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My health, my responsibility?

A cross-sectional study of the role of socioeconomic status and risk behavior for attitudes towards state intervention in public health in Norway

Master's thesis in Political science
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Trondheim, June 2018

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Sammendrag

En av de største utfordringene hos vestlige velferdsstater er kostnader tilknyttet unngåelig sykdom og død grunnet livsstilsvalg. Tidligere forskning viser at forekomsten av livsstilssykdommer er større hos grupper med lavere sosioøkonomisk status. Dette fenomenet er heller ikke fremmed i Norge – et av verdens mest likhetsorienterte samfunn. Til tross for anerkjennelse av problemet fra forskjellige regjeringers side, samt implementering av forskjellige tiltak, ser problemet ut til å ekspandere. Motstridende teorier hevder å ha løsningen på årsaken til ulikhetene, og hvordan de på best mulig måte kan jevnes ut. Svaret ligger i forholdet mellom statens autoritet og individets autonomi. Det paternalistiske argumentet sier at individets frihet må begrenses på bekostning av samfunnets beste. Libertarianistene argumenterer på den annen side for større grad av individuell frihet. Dette fordi mennesket er rasjonelt og bør anvende selvbestemmelsesretten til å gjøre det beste for samfunnet. Den norske folkehelsepolicyen kjennetegnes av paternalistiske tiltak med aktiv intervensjon i borgernes privatsfære. Likevel er ikke de systematiske ulikhetene i livsstilssykdommer jevnet ut.

Spørsmålet om hvorfor disse ulikhetene eksisterer er hovedsakelig diskutert på makronivå. Denne studien vender seg mot mikronivået og ser på sammenhengen mellom sosioøkonomisk status, livsstilsvalg og holdning til individuelt ansvar for helse i Norge. Hensikten med dette er å finne ut om det er forskjeller i holdninger til statlig intervensjon på tvers av sosioøkonomiske grupper og om det er tilsvarende forskjeller i grupper med ulik livsstil. Dataene er hentet fra en undersøkelse gjort av SINTEF, basert på en jobb gitt av LHL i 2015. Både logistisk og lineær regresjon anvendes for å besvare problemstillingen. Hovedfunnene er at sosioøkonomisk status alene ikke sier noe om holdning til individets versus statens ansvar i helse. Videre sier de at mennesker som utøver risikoatferd, uavhengig av sosioøkonomisk status, er mer negative til statlige folkehelseiltak, og at tiltakene ikke implementeres av målgruppen de er ment for.

Preface

Time flies! This master's thesis symbols the end of my five-year long journey as a student at NTNU. The process of getting here has been both challenging and instructive, and this semester has been a good ending to a good journey.

The study of political science can be a lonely one. Luckily, I have had people around me who have made it less lonely. Even though I have done most of the work myself, I have gotten significant help from a group of people, in which I must use this opportunity to show my gratitude. A special thank you is directed to my supervisor, Pål Martinussen, for good and constructive advice.

The girls who have made life both at reading hall 6388 and outside Dragvoll a little more livable, Tonje and Monique are also granted a large thank you. The hour-long lunch breaks and the hundreds of cappuccinos have been imperative for finishing this last job. My ultimate partner in crime, Tonje, thank you for listening to my complaints, proofreading a million drafts and working out with me.

Lastly, thank you to my family who are always so supportive. Also, Gjermund – thank you for keeping me motivated through the semester and most importantly, making me coffee in the morning.

Åse-Marie Kvarme

Trondheim, June 2018

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1. Introduction

The contemporary western world is a safer place to live than ever before. This is primarily due to public health efforts aiming to reduce health risk. Improvement of drinking water and hygiene in the nineteenth and twentieth century reduced the occurrence of cholera and other diseases. Vaccination programs have led to mass immunization of entire populations and reduced the risk of contagious and deadly diseases. It is safe to say that millions of deaths have been avoided as a result of this. In addition to this, safety measures have reduced health risk whether it is on the way to the workplace, or at the workplace – through wearing a seat belt in the car, or a helmet at work. Laws, education and persuasion about what is good for the health have worked well. A consequence of this, is that the world is a safer place to be – safer from deadly or incurable diseases. In the wake of this positive development, new threats to health occur – morbidity and mortality as a result of lifestyle choices. High blood pressure, tobacco, harmful alcohol consumption, overweight and physical inactivity are the most substantial threats to health in western states (WHO, 2002). States which operate with universal health care systems, such as Norway face new challenges as a cause of this development. Sick people generate costs, and the idea in a health system such as Norway is that everyone is entitled the same access to health services. Sickness as a consequence of risk behavior is classified by some as a sickness of choice because it is avoidable due to lifestyle choices (Vincent, 2009).

Norway is one of the world's most equality oriented societies, which reflects through a universal health care system. However, there is still a connection between "who you are" and health quality (FHI, 2016). There is especially a connection between groups of education. This inequality is a public health problem, seeing that the population's total health potential is not fully utilized in a society where morbidity connected to risk behavior generates more considerable costs than before (Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997). There is also proof that social inequality is expanding, and the variations in health quality are amongst the largest in Europe (Mackenbach et al., 2016). This is a paradox, given the universal ideology the Norwegian society is built upon (Diderichsen, 2016). Improvement of health quality for people with lower socioeconomic status to the level of people which dominate the top of the list will increase life expectancy noticeably. However, the question of how to get there is a political and ethical one.

The Norwegian welfare state is based upon a paternalistic ideology, where the freedom of the individual is somewhat limited to maximize collective benefit. Everyone pays taxes as a

collective investment to universal education, a universal health care system and social security. A goal in the Norwegian public health policy is based upon the same principals. Aiming to reduce "unnecessary" use of the universal goods through encouraging individuals to invest in their health. At the same time, this is a question of individual choice. Therefore, it is harder to make people follow the same mindset when making choices about their health. Bad lifestyle choices are not punishable unless the behavior can endanger others, such as passive smoking or drunk driving. A central question on ethics is therefore brought up in this context – To which degree is it fair for the state to intervene in people's private sphere? This is a central question in political theory, and there are two main arguments in the debate. On one hand, the libertarian argument tells us that citizens are rational and responsible themselves when dealing with lifestyle choices. On the other hand, the paternalistic argument says the opposite – that citizens need to be guided into making the “right” decisions, abandoning individual autonomy so that the state in some cases makes decisions to maximize common welfare(Dworkin, 1972).

Even though the Norwegian health care system builds on a notion that state intervention over individual autonomy is granted to maximize common welfare, there are still questions that need to be answered concerning public health. There exists a vast range of literature on the connection between social inequality and health (Babones, 2008, 2009; Dahl, 2002; Mackenbach, Kunst, Cavelaars, Groenhof, & Geurts, 1997). Because of this, we know that inequality between socio-economic groups and morbidity caused by lifestyle choices is a fact. We also know that these types of diseases will be the most significant burden to bear for the Norwegian health care system in years to come. Because of this, a change in individual's approach to their own lifestyle choices is imperative (Dahl, 2002). Knowing that people with a higher social status generally have better health, it is crucial to lead a public health policy which raises the health of people with lower social standing. How we get there is a political question, but one issue that is yet to be answered emphasizes public opinion. By investigating whether there are differences between socioeconomic groups in attitude towards state intervention, and whether there are differences in opinion between people executing risk behavior we might be one step closer to a clearer picture of how Norwegian public health policy should be shaped in the future. My contribution to this debate will, therefore, provide a clear picture as to whether there are differences in opinions on state interventions between socioeconomic groups and people executing risk behavior. The research question for this study reads:

Are there differences in attitudes towards state intervention in public health within different socioeconomic groups – and does difference in risk behavior contribute to divergent opinions on this matter?

To answer this question, data derived from a survey exhibited by SINTEF, based on a job given by LHL in 2015 is employed. The survey asks questions related to an individual perception of health, and understanding of Norwegian health services and opinions as to how the public health service should prioritize. The central independent variables are three indicators of socioeconomic status and lifestyle-choice. Namely; education, yearly income and current working situation. The indicators of lifestyle-choice are self-perception of health, alcohol consumption, smoking, BMI and physical activity. It is also controlled for age, gender and political party vote last election.

The independent variables are used in four tables. The first one, employs stepwise logistic regression. The dependent variable is a measure of attitude towards the individual's responsibility in taking care of its own health. The second and third table digs deeper into this question, and uses stepwise linear regression to look at four dependent variables which measures different types of state measures in public health, these being; information campaigns, government organization in public health, preventative measures and legislation. Lastly, stepwise linear regression is employed to see the effect of the independent variables on a dependent variable asking whether people with "self-inflicted" illness, should pay higher out of pocket payment. The main findings are that socioeconomic status alone does not indicate something about attitude towards individual responsibility in health. However, people who execute risk behavior tends to be more negative towards state intervention in health. This indicates that the government measures might not be implemented by the intended target group.

The rest of the study is organized as follows: In the first section, I will present the theoretical framework of the study. Subsequently, previous research will be made account of. Chapter four presents the testable hypothesis. Further on, chapter five presents the data and methods, including model specification, estimation technique, validity and reliability, as well as the initial conditions. Chapter six takes on the results of the study, and chapter 7 follows with a discussion of the results in light of theory and previous research. Lastly, chapter 8 concludes, reflects on further research and talks about the strengths and weaknesses of the study.

2. Theoretical framework and previous literature

I will begin by looking at the relationship between socioeconomic status and opinions about state intervention in public health for several reasons. The problem of social inequality and lifestyle-related health issues has been recognized for many years, and several initiatives have been made with the goal to reduce both poor lifestyle choice and inequality. In spite of this, there has not been a success in bridging this gap, and inequality in Norway is increasing (van der Wel, 2016).

Secondly, we know that the government has an extensive responsibility in forming public health policies with the goal to reduce increasing risk behavior, and research tells us that measures such as taxes and laws are the most effective to do that (Anderson, Chisholm, & Fuhr, 2009). At the same time, it is a political goal to make these changes in the population without making people feel robbed of their individual freedom, creating disdain within the population. Therefore, it will be interesting to see if there are diverging opinions between different socioeconomic groups as to what role the state should play in the health of its citizens.

This chapter will map out the competing theories on how the state should act to achieve the goal on reducing life style related disease, and why socioeconomic differences in life style related disease are a fact. Secondly, the current situation on health inequalities in Norway is mapped, in addition to what measures have been made to reduce them and possible explanations as to whether they have worked or not.

