n	%
Health behavior	6	2	33 %	Health behavior	52	26	50 %
Living conditions	5	3	60 %	Living conditions	143	14	10 %
Social environment	7	4	57 %	Social environment	65	11	17 %
Physical environment	6	5	83 %	Physical environment	65	10	15 %

Finnmark							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 5	
		n	%			n	%
Health behavior	6	2	33 %	Health behavior	20	8	40 %
Living conditions	5	2	40 %	Living conditions	55	2	4 %
Social environment	7	5	71 %	Social environment	25	5	20 %
Physical environment	6	2	33 %	Physical environment	25	2	8 %

Hedmark							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 13	
		n	%			n	%
Health behavior	6	2	33 %	Health behavior	52	1	2 %
Living conditions	5	3	60 %	Living conditions	143	5	3 %
Social environment	7	5	71 %	Social environment	65	0	0 %
Physical environment	6	2	33 %	Physical environment	65	5	8 %

Hordaland							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 23	
		n	%			n	%
Health behavior	6	4	67 %	Health behavior	92	19	21 %
Living conditions	5	2	40 %	Living conditions	253	28	11 %
Social environment	7	4	57 %	Social environment	115	23	20 %
Physical environment	6	4	67 %	Physical environment	115	23	20 %

Møre og Romsdal							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 27	
		n	%			n	%
Health behavior	6	5	83 %	Health behavior	108	66	61 %
Living conditions	5	1	20 %	Living conditions	297	35	12 %
Social environment	7	3	43 %	Social environment	135	28	21 %
Physical environment	6	3	50 %	Physical environment	135	33	24 %

Nordland							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 26	
		n	%			n	%
Health behavior	6	6	100 %	Health behavior	104	54	52 %
Living conditions	5	3	60 %	Living conditions	286	44	15 %
Social environment	7	5	71 %	Social environment	130	18	14 %
Physical environment	6	6	100 %	Physical environment	130	16	12 %

Nord-Trøndelag							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 14	
		n	%			n	%
Health behavior	6	5	83 %	Health behavior	56	21	38 %
Living conditions	5	4	80 %	Living conditions	154	33	21 %
Social environment	7	4	57 %	Social environment	70	5	7 %
Physical environment	6	3	50 %	Physical environment	70	9	13 %

Oppland							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 14	
		n	%			n	%
Health behavior	6	5	83 %	Health behavior	56	29	52 %
Living conditions	5	0	0 %	Living conditions	154	32	21 %
Social environment	7	4	57 %	Social environment	70	16	23 %
Physical environment	6	4	67 %	Physical environment	70	18	26 %

Oslo							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 6	
		n	%			n	%
Health behavior	6	2	33 %	Health behavior	24	7	29 %
Living conditions	5	2	40 %	Living conditions	66	12	18 %
Social environment	7	2	29 %	Social environment	30	6	20 %
Physical environment	6	2	33 %	Physical environment	30	6	20 %

Rogaland							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 15	
		n	%			n	%
Health behavior	6	3	50 %	Health behavior	60	16	27 %
Living conditions	5	0	0 %	Living conditions	165	20	12 %
Social environment	7	2	29 %	Social environment	75	7	9 %
Physical environment	6	4	67 %	Physical environment	75	20	27 %

Sogn og Fjordane							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 16	
		n	%			n	%
Health behavior	6	3	50 %	Health behavior	64	31	48 %
Living conditions	5	2	40 %	Living conditions	176	40	23 %
Social environment	7	3	43 %	Social environment	80	23	29 %
Physical environment	6	2	33 %	Physical environment	80	29	36 %

Sør-Trøndelag							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 15	
		n	%			n	%
Health behavior	6	3	50 %	Health behavior	60	15	25 %
Living conditions	5	2	40 %	Living conditions	165	26	16 %
Social environment	7	2	29 %	Social environment	75	14	19 %
Physical environment	6	2	33 %	Physical environment	75	14	19 %

Telemark							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 9	
		n	%			n	%
Health behavior	6	5	83 %	Health behavior	36	15	42 %
Living conditions	5	3	60 %	Living conditions	99	30	30 %
Social environment	7	4	57 %	Social environment	45	17	38 %
Physical environment	6	3	50 %	Physical environment	45	14	31 %

Troms							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 13	
		n	%			n	%
Health behavior	6	3	50 %	Health behavior	52	20	38 %
Living conditions	5	0	0 %	Living conditions	143	11	8 %
Social environment	7	3	43 %	Social environment	65	5	8 %
Physical environment	6	4	67 %	Physical environment	65	11	17 %

Vest-Agder							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 11	
		n	%			n	%
Health behavior	6	4	67 %	Health behavior	44	23	52 %
Living conditions	5	4	80 %	Living conditions	121	24	20 %
Social environment	7	3	43 %	Social environment	55	11	20 %
Physical environment	6	4	67 %	Physical environment	55	14	25 %

Vestfold							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 9	
		n	%			n	%
Health behavior	6	3	50 %	Health behavior	36	12	33 %
Living conditions	5	1	20 %	Living conditions	99	13	13 %
Social environment	7	4	57 %	Social environment	45	9	20 %
Physical environment	6	1	17 %	Physical environment	45	12	27 %

Østfold							
Category	County			Category	Municipalities		
	Total response alternatives	The counties' focus in the follow-up of the municipalities			Total response alternatives times N	The counties' focus in the follow-up of the municipalities, N = 9	
		n	%			n	%
Health behavior	6	1	17 %	Health behavior	36	23	64 %
Living conditions	5	1	20 %	Living conditions	99	16	16 %
Social environment	7	1	14 %	Social environment	45	16	36 %
Physical environment	6	1	17 %	Physical environment	45	21	47 %

Note: The percentage of the total score of each category. The municipalities were also able to check for county governors' focus in the follow-up, but that is not of interest here.