2.1 Paternalistic vs. libertarian perspectives in the public health debate

The debate revolving public health questions discusses how to prevent disease, prolonging life and promoting health through the organized efforts of society (Calman, 2009). When talking about public health, the question is whose job it is to ensure that we lead a healthy life. From a political perspective, this means the relationship between the state's authority and the individual. The classic arguments on this subject are the libertarian and the paternalist. The libertarian argument emphasizes a state with limited authority. This will ensure that members of the population can enjoy the "natural" rights of man, such as life, liberty and property rights (Calman, 2009). On the other side of the spectrum, the paternalist argument tells us that collective benefit trumps certain individual rights. This means that overriding individual autonomy is warranted to improve collective welfare (Dworkin, 1972). There are, of course,

many positions between these two ends of the spectrum, each telling us what will be the best solution for the citizens of a state. Bringing the question about public health initiatives into this debate does not make it any less complicated. A state might have a universal health care system based on a paternalistic ideology but might lean on more liberal approaches in public health initiatives linked to lifestyle choices (Vallgarda, 2007). Going over different arguments connected to what the role of the state should be when talking about lifestyle choices, will therefore be useful to fully understand the contemporary debate.

There is broad agreement in the literature that human beings are not rational when making lifestyle choices (Thaler & Sunstein, 2008). However, arguments on how to make citizens more aware of their lifestyle choices are. Calman (2009), presents a case constructed by the Nuffield Council on bioethics, which examines and reports ethical questions in medical research. Considering both sides of the libertarian/paternalistic spectrum, the council concludes that liberal states have a responsibility in looking after the critical needs of people, both individually and collectively. "The stewardship model" is presented, and suggests goals for public health programs to follow. These goals give the state responsibility in looking after the health of its citizens. Guiding or restricting people's choices is therefore justified, as this might be an essential component in reducing health inequalities. However, this argument also says that such programs must not override individual autonomy in every way, coercing individuals to lead healthy lives. The stewardship model is, therefore, described as a leading force in the lives of citizens, recognizing that there are different components in health, such as age, gender, ethnic or socio-economic background. Steering people in the right direction is necessary to eliminate certain health risks (Calman, 2009).

A counter-argument to this, seeking to maximize individual autonomy, is presented by David Buchanan (2008). Buchanan's view is that the growing debate on ethics in public health is steering in the wrong direction. Instead of continually justifying paternalistic approaches, public health should grant full individual autonomy (Buchanan, 2008). Instead of having the state steer citizens in a "just" direction, citizens should themselves have the opportunity to figure out what is just through public discourse. Seeing that public health policy is developed through an understanding of social justice, Buchanan underlines that there are gaping divisions in public perception of justice. Ultimately, bridging this gap through an individual sense of responsibility to society will give a better outcome than paternalistic approaches. People making lifestyle choices according to their understanding of what is social justice is a better alternative than the state making these decisions (Buchanan, 2008).

A third argument, presented by Cass Sunstein and Richard Thaler, is described as a middle ground between paternalism and libertarianism, namely what they call libertarian paternalism. Seemingly this could be the answer to the ongoing debate between individualism and paternalism. Sunstein and Thaler's libertarian paternalism is a suggestion for designing policies that push individuals toward better choices without limiting their liberty (Thaler & Sunstein, 2008). Their hope is that promotion of libertarian paternalism as "a promising foundation for bipartisanship – a way of maintaining our firm commitment to freedom of choice while also helping people make better decisions for themselves" (Sunstein & Thaler, 2008). Thaler and Sunstein's suggestion on how to achieve this is described as a so-called nudge. Nudging is defined by examples which illustrate ways of influencing choice without limiting the choice set or making alternatives appreciably costlier regarding time, trouble, social sanctions and so forth. This is necessary because not all individual decision-making is rational (Thaler & Sunstein, 2008).

This view, however, has been heavily critiqued. Hausman and Welch (2010) claim that libertarian paternalistic nudges are not paternalistic at all, but rather cases of rational persuasion (Hausman, 2010). They also underline what they see as a threat to liberty. Using means such as nudges, whether it is on the part of the government or other agents is exploitation of non-rational factors. This challenge and threatens citizens ability to deliberate on their own, and is therefore seen as a paternalistic approach to the problem which does not preserve freedom of choice, as it claims to do (Hausman, 2010).

2.1.1 Addressing the elephant in the room – lifestyle choice

The big picture is depicted, both on why social inequalities in health exist, how they work and what the different arguments to what the relationship between the state's authority and the individual should look like. However, one more question remains. Both paternalism and libertarianism provide arguments on how citizens can be steered by the state to lead a healthier life. In spite of this, many people still choose to make the "wrong" decisions. As a consequence of this, a previously unthinkable question in any welfare state has arisen; should patients with illness as a consequence of lifestyle choice receive lower priority in access to healthcare resources?

Rising costs in the distribution of scarce health care resources have taken the debate on paternalism vs. libertarianism one step further. Should the state have the authority to choose

for individuals to minimize costs, or should individuals enjoy maximum freedom, but meet sanctions if lifestyle-related disease occurs? This debate began in earnest during 1991 with the publication of opposing papers by Moss and Siegler, and Cohen and Benjamin, in the *Journal of the American Medical Association* (Sharkey & Gillam, 2010). Moss and Siegler's argument was that patients with alcohol-related liver disease should have lower priority in access to liver transplantation, while Cohen and Benjamin opposed. The debate has continued to grow over the years, but it remains unsolved. The medical argument, such as Moss and Siegler's is concerned with the efficient use of resources by maximizing benefits gained from medical treatments. This argument asserts patients with self-inflicted illness should have lower priority in access to health care because they are more likely to experience poor therapeutic outcome (Sharkey & Gillam, 2010). However there has been no evidence to prove this argument, and is not considered as a viable alternative (Blesovsky, 1993).

Another highly debated theme within this subject is the policy argument. These are concerned with the broad social effects of resource allocation decisions involving patients with self-caused illness (Sharkey & Gillam, 2010). This involves the behavior change argument and the public support argument. The "behavior change" argument claims that the threat of lower priority will generally encourage healthy behavior. If patients with lung cancer developed by smoking receive lower priority, or ultimately, have to pay for their treatment, it is expected that this creates an incentive to give up smoking (Sharkey & Gillam, 2010). Others even argue that a policy of equal access would cause irresponsible health behavior.

The movement called luck-egalitarianism presents another argument. This argument says that considerations of responsibility can excuse departures from strict equality. Rakowski (1991), argues that if someone is responsible for their deprivation, then they, and not others, should suffer the burdens associated with that deprivation (Rakowski, 1991). This view is libertarian but distinguishes between what is described as "brute" luck (misfortunes in genetic makeup or being struck by lightning), and option luck which is misfortunate outcomes as a consequence of conscious decisions (Vincent, 2009). Intuitively it seems right that a gambler who gambles away all of their money, and is now living in squalor, should have less entitlement to claim benefits to remedy their poverty than someone who was born into poverty. This because, the gambler is presumably more responsible for their deprivation than the person who was born into it (Vincent, 2009).

2.2 Why are health inequalities in modern welfare states so stubborn? Possible explanations of the paradox

Socioeconomic inequalities in health and mortality are vast, robust and well documented (Phelan & Link, 2013). Instinctively, one would assume that societies with greater welfare regimes would eliminate these inequalities because of the universal access to health care. Mackenbach (1997), however, finds that socioeconomic differences in health also exist in societies where economic prosperity and human development is high (Mackenbach et al., 1997). A short introduction to the debate on why this is the case, will be necessary to understand the Norwegian situation and move forward in formulating the hypotheses.

Many theoretical explanations exist as to why this is still very real in western societies. The term "social capital" includes one of the leading arguments as to why health inequalities exist. This term, however, was not originally formulated to explain disparities in health. It contains many definitions but is described as resources available to actors with access through participation in social networking (Sund, 2009). The term has been exported over to public health discourse in recent years. Rogers (1992), presented his diffusion of innovations theory in 1992, which is supported by a lot of evidence (Mackenbach, 2012). This theory states that increasing inequalities in health outcomes is a result of a faster improvement in health in higher socio-economic groups. This is explained by a quicker adaption of new behaviors and earlier uptake of new interventions in higher socio-economic groups (Rogers, 1992). Victora et, al. (2000), supports this claim in a study of Brazilian child health. Looking at the adaptation of public health programs for improving child health, he finds that the initiatives are more available and being utilized by those families who need it the least (Victora, Vaughan, Barros, Silva, & Tomasi, 2000). Mackenbach's (2012) only critique of this theory is that it does not identify the specific pathways linking socioeconomic position and adoption of behaviors or uptake of new interventions (Mackenbach, 2012).

Link and Phelan (1995) however, explains this phenomenon as a consequence of fundamental causes. According to them, the socioeconomic position involves access to resources which can be used to avoid disease risks or to minimize the result of a disease once it occurs, regardless of what the current profile of diseases and known risks happen to be (Phelan & Link, 1995). This view is critiqued because it reformulates the problem of the phenomenon, but does not identify the specific pathways linking socioeconomic position and health (Mackenbach, 2012). Wadsworth (1997) gives another explanation through the life course explanation theory, saying that health at adult ages can be determined by exposure to both

biological and social factors at the start of life. This can explain that the roots of health inequalities may lie in disparities experienced in the womb during childhood and adolescence (Wadsworth, 1997). The assumption is therefore that generations exposed to more extensive welfare arrangements at a young age will be healthier as they grow older. Testing this theory, Bambra, Netuveli, and Eikemo (2010) did not find any evidence that inequalities are smaller in generations where they have grown up during a broader welfare regime (Bambra, Netuveli, & Eikemo, 2010).

Now that we are familiar with some of the most central theories and previous literature as to what the causes of this phenomenon are, we can move forward to looking at the Norwegian case and the paradoxical challenges that are faced in the quest of bettering its citizen's health through public health measures.

2.3 What works? Effectiveness in government measures aimed to reduce risk behavior

The government can implement a number of preventative measures, aiming to reduce risk behavior, and previous studies find that some are more effective than others. Jochelson (2006) enlightens the public health debate in England, regarding questions of smoke legislation, alcohol legislation branding of groceries and junk food commercials. By looking at international research on alcohol consumption, smoking and traffic security, the findings implicate that taxation, commercial and regulations prohibiting certain behaviors creates a “public health frame work”, which can affect individual behavior in a healthier direction (Jochelson, 2006).

Anderson et. al. (2009), looks at the effectiveness of government measures aiming to reduce harmful alcohol consumption. This study finds that measures such as state monopoly on alcohol and limited sales hours reduces mortality related to alcohol consume. Milder measures, such as information campaigns does not seem to have a significant effect on behavioral change related to alcohol. Wakefield, Loken & Hornkik (2010), however, finds that mass media campaigns can produce positive changes, or prevent negative changes, in health-related behaviors across large populations. They asses what contributes to those outcomes, and concurrent availability of required services and products, availability of community based programmes, and policies that support behavioral change has to be present (Wakefield, Loken, & Hornik, 2010). Thus, this does not prove an efficiency in information

campaigns alone. Tan & Glantz (2012) finds a lower risk of smoking related illness in their investigation of effects of the smoke free legislation on hospitalization for smoke-related illnesses. Their conclusion, is that legislation has had a positive effect on smoking habits within the population, leading to less chronic disease as a consequence of smoking.

These differences of efficiency in government measures related to public health shows that many factors can contribute in eliminating risk behavior amongst the population. The most effective one, seems to be legislation. Now that we know what measures work, the public health efforts made in Norway will be mapped out, to get a clear picture of the current situation.

3. Ideology and public health challenges in Norway

This chapter shortly introduces the Norwegian public health ideology, and aspects the current situation and measures made to reduce both inequalities in health, and hindering risk behavior. This will help place the Norwegian case into the debate on how to solve the problem of social inequality in health.

3.1 Norwegian ideology in public health

The development of health policy is built on political principals. The most specific dimension in the political context are the institutions developed through history, to make political decisions (Blank & Burau, 2014). This includes not only the formal institutions, known as the legislative, executive and the judicial, but also bureaus, comities, and commissions specialized in health. Even though no political systems are similar, many share characteristics. These similarities have led to the development of different typologies or models based on ideology (Blank & Burau, 2014). Public health politics is a reflection of what typology a health system is classified as.

A short description of the Norwegian ideology is needed to understand the public health measures that have been made recent years, and also to place the Norwegian perspective in the debate between paternalism and libertarianism in public health. Vallgård (2007), describes the Norwegian public health ideology as social democratic (Vallgård, 2007). This ideology serves the thought that the state has a central part in promoting values within the population. Individuals are seen as dependent of each other, i.e. members of a society, rather than autonomous. This is reflected in the Norwegian public health politics because interventions in the private sphere of citizens are common. The individual is robbed of a certain amount of freedom, because of the state's role in public health (Vallgård, 2007). Knowing this, we see that Norwegian public health ideology fits the paternalistic spectrum of the theoretical debate.

3.2 Contemporary challenges and measures

Even though social inequality in health had been recognized as a problem for many years, Norway used to be slow in recognizing health inequality as a social problem in need of political solutions (Van der Wel, 2016). This changed drastically after the shocking revelation

through the now famous article by Mackenbach et al. (1997). The disclosure was that inequalities in health were just as visible in Norway as in the rest of the European countries. As a consequence of this, Norwegian policy caught up to speed (Giærvær, 2009) and adopted a social gradient approach in its national strategy to reduce social inequality in health in 2007 (Regjeringen, 2007). This social gradient approach recognizes that health inequality is not a dichotomy between the haves and have-nots, but a feature of society running across the entire socioeconomic structure (van der Wel, Dahl & Bergsli, 2016). Including an explicit focus on this gradient, other essential characteristics of the strategy was a holistic broad cross-sectoral approach, as well as the principle of proportional universalism – meaning population covering policies in combination with more targeted measures (Van der Wel, Dahl & Bergsli, 2016). These measures included actions on the social determinants of health, such as income structure, employment opportunities and affordable childcare (Van der Wel, Dahl & Bergsli, 2016).

The strategy was a success in many ways but was not able to even out the social inequalities in health. According to Van der Wel, et. Al, stubborn disparities can be named as one of the reasons for this. Despite Norway's "passion for equality", the distribution of many goods and evils are uneven in favor of the better off (Van der Wel, 2016). Næss (2007), finds a clear connection between health inequality and socioeconomic status in Norway, and his conclusion is definite: The higher you climb the socio-economic ladder, the longer you live (Næss, 2007). A new public health act was presented in 2012. This was meant as a stronger contribution to a development in society aiming to promote public health, and removing social differences in health. Giving municipalities a bigger responsibility in public health work, it was expected to monitor social inequalities in health, its primary social determinants and to take coordinated action across sectors and administrative levels (Helsedirektoratet, 2017).

Even though efforts have been made in reducing differences in health between socioeconomic groups, the situation is still not where the goals have been set. Living conditions vary, and poverty rates, in relative terms, have increased over the past decade to reach the average level of the entire Norwegian population, i.e., 8 percent (Dahl, 2014). Habits such as smoking, diet, and physical activity still have a clear connection to education and income levels (FHI, 2016). Smoking habits, which is one of the most significant health risks in Norway illustrates this. A study from 2015, finds that only 6 percent of 25-74-year-old men with university education smokes, while the group with secondary education shows a number of 27 percent. The

differences are just as significant for women, where every fourth woman with less education smokes, as opposed to 7 percent of women with a higher level of education (FHI, 2016).

These studies show that within the Norwegian welfare state, where equality is a central component, there are still many challenges as to how inequality in health is eliminated. The debate on why there are inequalities in health is accounted for. Insight to how the state can operate to remove them is also presented, in addition to clearing out what the situation in Norway looks like. This provides the tools necessary to formulate the hypotheses.

4. Hypotheses

This chapter deduces the hypothesis which builds the foundation for the analysis. Taking the basis of the theory and previous literature I will explain how the different explanatory factors might affect public opinion about state responsibility in preserving the health of its citizens. Previous research finds that there is a clear connection between socioeconomic status and health. Building on the diffusion of innovations theory, Victora (2000) finds that people who are placed higher on the socio-economic ladder adapt public health policy faster than people who are further down the ladder. Even though highly developed welfare states such as Norway emphasizes a paternalistic approach to eliminate this problem it has not succeeded. Could it be that even with these measures, such as taxes on sugar, alcohol and tobacco, information campaigns and strict sanctions if any of the laws developed are broken, it is serving its purpose within the groups of society which need it the least? And could this be a consequence of a hostile attitude towards state intervention on an individual level? Based on this assumption the leading hypothesis is formulated:

H1: *People from lower socioeconomic groups are more favorable to individual responsibility in taking care of their own health.*

Previous research also shows that people who find themselves lower on the socioeconomic ladder show larger tendencies to execute risk behavior. The next hypothesis emphasizes the second part of the research question, asking whether differences in risk behavior also leads to diverging opinions towards the responsibility of the individual preserving health. This hypothesis therefore formulates:

H2: *People who execute risk behavior are more favorable to individual responsibility in taking care of their own health.*

Another important subject, connected to the relationship between the state's authority and the individual and inequality in health is the question of consequences of lifestyle choice. Moving on, another hypothesis connected to the theories of lifestyle choice is presented. Knowing from previous research that there is a clear connection between socioeconomic status and lifestyle-related illness (Mackenbach et al., 1997; Næss, 2007; Dahl, 2014) a hypothesis based on the debate about lower resource priority for people who are sick as a consequence of risk behavior is formulated. This is to see if there is a shift in opinion between the socioeconomic groups or people executing risk behavior when presented with this suggestion. Based on the assumption that a change of opinion will occur, the following hypothesis is formulated:

H3: *People from lower socio-economic groups are more negative towards higher out of pocket payment for “self-inflicted” illness.*

H4: *People who execute risk behavior are more negative towards higher out of pocket payment for “self-inflicted” illness.*

5. Data and methods

The data is derived from a survey performed by SINTEF based on a job given by LHL, the Norwegian organization for people with heart, - coronary and lung disease. The survey asks questions related to an individual perception of health, an understanding of Norwegian health services and opinions as to how the public health service should prioritize, and was delivered to a representative panel of 7500 people (LHL, 2015). The gross selection was a random sample from the population, where people over the age of 40 is over-represented. The purpose of this was to secure a broad variety of people who use the public health service, and a selection of people within the different disease groups (LHL, 2015). 2688 people responded to the survey, giving a responding percent of 36,7, which shows a low response rate. Past decades, the response percentage of such studies have decreased in the Western world (Groves, 2006). It is still unclear whether lower response rates lead to skewed selections and lower representability (Singer, 2006). To evaluate the quality of the data, representability and panel size is taken into account. Because of the current trend of lower response rates, we can conclude that the response rate of this study shows a good number (LHL, 2015).

5.1 Dependent variables

To test my main hypothesis, I use the dependent variable, *“To what extent do you think you are responsible for taking care of your health?”*. This variable derives from the theoretical explanations of the relationship between the states authority and the individual as presented in the previous chapter. The categories originally span from 1-5, where 1 answers "not at all," and 5 answers "very much so." After checking the normal distribution of the variable, we detect a problem of substantial skewness to the right. An attempt to log transform the variable was made, thus without a successful result. As a consequence of this, the dependent variable is changed to a dummy variable where category 0 states "not so much" and 1 states "very much so." Using this particular dependent variable provides a unique opportunity because it measures a question that is heavily debated on a theoretical macro-level. However, there is no indication as to what opinion looks like on the individual level. Therefore, analyzing this with the newest data will give further insight as to what could be a factor in the problem of public health measures fail in success to eliminating social inequality in health.

In addition to this, I will employ other dependent variables, to extend the analysis. This question asks to what extent the recipients think the government should run information

campaigns on healthy lifestyle choices, organize so that people could lead a healthier lifestyle, run preventative measures within public health services and whether the government should have the opportunity to pass laws which could influence the health of its citizens. Presenting these questions in a second model gives the chance to see whether there are differences in attitude towards state intervention, depending on the degree of interference in individual choices. All of these variables have categories from 1-5, where 1 states "not at all," and 5 states "very much so."

Lastly, a presentation of the third model from the extension of the debate on paternalism and liberalism in health exhibits. Based on the question of whether people with lifestyle-related diseases should receive a lower resource priority, the third dependent variable is presented. This variable is categorized from one to five, where 1 states "completely disagree" and 5 states "completely agree". This is based on the theoretical debate presented on lifestyle choice and priority in public health care, and it will be interesting to see if there is a shift in opinion amongst different groups when introduced to this question.

5.2 Independent variables

The socioeconomic indicators

The main independent variable in this analysis will be three indicators of socioeconomic status. These variables, being education, yearly income and current working situation all indicate something about the recipients socioeconomic standing. Previous research proves that there is a clear connection between socioeconomic factors and health in Norway.

Knowing that Norwegian public health policy has been aiming to reduce these inequalities but has not succeeded, it is therefore interesting to see if socioeconomic factors affect attitude towards state intervention in the individual sphere.

Phelan and Link (2013) argues that there is a strong connection between health and resources, finding that the stronger resources people have, the better their health is. The consequence of having fewer resources is adapted to lifestyle-related disease as well. (Phelan & Link, 2013). Victora et, al. (2000), builds on the theory of Rogers (1992), and finds that people with better resources adopts public health measures easier than people with less resources. Education is an essential factor to climb the socio-economic ladder, and it is well-documented that the higher education has a connection to better health (Dahl, 2014). The same is found with income levels, and working situation (Dahl, 2014), showing that stronger resources and a

more stable working condition seem to have a positive impact on lifestyle-related disease (Helsedirektoratet, 2016).

The choice of these independent variables is therefore based on the assumption that there is a connection between attitude to self-preservation in health, and state responsibility in the individual sphere. The term “socioeconomic status” is therefore operationalized through number of years educated, household income and whether or not the recipient is currently working. The first variable is education, measuring the highest degree of education of the recipients. This variable contains five categories, where 1 measures the least years of education and 5 the highest. The second one asks the question about what the households collected income was in 2012. This variable originally spans from 1-9, but the two categories “don’t know”, and “don’t want to answer” were removed as missing values. In addition to this, it has been interpolated and measures income in thousands. It has also been logged in order to avoid skewness. Category 1 measures the lowest income rate, while category 7 measures the highest. The third variable, is a question divided over two categories on a nominal level, asking whether the recipient is currently working or not. This is a dummy variable, distributed as 0 and 1, where 0 is “no” and 1 is “yes”.

Evaluation of own health and lifestyle choice

The following variables all say something about the health and lifestyle choice of the recipients. The first, ask to which degree the recipients evaluate the quality of their health. This variable initially spans from one to five, where one states "very bad" and five states "very good." It has been recoded to a dummy variable and is used in the models with category 1 states "good" and category 0 states "bad."

When expanding model 1, the variable measuring own health is replaced with a series of variables concerning lifestyle choice. Health behavior such as smoking, physical inactivity, and diet is shown to have a connection with economic and social factors (Østhus et al., 2016; Helsedirektoratet, 2017; Breivik & Rafoss, 2017; Dahl, 2014). To view variables indicating what kind of lifestyle habits the recipients have will, therefore, be interesting, knowing that lifestyle choice and socio-economic factors are closely related. A cronbachs alpha, reliability test has been performed to see if these variables concerning lifestyle choice were suitable in an index. The rule of thumb is that the number has to be at least 0.6 to create a scale (Tjønndal, 2018). With a number of 0.2, they were not. Therefore, they are presented

individually in the model. This gives the opportunity to see which of these variables possibly explains the most of the four on the dependent variable.

Alcohol consumption

The first variable is a dummy, measuring alcohol consumption, where 1 states "often" and 0 states "not often." Excessive alcohol consumption is one of the leading causes of early mortality and morbidity in Norway (Østhus, Mäkelä, Norström, & Rossow, 2016). However, previous research shows that alcohol consumption seems to increase with higher socioeconomic status, but the negative consequence connected to alcohol have been smaller in groups with high socio-economic status, despite a higher level of consumption (Østhus et al., 2016).

BMI

The second variable concerning lifestyle choice measures the body mass index (BMI) of the recipients. The variable is an index calculated from the height and weight of the recipients and calculates through the formula $BMI = (Weight / (Height * Height))$. BMI is used as an indicator of lifestyle choice, both when talking about diet and physical activity, and is divided into categories which indicate to which degree the recipient is obese or not. It is important to mention that using BMI as a measure of obesity has various deficiencies. Rothman (2008), underlines the problems with validity when the test counts on self-reported height and weight, illuminating the chance of wrongful measures. Also, the relation between BMI and percentage of body fat is not linear and differs between men and women (Rothman, 2008). It is essential to be aware of this when using BMI as an indicator of lifestyle choice.

Smoking

The third variable ("Smoker"), measures whether the recipients smoke or not. There is a clear connection between socio-economic status and smoking habits (Hiscock, Bauld, Arnos, Fidler, & Marcus, 2012), and it is, therefore, interesting to see what the attitude toward state responsibility in health are amongst the people who smoke, versus the people who do not.

Physical activity

The fourth variable saying something about lifestyle choice is whether the recipients are frequently physically active or not. Previous research finds that there is a connection between

physical activity and socio-economic status, where people who find themselves higher on the latter seem to be more active (Breivik & Rafoss, 2017).

5.2.1 Control variables

Gender

The first one being gender, which gives insight as to whether there is a difference between men and women when asked the question on state responsibility in preserving the health of its citizens. The literature tells us that both men and women with a lower socio-economic status make poorer lifestyle choices (FHI, 2017), but we do not know whether there are differences in attitude towards state intervention in the individual sphere by gender. The variable is reconstructed to a dummy variable where category 0 is male and 1 female.

Age

The second control variable, measures the age of the recipients through the year of birth, starting from 1939-1998. By employing this variable, we get insight into whether age influences attitude towards state responsibility in preserving the health of the individual. The categories have been changed in direction, to measure from young to old, and has also changed from birth year to age (16-75).

Party voted the last election

The third control variable shows the political standing point of the recipients, through which political party they voted for the previous election. Originally this variable contained 9 categories. Two of these are removed as missing values, and the remaining categories are recoded into a dummy variable with the Norwegian labor party (AP) as the reference category. This variable is a dummy set in the third model of all the tables, checking for the effect on each party, also using AP as the referenced party. Knowing that the left-oriented ideology favors paternalism and an active state, versus a more liberal-oriented right, advocating a higher level of individual freedom and responsibility it is reasonable to assume that the further to the right the recipients voted, the more negative they are to the state taking responsibility for their health. The Norwegian Labour party associates with a stable welfare state, and it is, therefore, natural to use this as the reference category.

5.3 Methods and Estimation technique

In order to measure the effect of public opinion on state responsibility in preserving the health of its citizen I will employ quantitative method, which gives the opportunity to examine a broader selection, and generalize the findings to the population (Mehmetoglu & Jakobsen, 2017). For the main dependent variable, logistic regression will be employed. The following tables contain the OLS-method. It is also important to mention that using these methods does not give us the privilege of talking about causality, mainly because this study employs cross sectional data. Also, there might be many other factors explaining this particular problem, and therefore there can only be made assumptions about associations when the results are analyzed.

5.4 Methodological evaluation

In order to make the analysis as correct and believable as possible, it is important to be aware of the challenges and limitations of a quantitative study. The most prominent ones will be presented in this chapter.

5.4.1 Reliability and validity

Reliability tells us if repeated measurements with the same measuring instrument provides the same result. Validity explains if we are actually measuring what we want to measure (Ringdal, 2013). These terms are connected, and high reliability is a condition to high validity. The reliability of the data is affected by random errors of measurement, which will always exist in a survey (Ringdal, 2013). The most common examples of such errors occur if the recipients report the wrong answer. Another issue connected to the reliability of the result can be connected to the researcher, because errors can occur through wrongful registration of data. Since this analysis employs registered data handled by LHL and Sintef, we are able to avoid problems which occur through individual reporting. However, writing and registration errors can always be present. We can only assume that they are reliable because they are derived from a well-known data distributor.

The validity of the analysis divides into two categories, namely internal and external (Skog, 2015). The internal validity deals with the question of whether the right causal conclusions

are made. The external validity deals with the question of whether the findings can be generalized in the population (Skog, 2015). Whether the findings of this particular analysis can be widespread in the population will show in the models presented later on, through the measurements of statistical significance. The study uses a panel of 2688 respondents, which is a good number in these kinds of surveys (LHL, 2015). The size of respondents tells us that the panel is large enough to generalize possible findings in the analysis.

5.4.2 Methodological conditions in the models

To ensure that the models presented are as robust as possible, the most prominent conditions for both logistic regression and OLS have been tested. The conditions taken into account stems from Skog (2015). The models presented in table 1 contains a stepwise logistic regression analysis, with the variables, explained in the previous chapter. For logistic regression, the first condition is that the connection between the variables are S-shaped, and is with the logistic function, which means a straight line on the logit scale. The Hosmer-Lemeshow goodness-of-fit test tells us that the models are well specified, and are S-shaped. The variables can be described with the logistic function, meaning a straight line on the logit-scale (Skog, 2015). Secondly, each observation has to be independent of each other, but no stipulations can be connected to the residuals. Given that the selection from the LHL dataset is based on likelihood, the models will gratify this. Lastly, the third condition is that the correlation between the independent and the dependent variable is not spurious (Skog, 2015). However, the possibility of excluding essential X-variables is always present. It is also necessary that the analysis only includes variables which are central to this function. All the variables involved, are, therefore, backed by theory or previous research to ensure this.

For the models using OLS, three conditions matter. These are also presented by Skog (2015). Firstly, the connection between the variables has to be linear. Both the linktest and the Ramsey-Reset robustness test tells us that the models are correctly specified, and gratifies the first condition. Secondly, the requirement is that the residuals are homoscedastic, normally distributed and independent from each other. The tests show that all of the OLS-models contain problems of heteroscedasticity and normal distribution. However, heteroscedasticity commonly occurs with a large panel, and is not necessarily a problem, because a larger panel minimizes the statistical margin of error (Skog, 2015). Because of this, the original dependent variable is utilized in the models. Moreover, it is a condition to see if the residuals are

normally distributed, which we are aware is a problem. However, this is not a serious problem with regards that skewed residuals are expected when the panel is this large (Midtbø, 2012; Skog, 2015).

The third and last condition is whether the relationship between the dependent and the independent variable is spurious, meaning that the residuals in the model have to be uncorrelated. The residual shows that all causal factors which are not specified in the model. To solve this problem, adding variables based on theoretical assumptions that they could have a positive effect on the dependent variable could be a solution, but the question of missing x-variables is also always present in OLS-models.

It has also been tested for curve linear connections in all the models because control variables such as age and education are used. These variables do not necessarily have a straight line. Adding a polynomial in the model will show possible curve linear connections. It is tested for both age and education, but none had a significant effect in any of the models.

5.4.4 Multicollinearity

It is controlled for multicollinearity in addition to the conditions as presented by Skog. Ringdal & Wiborg (2017), classifies the condition of multicollinearity as a non-perfect correlation between the x-variables. Correlation tests can tell us something about the strength and the direction of a bivariate connection. If the effect of a variable is not significant because it is strongly correlated with another variable, there is multicollinearity in the model. A high correlation between explanatory variables can provide unstable coefficients and equally high p-value. This causes difficulties in proving which variables explain what, and it is, therefore, crucial that no explanatory variables are 100 percent linear combinations of each other. The less the explanatory variables correlate with each other, the better.

A VIF-test is executed to examine whether there is a problem with multicollinearity in the models. A rule of thumb is that if VIF is higher than 10, this constitutes a problem (Ringdal & Wiborg, 2017). After having executed the test in both the logistic and the linear models, there seems to be no problem with multicollinearity¹. This ensures that the coefficients and p-values are not unstable as a consequence of high correlation between the explanatory variables.

¹ For VIF results, see appendix.

6. Results

This section describes the results of the three variables operationalized as socioeconomic status, the life style indicators, as well as four to five control variables on attitude towards individual responsibility in taking care of one's health. Also, different measures concerning state authority in the private sphere describe through different dependent variables. Table 1 illustrates this through 3 models where model 1 contains four control variables. In model 2, the variable where the recipients evaluate their health is replaced with indicators of lifestyle choice, and in model 3, the party vote last election variable is transformed into a dummy set.

6.1 Results in table 1

The first table contains a logistic regression of the effect of socioeconomic status on attitude toward individual responsibility in the preservation of own health, and significant odds will be calculated as a percentage to make the interpretation more comprehensible. The formula, $((OR-1)*100)$, calculates this, and can be observed in the following table:

Table 1: Logistic regression "Socioeconomic status" on individual responsibility in preserving own health

Dep var: Own resp in taking	OR	95% CI	OR	95% CI	OR	95% CI
Education	0.888*	0.77-1.02	0.908	0.79-1.04	0.904	0.78-1.04
Log year income	1.868***	1.48-2.36	1.963***	1.56-2.46	1.897***	1.51-2.39
Working situation	1.261	0.93-1.70	0.196*	0.95-1.73	1.308*	0.97-1.77
Gender ^(Ref=Female)	1.382***	1.09-1.76	1.478***	1.16-1.88	1.453***	1.14-1.85
Age	0.973***	0.96-0.98	0.969***	0.95-0.97	0.969***	0.96-0.98
Party vote last	0.914	0.71-1.17	0.919	0.71-1.18		
Consideration of own	3.113***	2.19-4.42				
Alcohol			1.228	0.95-1.16	1.176	0.91-1.52
BMI			0.890	0.77-1.02	0.886*	0.77-1.02
Smoke ^(Ref=Yes)			0.798	0.58-1.10	0.778	0.56-1.07
Physical activity ^(Ref=Often)			1.428***	1.10-1.85	1.436***	1.11-1.86
Party vote last election						
Høyre					1.268	0.94-1.72
FRP					0.985	0.68-1.43
KRF					0.788	0.49-1.27
SP					0.889	0.49-1.59
Venstre					1.235	0.70-2.16
SV					1.034	0.59-1.80
Constant	0.194**	0.143**	0.221**	0.170**	0.257*	0.203*
Log likelihood	-835.95331		-860-15923		-857.70466	
Observations	1670	1670	1708	1708	1708	1708

***p<0.01, **p<0,05, *p<0.1

The first observation from model 1 is that groups with higher education showed higher odds of 11.2 % for being in the group which is negative to high individual responsibility in health preservation and is significant on the 10%-level. The next observation is that people with higher income show higher odds of 86.6% for being in the group which is favorable to self-preservation of own health. This is significant on the 1%-level which indicates a solid chance that this is the case. The variable measuring whether the recipients are working or not, however, is not significant, and we can, therefore, see that out of the three variables operationalized as socio-economic status, yearly income seems to have the highest level of explanatory power in model 1.

Moving on to the control variables, we see that female recipient have higher odds of being in the group which is favorable to individual responsibility in health care. This is significant on the 1%-level. We can also see from the age variable that older people show higher odds of being in the group which is negative to individual responsibility in health. This is also significant on the 1%-level. The last variable showing significant results is the one measuring the recipient consideration of their health. This shows that people within the category of "good" health have higher odds to be in the group which is favorable to a high level of individual responsibility in health.

When adding the indicators of lifestyle-choice in model 2, we observe that the log likelihood decreases which means that the model improves by adding the variables. We see that adding these variables also makes changes in the rest of the model, removing significance from the education variable, but adding significance to working situation on the 10%-level. Amongst the variables concerning lifestyle-choice, we see that the group of people who are often physically active have odds of 42, 8% to be more favorable to individual responsibility in health.

Replacing the dummy set of party vote the last election with the dummy variable in model 1 and 2 increases the log likelihood of model 3, which indicates that the model is not improved by adding the dummy set. Also, we observe that none of the party variables show significant odds. An F-test was also run to see if the dummy set had any significance as a whole on the model, but this was not the case. BMI, however, shows significance on the 10%-level.

Interpreting the findings in table 1 gives assurance that one of the indicators on socio-economic status, namely year income shows significant odds in all the models on the 1%-level.

6.1 Results in table 2 and 3

Table 1 shows that some of the indicators on socio-economic status affects attitude towards government responsibility, however, all three does not show significant odds in either of the models. Moving on to the question concerning attitudes towards the different approaches the state might use to prevent risk behavior, two tables containing linear regression is presented. The following table uses four different measures that the state might make use of to obstruct risk behavior. This gives a unique opportunity to investigate if there are differences in opinion when asked about different “types” of state measures. The following tables, 2 and 3 will, therefore, consist of four dependent variables, and contain 12 models with the same control variables as in table 1. The results of this analysis are observed in the following tables:

Table 2: OLS-regression of socioeconomic status on information campaigns and government organizing measures

Dep.var: 1-3 Information campaigns 4-6: Organize health	Inf. cam (1)	Inf.cam (2)	Inf.cam (3)	Org.health (4)	Org.health (5)	Org.health (6)
Education	-0.056** (0.03)	-0.041 (0.03)	-0.037 (0.03)	0.059** (0.03)	0.055** (0.03)	0.057** (0.03)
Log year income	0.0139 (0.04)	-0.004 (0.04)	-0.008 (0.04)	0.039 (0.04)	0.036 (0.04)	0.046 (0.04)
Working situation	0.192*** (0.06)	0.235*** (0.06)	0.239*** (0.06)	0.021 (0.06)	0.066 (0.06)	0.069 (0.06)
Gender ^(Ref=Female)	0.071 (0.05)	0.079* (0.05)	0.083* (0.05)	0.131*** (0.04)	0.145*** (0.04)	0.152*** (0.04)
Age	0.005*** (0.00)	0.006*** (0.00)	0.006*** (0.00)	-0.009*** (0.00)	-0.010*** (0.00)	-0.010*** (0.00)
Party vote last election ^(Ref=AP)	0.040 (0.05)	0.052 (0.05)		0.071 (0.05)	0.076* (0.05)	
Consideration of own	0.174*** (0.05)			0.208*** (0.05)		
Alcohol consumption ^(Ref=Often)		-0.029 (0.05)	-0.029 (0.05)		0.002 (0.05)	-0.011 (0.05)
BMI		-0.041 (0.03)	-0.041 (0.03)		-0.014 (0.03)	-0.017 (0.03)
Smoke ^(Ref=yes)		-0.133** (0.06)	-0.139** (0.06)		-0.116* (0.06)	-0.122** (0.06)
Physical activity ^(Ref= often)		0.067 (0.05)	0.061 (0.05)		0.214*** (0.05)	0.215*** (0.05)
Party vote last election ^(Ref=AP)						
Høyre			-0.020 (0.05)			-0.097* (0.05)
FRP			-0.051 (0.07)			0.026 (0.07)
KRF			-0.033 (0.09)			-0.169* (0.09)
SP			-0.124 (0.11)			-0.056 (0.11)
Venstre			-0.228** (0.09)			-0.118 (0.09)
SV			-0.010 (0.10)			0.088 (0.10)
Constant	3.225*** (0.28)	3.382*** (0.29)	3.442*** (0.29)	3.830*** (0.26)	3.817*** (0.28)	3.822*** (0.28)
Observations	1660	1690	1690	1660	1700	1700
R-squared	0.021	0.021	0.024	0.060	0.066	0.069

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: OLS-regression socioeconomic status on preventative measures and legislation

Dep var: 7-9=Preventative measures 10-12=Legislation	Prev.m (7)	Prev.m (8)	Prev.m (9)	Legislat (10)	Legislat (11)	Legislat (12)
Education	0,009 (0.02)	0,024 (0.02)	0,019 (0.03)	-0,051 (0.03)	-0.066** (0.03)	-0.081** (0.03)
Year income	-0,012 (0.04)	-0,003 (0.04)	0,001 (0.04)	-0,041 (0.05)	-0.039 (0.05)	-0.028 (0.05)
Working situation	0.099* (0.05)	0.135** (0.05)	0.137** (0.05)	-0,01 (0.07)	0,06 (0.07)	0,06 (0.07)
Gender ^(Ref=Female)	0.187*** (0.04)	0.194*** (0.04)	0.192*** (0.04)	0.149*** (0.06)	0.098* (0.06)	0,093 (0.06)
Age	-0.003** (0.00)	-0.003* (0.00)	-0.003* (0.00)	-0.009*** (0.00)	-0.008*** (0.00)	-0.008*** (0.00)
Party vote last election ^(Ref=AP)	0.076* (0.04)	0,061 (0.04)		0.121** (0.06)	0.098* (0.06)	
Consideration of own health ^(Ref=Good)	0.091* (0.05)			0,101 (0.07)		
Alcohol consumption ^(Ref=Often)		-0.073* (0.05)	-0,074 (0.05)		-0.203*** (0.06)	-0.204*** (0.06)
BMI		-0,034 (0.03)	-0,035 (0.03)		-0.099*** (0.03)	-0.099*** (0.03)
Smoke ^(Ref=yes)		-0,02 (0.06)	-0,021 (0.06)		-0.256*** (0.08)	-0.260*** (0.08)
Physical activity ^(Ref=Often)		0.079* (0.05)	0,077 (0.05)		0.176*** (0.06)	0.175*** (0.06)
Party vote last election ^(Ref=AP)						
Høyre			-0,077 (0.05)			-0,105 (0.07)
FRP			-0,058 (0.07)			-0,143 (0.09)
KRF			-0,054 (0.09)			-0,015 (0.12)
SP			-0,139 (0.11)			-0.333** (0.14)
Venstre			0,013 (0.09)			-0,177 (0.12)
SV			0,004 (0.10)			0.238* (0.13)
Constant	4.045*** (0.26)	3.974*** (0.27)	4.033*** (0.28)	3.497*** (0.35)	3.766*** (0.37)	3.867*** (0.38)
Observations	1660	1700	1700	1650	1690	1690
R-squared	0,031	0,037	0,038	0,024	0,044	0,051

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

The first observation from model 1 is that there is a significant negative connection between people with higher education and negativity towards state approaches through information campaigns. There is also a robust significant connection between having a job and being favorable towards such campaigns. We can also see that older age seems to have a relationship with a positive attitude towards such campaigns, and that people who consider their health as good also tend to be more positive.

When adding the indicators of lifestyle in model 2, the significance of education is removed, but the positive correlation between working situation and the dependent variable gets stronger. An interesting observation from the lifestyle variable is a significant positive correlation between people who smoke are favorable towards such campaigns. Adjusted R^2 does not improve when adding the indicators of lifestyle choice, and is still very low. Adding the dummy set in model 3, containing the party vote the last election increases the adjusted R^2 slightly, showing that it somewhat improves the model specification. We also observe a significant positive connection, that the recipients who voted for Venstre, is more negative towards information campaigns than the ones who voted for AP.

Moving on to model 4-6, looking at the effect the independent variables have on government organization of better health, we see a significant positive correlation between education and attitude towards these types of state approaches. However, none of the other indicators on socio-economic status show a significant effect. Both age and gender show a significant positive correlation towards the dependent variable, indicating that women and older people tend to be more positive. The same shows for the people who consider their health as being good. Adding the lifestyle indicators somewhat increases the adjusted R^2 , and shows us that model 2 is an improvement of model 1. An interesting observation from the lifestyle indicators is that the smoke variable shows negative significant correlation on the 10%-level. Another consideration is that people who are often physically active tend to be more positive. When adding the dummy set on party vote last election, adjusted R^2 , increases somewhat more. Also, the smoke variable becomes significant on the 5%-level. We can also see significant negative correlation of the people who voted Høyre and KRF toward government organizing campaigns.

Table 3 contains the two dependent variables which measure the most intrusive types of state intervention in the private sphere, namely preventative measures and legislation. Looking at the effect of the socioeconomic status indicators on attitude towards preventative measures in model 1; the observation is that working situation shows a significant positive impact on the 10% level. Gender shows a significant positive correlation, meaning that women are more favorable towards preventative measures than men. Another interesting observation is that the age variable shows a negative relationship. Adding the lifestyle choice variables in model 2 strengthens the significance of the working situation variable, and also the adjusted R^2 . We also see that people who drink often tend to be more negative towards preventative measures and that people who are regularly physically active seem to be more positive. Adding the

dummy on party vote increases the adjusted R^2 , once again improving model 3, but none of the party variables show significant results.

Model 9-12 measures the effect of socio-economic status on attitude towards legislative measures in public health. In model 1, none of the socio-economic indicators shows significance. However, we observe that women tend to be more favorable towards legislation than men and that older people tend to be more negative than younger generations. Also, the dummy on party vote shows a significant positive correlation, meaning that people who voted for AP tend to be more favorable than the ones who did not. Adding the lifestyle choice indicators gives fascinating results, also increasing the R^2 by 2 percent. The education variable shows a negative correlation, meaning that people with higher education tend to be more negative to legislation, which is not as expected. The observation is that all the indicators of risk behavior show a negative attitude towards legislation, while the indicator of physical activity shows a positive correlation. All of these are significant on the 1%-level. Adding the dummy set increases the adjusted R^2 , and we see that people who voted for SP tend to be more negative toward legislation than the people who voted for AP. This shows the highest level of significance. People who voted for SV seems to be more favorable toward legislation than the ones who voted for AP, but this is only significant on the 10% level.

What we get out of the models in table 2 and 3 is that the effect of socio-economic indicators varies from the degree of state intervention in the private sphere. Another fascinating finding is the effect risk behavior might have on the dependent variables.

6.2 Results in table 4

Table 4: OLS-regression socioeconomic status on higher out of pocket payment for people with "self-inflicted" illness

Dep var: Higher out of pocket payment for people with "self-inflicted" illness	(1)	(2)	(3)
Education	0.019 (0.04)	-0.024 (0.04)	-0.010 (0.04)
Year income	0.288*** (0.06)	0.193*** (0.06)	0.182*** (0.06)
Working situation	-0.087 (0.09)	0.016 (0.08)	0.034 (0.08)
Gender ^(Ref=Female)	-0.374*** (0.07)	-0.423*** (0.07)	-0.415*** (0.07)
Age	-0.009*** (0.00)	-0.010*** (0.00)	-0.010*** (0.00)
Party vote last election ^(Ref=Ap)	-0.189*** (0.07)	-0.175*** (0.07)	
Consideration of own health ^(Ref=Good)	0.223*** (0.08)		
Alcohol consumption ^(Ref=Often)		0.009 (0.07)	0.033 (0.07)
BMI		-0.123*** (0.04)	-0.125*** (0.04)
Smoke ^(Ref=Yes)		-0.975*** (0.09)	-0.982*** (0.09)
Physical activity ^(Ref=Often)		0.183** (0.07)	0.187** (0.07)
Party vote last election ^(Dummy set. Ref=Ap)			
Høyre			0.192** (0.08)
FRP			0.288*** (0.107)
KRF			0.334** (0.14)
SP			-0.124 (0.16)
Venstre			0.116 (0.14)
SV			-0.091 (0.15)
Constant	1.403*** (0.41)	2.545*** (0.42)	2.367*** (0.43)
Observations	1660	1700	1700
R-squared	0.056	0.123	0.128

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The first observation from model 1, is that people with higher yearly income tend to be more favorable towards higher co-payment. Also, the gender and age variable shows a significant negative correlation, indicating that women are more negative to this suggestion than men and that people who are older are more negative. Another interesting observation is that the party vote last election dummy shows a significant negative correlation on the 1%-level, indicating that the people who voted for AP are more negative to the suggestion than the people who voted for another party. People who consider their health as good seem to be more favorable toward the idea than the people who do not.

When adding the indicators of lifestyle choice, the adjusted R^2 increases, from 5,6 % to 12, 3% which is a significant improvement. All the variables concerning risk behavior except alcohol consumption are significant on the 5%-level or less. People with a higher BMI seem to be more negative towards the suggestion, and the same illustrates for people who smoke. The recipients which state they are physically active often tend to be more positive.

The dummy set added in model 3 contributes to a small improvement of the model, and that three party vote shows a significant positive correlation. Telling us that the people who voted for Høyre, FRP and KRF tend to be more favorable towards the question of higher copayment than the people who voted for AP, which is not surprising. After executing the F-test, this shows that the dummy set has a significant improvement on the model on the 1%-level.

7. Discussion

In this section of the study, the results from the quantitative analysis are discussed. The results are examined in light of the rival theories concerning the relationship between the state's authority and the individual and previous research on social inequality and lifestyle choice in public health. Now that the empirical findings are presented, I will discuss whether any of these theories or previous findings are able to help explain the phenomena measured in this study, going through the most prominent results.

Employing the quantitative method, I have demonstrated that there is a significant connection between some of the indicators on the socioeconomic status and attitude towards individual responsibility in health. Based on the empirical findings in Table 1, H1 is rejected. Only one of the indicators on socioeconomic status, namely yearly income, shows adequate significance in the models. The Norwegian Public Health Institute (FHI), has previously found a connection between income levels and health. These have shown a relationship between high-income levels and good health. The results from table 1 confirm this, showing higher odds for people with high-income levels in being favorable toward individual responsibility in health care. This indicator, alone, cannot verify a connection between socioeconomic status and the dependent variable in Table 1. The variable, measuring the recipient's perception of their health, shows that people, who claim that their health is good, have higher odds of being more favorable to individual responsibility in health care. Logic reasoning tells us that the higher responsibility you might feel in taking care of your health, the more likely it is that your health is well preserved. This indicator, alone, does not explicitly say something about the lifestyle choice of the recipients; other than that, we can assume that people who report good health will, most likely make good lifestyle choices.

The indicators of lifestyle choice in Table 1 show that people who are often physically active have higher odds of being favorable toward more substantial responsibility in health care. Given that Breivik & Rafoss (2017), find that people with higher socioeconomic status tend to be physically active more frequently, this could indicate a more favorable attitude, within higher socioeconomic groups, towards individual responsibility.

The findings of Tables 2 and 3 are different from the ones in Table 1. It is here that the study's most salient findings lie. Dividing the question on individual responsibility in health into "categories" of state intervention shows interesting results. These are mostly, however, only found on the indicators of lifestyle choice, not the socioeconomic indicators. People who

smoke seem to be more negative towards information campaigns. Information campaigns aiming to hinder people from smoking employs as a typical state measure in Norway (FHI, 2016; Ringard, Sagan, Saunes, & Lindal, 2013) This is one of the mildest forms of state intervention, only encouraging a change of behavior through information as to what are the consequences of risk behavior (Vallgarda, 2007). The observation that one of the most significant target groups of information campaigns, namely smokers are negative against such measures, constitutes a problem. We also know that there is a clear connection between smoking and socioeconomic status (FHI, 2016). Figuratively, this could be an indicator that the majority of the people who smoke find themselves lower on the socioeconomic ladder. Moreover, this indicates that information campaigns are not a lucrative business in trying to hinder people from smoking, or in the evening out of socioeconomic differences in health and that maybe other measures should be emphasized.

The dependent variable in Model 2, the government's organization of measures in public health care, also constitutes intriguing findings. This variable is recognizable with "nudging," as presented by Sunstein and Thaler (2008). The so-called "nudges" are implemented, for example in making candy, cigarettes or alcohol less accessible in a grocery store, and making healthier options more accessible. In this way, the freedom of choice is not taken away from the customer, but the idea is that maybe having to ask for a particular product or spending time in looking for it might create the incentive to go with the healthier choice to avoid the inconvenience. Connecting the dots to the diffusion of innovations theory, one could assume that people with higher education might be more favorable to these types of measures because it does not create any inconvenience. Because it does not interfere with the day-to-day routine, healthy habits are most likely implemented. This assumption is strengthened by the positive significance shown on physical activity, knowing that frequent exercise seems to have a connection to higher socioeconomic groups (Breivik & Rafoss, 2017). People who smoke are more negative toward organizing measures, as well. Again, this indicates something about how these measures strike this particular target group.

The models containing the effect of the independent variables on preventative measures do not show any results worth discussing. Therefore, we move directly on to legislation, which emphasizes the strictest type of state interference in the private sphere (Vallgård, 2007). An interesting observation reveals itself in Models 11 and 12, showing a negative correlation between education and attitude towards legislation regarding public health. This is contradictive to the assumption made earlier, namely, that higher education leads to a more

favorable attitude toward state intervention in public health measures. A possible explanation for this might lie in fundamental cause theory, stating that people with higher education can implement knowledge and resources needed to lead a healthier life. Therefore, a law that limits your behavioral scope might not feel necessary.

There is also a clear connection between lifestyle choice and attitude toward legislation. The observation is that all the variables connected to risk behavior show a negative correlation in mentality toward legislation. People who frequently consume alcohol, smoke, and have higher BMI are all negative about this matter. Basing these findings on previous research, that habits of smoking, diet, and physical activity still have a clear connection to education and income levels (FHI, 2016), we can assume that the majority of the people who adopt risk behavior score lower on the socioeconomic scale. Indirectly, this indicates a negative attitude towards strict paternalistic measures within lower socioeconomic groups. The groups who have a higher probability to end up as consumers of public health care services as a consequence of lifestyle choice are also the most negative towards the state directly preventing such behaviors. This suggests that individual responsibility in health is favorable amongst these groups, and H2 is therefore confirmed. Even though the passing of laws is a valid measure of public health, not everything can be prohibited or regulated by law. The people who exhibit risk behaviors show a hostile attitude toward legislation, hostility toward paternalistic measures from the state directed at the people needs it the most. This may be one of the connections in the puzzle of why inequalities in health are so stubborn, despite the Norwegian "passion for equality."

The last table, the only significant indicator of socio-economic status is yearly income, which shows a positive correlation, indicating that people with higher yearly salaries tend to be more favorable to this measure. This does not, however, give us the privilege of making assumptions about the connection between socio-economic status and attitude towards higher out-of-pocket payment as a consequence of "self-inflicted" illness, and H2, is therefore also rejected.

The lifestyle indicators, however, provide exciting results. The BMI and smoke variable show a robust negative correlation towards the dependent variable. This presents a paradox when comparing it with the findings in Table 2 and 3, and H4 is therefore confirmed. Observing that people executing risk behaviors are negative towards public health legislation, one could assume that they lean more towards the libertarian ideology, granting the freedom of choice.

According to the libertarian perspective in the continuation of the debate on lifestyle choice and government responsibility, a change in resource allocation toward people who are sick as a consequence of lifestyle choice is the way to go to solve the problem of scarce resources in public health care funding. The "behavior change" argument claims that the threat of lower priority will generally encourage healthy behavior and that a policy of equal access could even cause irresponsible behavior. This claim, however, is not supported by the people when the state has the incentive to encourage a change in risk behavior, proving a negative attitude toward state intervention whether it is libertarian, as shown through the question of payment, or highly paternalistic through the passing of laws.

Some of the political party indicators in this model are also statistically significant. We see that the people who voted for the right-wing parties, namely Høyre and FRP, are more favorable toward a higher out-of-pocket payment than the people who voted for the labor party. This is not surprising, given that both parties follow a more libertarian ideology than the labor party, which has been a pillar of the values of the welfare state and equal access to health.

The research question of this study asks whether there is a connection between socioeconomic status and attitude toward state intervention in public health and if a difference in risk behavior contributes to diverging opinions on this matter. Parts of this question can be confirmed.

The indicators on socioeconomic status do not show simultaneous significance in any of the models. However, the indicators of lifestyle choice figuratively tell us something about socioeconomic status. The study confirms that people executing risk behavior seem to be more negative toward the various state measures in attempting to change behavioral patterns. Also, the negative correlation appears, and increases in the strictest types of measures suggested, namely legislation. Previous studies find that legislation is the most effective way to hamper citizens of executing risk behavior (Tan & Glantz, 2012; Anderson, et, al., 2009). Given that mild measures such as information campaigns and government organizing health do not seem to have much effect, especially since a broad target group such as smokers have a negative attitude towards them, we can assume that they have a minimal impact. Previous research also backs this. What we can draw from these findings is that legislation might be a necessary evil to bridge the socioeconomic gap in lifestyle-related disease.

Lastly, the study finds that people who execute risk behavior are more negative towards higher out of pocket payment for people who are sick as a consequence of lifestyle choice. This illustrates an interesting paradox between negativity towards government measures described as paternalistic through legislation etc. But there is also negativity towards a libertarian approach in solving the cost-related problems in public health.

There are still significant challenges connected to health and social inequality in Norway. The differences are robust and difficult to bridge. This study gives new insight into why this is the case. People who execute risk behavior are more likely to be lower on the socioeconomic ladder. Even though the indicators on socioeconomic status does not confirm the assumption that people with lower socioeconomic status are more hostile toward government measures, it is fair to presume that people who make poor lifestyle choices also indicate something about these people's socioeconomic status. The paternalistic assumption is that stricter laws should be adapted to hamper risk behavior, while the libertarian argument grants full individual autonomy, such that the individual can use its rationality to make the right choice. Previous research shows that the individual does not make rational decisions most of the time, and it seems like stricter measures are the way to go. The individual should not have full autonomy in preserving its health, that is if the welfare state as we know it today shall prevail.

8. Conclusion

This study asks whether there is a connection between socioeconomic status and attitude toward state intervention in public health and whether a difference in risk behavior contributes to diverging opinions on this matter. The question is raised because there seem to be many explanations as to why there are inequalities in health related to lifestyle choice in Norway, and how they might be eliminated. This, however, has only been discussed on a theoretical macro level, but there is very little research on public opinion. Based on the two rival theories about the relationship between the authority of the state and the individual, and previous research conducted on social inequality in health four hypotheses were formulated, and two of them were confirmed.

To answer the research question, and confirm or deny the hypothesis, both logistic and OLS regression were employed. Based on the results given from the variables operationalized as socioeconomic indicators and lifestyle choice, the research question can somewhat be confirmed. None of the indicators on socioeconomic confirms the research question entirely, but the indicators on lifestyle choice do.

The most prominent finding of this study is that people who execute risk behavior are more negative toward strong paternalistic measures. Figuratively, it is likely that people who find themselves lower on the socioeconomic ladder are also more negative toward government measures, and are less likely to change behavioral patterns because of mild actions such as information campaigns. Since previous studies find that legislation is the most effective way to prevent citizens from executing risk behavior (Tan & Glantz, 2012; Anderson, et, al., 2009), this might be a necessary evil to hamper risk behavior, and ultimately bridge the socioeconomic gap in lifestyle-related diseases.

Conclusively, we see that there is a connection between some of the indicators of socioeconomic status and attitude toward the relationship between the authority of the state and the autonomy of the individual. The main finding is that people who execute risk behavior seem to be more negative toward the state telling them how to lead their lives, figuratively confirming a connection between socioeconomic status and attitude toward government responsibility in public health. This illustrates an unwillingness to change the lifestyle, no matter how aware one might be of the consequences. This calls for further research, as to what might affect the attitude toward the state's authority and intervention in the private sphere. Collecting additional information on this will help to provide a broader

understanding on why risk behavior is most prominent in lower socioeconomic groups and lead us one step closer to figuring out the ways on how to eliminate this phenomenon. This is in the best interest of the individual, and the society as a whole. Eliminating unnecessary morbidity and mortality as a consequence of lifestyle choice is imperative to maintain the universal health care system as we know it today. And, another important factor is the answer regarding how to achieve this goal, which lies in eliminating the differences amongst socioeconomic groups.

Possible policy implications drawn from these results are that the government measures used today might not satisfyingly reach the intended target group. Therefore, it might be an idea to construct more targeted measures, with the goal of smoothing out differences between socioeconomic groups, even if legislation is necessary. Increasing the targeted measures in the social gradient approach might be a good place to start. The reality that social inequality in health is visible now, more than ever before in a social democracy like that of Norway, is already acknowledged, and there are many explanations as to why they occur. The measures on how to even them out, however, need to be addressed on a deeper level. Maybe, further research could also look at the inequality in different government periods in Norway. The contemporary government supports a more libertarian ideology, and it would be interesting to see if there are shifts in variation between the ideological standpoint of different governments.

8.1 Limitations and strengths of the study

The possible limits of this study are that socioeconomic status is a complicated term. The indicators of socioeconomic health that are used, might explain some parts of the phenomena, but we have to be aware that there might be other factors included in the term. Therefore, some of the indicators we wanted to measure might not be included. A strength of the study, however, is the different dependent variables used to say something about government intervention in public health measures. This gives a nuanced picture of what seems to be the most substantial challenges for the government facing public opinion in public health.

Also, the study uses variables measuring attitude or assumptions, and it is, therefore, essential to reflect on the difference between correlation and causality. A limitation is that this is a cross-sectional study which means that we can only look at connections between variables and not causality. It is also a correlation study, which says that the possibility of missing variables and spurious associations are always present, and we can never be entirely sure that

there are essential omitted variables. However, adequate tests have been executed, indicating no specification problems of the model.

8.2 Further research

The results of this study only suggest something about the Norwegian situation. Given that socioeconomic inequality in lifestyle-related diseases is an international phenomenon, it would be interesting to look at other countries as well. It would also be interesting to compare different welfare regimes, to see if there is a change in opinion between administrations running a more libertarian approach versus more paternalistic. This could provide further insight as to what might be the "right" measures to bridge the socioeconomic gap in public health.

Also, this study is cross-sectional, and can only tell us something about the contemporary situation. A time-series analysis would be interesting to exhibit. Looking at shifts over time in public opinion provides the opportunity to spot differences in opinion over time. This also gives the chance to look at different attitudes through various governments, supporting diverging ideologies.

9. Literature

- Anderson, P., Chisholm, D., & Fuhr, D. C. (2009). Effectiveness and cost-effectiveness of policies and programmes to reduce the harm caused by alcohol. *Lancet*, 373(9682), 2234-2246.
- Babones, S. J. (2008). Income inequality and population health: correlation and causality. *Soc Sci Med*, 66(7), 1614-1626.
- Babones, S. J. (2009). *Social inequality and public health*
- Bambra, C., Netuveli, G., & Eikemo, T. A. (2010). Welfare state regime life courses: the development of western European welfare state regimes and age-related patterns of educational inequalities in self-reported health. *Int J Health Serv*, 40(3), 399-420.
- Blank, R. H., & Burau, V. D. (2014). *Comparative health policy* (4 ed.). Basingstoke England ; New York: Palgrave Macmillan.
- Blesovsky, A. (1993). Access to heart surgery for smokers. Trial of thrombolysis favours smokers. . *BMJ*, 307(129).
- Breivik, G., & Rafoss, K. (2017). *Fysisk aktivitet; omfang, tilrettelegging og sosial ulikhet*. Retrieved from Helsedirektoratet:
[https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/1343/IS-0613_Rapport_Helsedirektoratet_\(3a\).pdf](https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/1343/IS-0613_Rapport_Helsedirektoratet_(3a).pdf)(Retrieved 03.04.2018)
- Buchanan, D. R. (2008). Autonomy, paternalism, and justice: ethical priorities in public health. *Am J Public Health*, 98(1), 15-21.
- Calman, K. (2009). Beyond the 'nanny state': stewardship and public health. *Public Health*, 123(1), e6-e10.
- Dahl, E. (2002). Health inequalities and health policy: The Norwegian case. *Norsk Epidemiologi*, 12, 69-75.
- Diderichsen, F. (2016). Health inequalities - a challenge for the social investment welfare state. *Nordic Welfare research*, 1, 43-54.
- Dworkin, G. (1972). Paternalism. *The Monist*, 56(1), 64-84.
- FHI. (2016). *Sosiale helseforskjeller*. Retrieved from Folkehelseinstituttet:
<https://www.fhi.no/nettpub/hin/grupper/sosiale-helseforskjeller-i-norge---/>
- Groves, R., M. (2006). Nonresponse rates and Nonresponse Bias in Household Surveys. . *Public opinion Quarterly*, 70(5), 637-645.
- Hausman, D. W., B. (2010). To nudge or not to nudge. *The journal of political Philosophy*, 18(1), 123-136.
- Hiscock, R., Bauld, L., Arnos, A., Fidler, J., & Marcus, M. (2012). Socioeconomic status and smoking: a review. *Annals of the New York Academy of sciences*(Addiction reviews).
- Jochelson, K. (2006). Nanny or steward? The role of government in public health. *Public Health*, 120(12), 1149-1155.
- Kawachi, I., Kennedy, B. P., Lochner, K., & Prothrow-Stith, D. (1997). Social capital, income inequality, and mortality. *Am J Public Health*, 87(9), 1491-1498.
- LHL. (2015). *Helsebarometeret 2015 - Oppfatning av egen helse, helsetilbudet og prioritering i helse-Norge*. Retrieved from LHL, Landsforeningen for hjerte- og lungesyke: https://www.sintef.no/globalassets/sintef-teknologi-og-samfunn/avdelinger/helse/helsebarometeret_rapport_web.pdf (Retrieved 04.05.2018)
- Mackenbach, J. P. (2012). The persistence of health inequalities in modern welfare states: the explanation of a paradox. *Soc Sci Med*, 75(4), 761-769.
- Mackenbach, J. P., Kulhanova, I., Artnik, B., Bopp, M., Borrell, C., Clemens, T., . . . de Gelder, R. (2016). Changes in mortality inequalities over two decades: register based study of European countries. *BMJ*, 353, i1732.

- Mackenbach, J. P., Kunst, A. E., Cavelaars, A. E., Groenhouf, F., & Geurts, J. J. (1997). Socioeconomic inequalities in morbidity and mortality in western Europe. The EU Working Group on Socioeconomic Inequalities in Health. *Lancet*, 349(9066), 1655-1659.
- Mehmetoglu, M., & Jakobsen, T. G. (2017). *Applied statistics using stata : a guide for the social sciences*. Los Angeles, California ; London: Sage.
- Midtbø, T. (2012). *Stata, en entusiastisk innføring*: Universitetsforlaget
- Næss, Ø., Rognerud, M., & Strand, B.H (2007). Sosial ulikhet i helse: en faktarapport. *Folkehelseinstituttet*.
- Rakowski, E. (1991). *Equal justice*. Oxford England New York: Clarendon Press ; Oxford University Press.
- Regjeringen. (2007). *Nasjonal strategi for å utjevne sosiale helseforskjeller*. Retrieved from Det kongelige helse og omsorgsdepartementet:
- Ringard, Å., Sagan, A., Saunes, I. S., & Lindal, A. K. (2013). *Health systems in Transition Norway, Health system review*. Retrieved from Kunnskapssenteret, Norwegian centre for the health sciences:
- Ringdal, K. (2013). *Enhet og mangfold*. Bergen: Fagbokforlaget Vigmostad & Bjørke AS.
- Ringdal, K., & Wiborg, Ø. (2017). *Lær deg stata*. Bergen: Fagbokforlaget.
- Rogers, E. M. (1992). *Diffusion of innovations*. New York: Free Press.
- Rothman, K. J. (2008). BMI-related errors in the measurement of obesity. *Int J Obes (Lond)*, 32 Suppl 3, S56-59. doi:10.1038/ijo.2008.87
- Sharkey, K., & Gillam, L. (2010). Should patients with self-inflicted illness receive lower priority in access to healthcare resources? Mapping out the debate. *J Med Ethics*, 36(11), 661-665.
- Singer, E. (2006). Introduction: Nonresponse bias in household surveys. *Public opinion Quarterly*, 70(5), 637-645.
- Skog, O.-J. (2015). *Å forklare sosiale fenomener*. Oslo: Gyldendal akademisk
- Sund, E., . R. . (2009). *Sosial kapital - Teorier og perspektiver* Retrieved from Helsedirektoratet
- Thaler, R. H., & Sunstein, C. R. (2008). *Nudge : improving decisions about health, wealth, and happiness*. New Haven: Yale University Press.
- Tjønndal, A. (2018). *Statistisk analyse i Stata* (Vol. 1). Oslo: Cappelen Damm.
- Vallgarda, S. (2007). Public health policies: a Scandinavian model? *Scand J Public Health*, 35(2), 205-211.
- Van der Wel, K. A., Dahl, E and Bergsli, H. (2016). The Norwegian policy to reduce health inequalities: key challenges. *Nordic Welfare research*, 1, 19-29.
- Victora, C. G., Vaughan, J. P., Barros, F. C., Silva, A. C., & Tomasi, E. (2000). Explaining trends in inequities: evidence from Brazilian child health studies. *Lancet*, 356(9235), 1093-1098.
- Vincent, N., A. . (2009). What do you mean I should take responsibility for my own ill health? *Journal of applied Ethics and Philosophy*, 1, 39-49.
- Wadsworth, M. E. (1997). Health inequalities in the life course perspective. *Soc Sci Med*, 44(6), 859-869.
- Wakefield, M. A., Loken, B., & Hornik, R. C. (2010). Use of mass media campaigns to change health behaviour. *The Lancet*, 376(9748), 1261-1271.
- WHO. (2002). *Reducing risks, Promoting healthy life*. Retrieved from https://books.google.no/books?hl=no&lr=&id=epuQi1PtY_cC&oi=fnd&pg=PR9&dq=who+2002+public+health+report+reducing+risks&ots=N3G3dXEeMn&sig=WkxkAb7kS7AfxuzZybCvOoEN4mM&redir_esc=y

[v=onepage&q=who%202002%20public%20health%20report%20reducing%20risks&f=false](#)(Retrieved: 04.02.2018)

Østhus, S., Mäkelä, P., Norström, T., & Rossow, I. (2016). *Sosial ulikhet i alkoholbruk og alkoholrelatert sykkelighet og dødelighet*. Retrieved from Helsedirektoratet:

[https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/1204/Sosial ulikhet i alkoholbruk og alkoholrelatert sykkelighet og d%C3%B8delighet IS-](https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/1204/Sosial%20ulikhet%20i%20alkoholbruk%20og%20alkoholrelatert%20sykelighet%20og%20d%C3%B8delighet%20IS-2474.pdf)

[2474.pdf](#)(Retrieved: 03.04.2018)

Appendix

A. Descriptive statistics

Table 4: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Consideration of responsibility in health	2,664	.7308559	.4435983	0	1
Information campaigns	2,616	3.618502	.9149835	1	5
Government org, health	2,617	3.911349	.9219198	1	5
Preventative measures	2,621	3.992751	.8673163	1	5
Legislaton	2,610	2.697318	1.172523	1	5
Out of pocket payment	2,620	2.55458	1.39617	1	5
Education	2,588	3.510819	.9356358	1	5
Log Year income	2,488	6.475989	.6151502	3.912023	7.600903
Working situation	2,689	.6537746	.4758546	0	1
Gender(Ref=female)	2,522	.5400476	.4984924	0	1
Age	2,668	52.84558	13.96625	16	75
Consideration of health	2,523	.2473246	.4315425	0	1
Alcohol cons(Ref=often)	2,600	.6007692	.4898345	0	1
BMI	2,610	2.69387	.8512165	1	7
Smoke (Ref=Yes)	2,657	.1697403	.3754752	0	1
Physical activity (Ref=Often)	2,636	.6984067	.4590367	0	1
Vote last election (Ref=AP)	2,012	.3374751	.472966	0	1
Vote last election dummy set(Ref=AP)					
Høyre	2,012	.3180915	.465851	0	1
FRP	2,012	.1317097	.338259	0	1
KRF	2,012	.0651093	.24678	0	1
SP	2,012	.0457256	.2089414	0	1
Venstre	2,012	.056163	.2302935	0	1
SV	2,012	.0457256	.2089414	0	1

B. Multicollinearity tests for the stepwise models

Table 5: VIF-tests for all independent variables used in the analysis

Variable	VIF	1/VIF	Variable	VIF	1/VIF	Variable	VIF	1/VIF
Working situation	1.43	0.697417	Working situation	1.44	0.695062	Education	1.26	0.796665
Log year income	1.30	0.767445	Log year income	1.31	0.762583	Log year income	1.35	0.738178
Age	1.29	0.775521	Age	1.31	0.765724	Working situation	1.46	0.686671
Education	1.17	0.854829	Education	1.18	0.849552	Gender	1.10	0.910836
Consideration of health	1.07	0.937511	Alcohol cons	1.09	0.918705	Age	1.33	0.754358
Gender	1.04	0.959978	BMI	1.09	0.919878	Alcohol cons	1.13	0.882818
Party vote dummy	1.02	0.980442	Gender	1.08	0.928380	BMI	1.09	0.915334
Mean VIF	1.19		Physical activity	1.07	0.938268	Smoke	1.05	0.954635
			Smoke	1.04	0.965001	Physical activity	1.07	0.935601
			Party vote dummy	1.02	0.977013	Party vote dummy set		
			Mean VIF	1.16		Høyre	1.37	0.728483
						FRP	1.29	0.772359
						KRF	1.16	0.863999
						SP	1.09	0.920173
						Venstre	1.13	0.883092
						SV	1.12	0.896178
						Mean VIF	1.20	

C. Overview of the normal distribution of the dependent variables

Figure 1: Normal distribution of Information campaigns

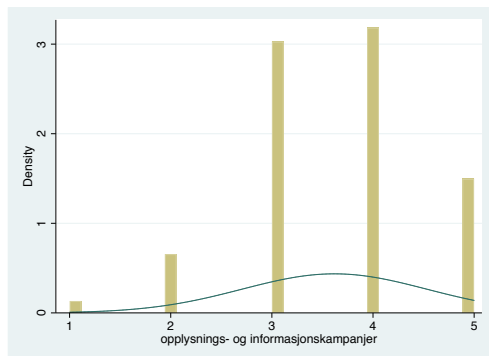


Figure 2: Normal distribution of government organization in health

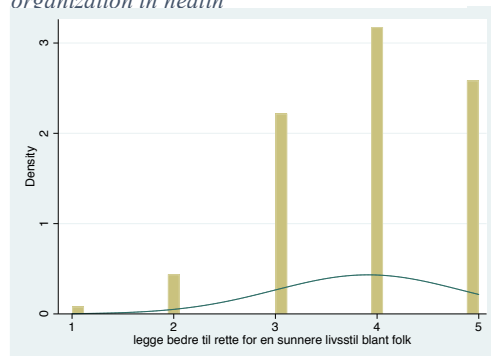


Figure 3: Normal distribution of preventative measures

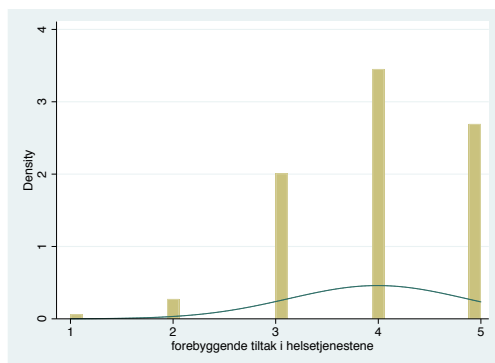


Figure 4: Normal distribution of legislation

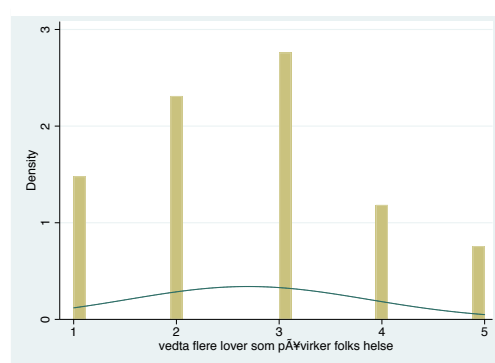
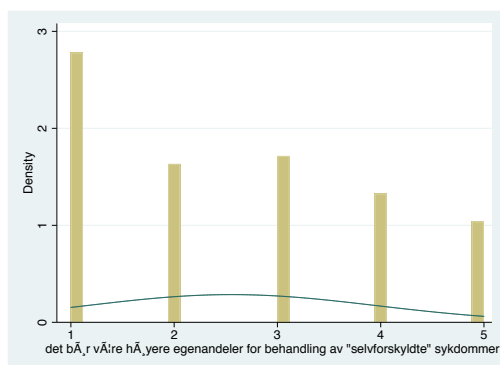


Figure 5: Normal distribution of higher out of pocket payment



D. Cronbachs alpha, reliability tests

Table 6: Reliability test of alcohol consumption, smoking, BMI and physical activity

Test scale=mean(unstandardized items)	
Average interitem covariance:	.0201962
Number of items in the scale:	4
Scale reliability coefficient:	0.2079