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Title: A comparison of primary prevention and reduction methods of the leading causes of cardiovascular diseases in Norway and Georgia

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Abstract

This master's thesis examines and compares primary prevention strategies for cardiovascular diseases (CVD) in Norway and Georgia, focusing on key risk factors such as smoking, overweight/obesity, unhealthy diet, physical inactivity, and alcohol consumption. Through a comprehensive analysis of various data sources, including document analysis, secondary data analysis, and qualitative interviews with key informants, this study identifies effective policies, interventions, and factors influencing primary prevention efforts.

The research underscores the significance of comprehensive tobacco control measures, culturally sensitive interventions, integration within healthcare systems, and continuous evaluation and monitoring. Furthermore, it underlines the importance of addressing overweight/obesity, unhealthy diet, physical inactivity, and alcohol consumption, as these factors significantly impact cardiovascular health. The implications for international social welfare and health policy emphasize the need for a comprehensive approach, consideration of socio-cultural contexts, strong policy implementation and enforcement, and ongoing evaluation and monitoring of interventions.

The application of the Health Belief Model to the research provides insights into the factors influencing health behaviors in both countries. Based on the findings of the thesis, strengthening collaboration among policymakers, health professionals, and international organizations to develop evidence-based strategies are suggested as measures for preventing CVD. Policymakers are encouraged to support further research efforts to understand the determinants of smoking behaviors, overweight,

and obesity, as well as the effectiveness of interventions, which can inform evidence-based policies and interventions.

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This master's degree program has been a source of immense joy for me, and the process of writing this thesis has been nothing short of transformative. It has allowed me to expand my knowledge, explore new depths of understanding, and discover the beauty of scholarly exploration.

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List of abbreviations

BMI – body mass index

BMI – WC -body mass index and waist circumference

CHD - coronary heart disease

CVDs - cardiovascular diseases

HBM -The Health Belief Model

NSD The Norwegian Centre for Research Data (NSD)

STEPS -STEPwise Approach To Surveillance

WHO FCTC - The World health organization has a Framework Convention on Tobacco Control

WC- waist circumference

WHO- The world health organization

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1. Introduction and background

1.1 Thesis aim

This thesis aims to analyze and examine the leading causes and primary prevention strategies for cardiovascular disease (CVD) in Norway and Georgia, comparing the differences and similarities in their implementation and effectiveness. The focus will be on the factors of smoking, overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption. The research questions will examine the effectiveness of tobacco control policies, barriers to implementing effective policies, public health interventions for promoting healthier lifestyles, factors contributing to overweight and obesity, and the application of the Health Belief Model for designing effective interventions.

The research will use a comparative analysis method to analyze primary prevention strategies for cardiovascular disease (CVD) in Norway and Georgia. Data from multiple sources will be utilized, including national surveys, health records, policy documents, and qualitative research specifically conducted for this thesis.

By comparing Norway and Georgia, high and middle-income countries with different healthcare systems, the research aims to provide insights into the impact of healthcare access, funding mechanisms, social and economic factors and public health policies on CVD prevention strategies. The findings of this research can inform the development of tailored and effective interventions and have potential implications for policy and practice. Comparing and contrasting the characteristics and differences among Norway and Georgia is useful in identifying patterns and factors that contribute to health disparities connected with primary prevention of

cardiovascular diseases. Comparisons of this kind can highlight the existence of unequal norms, roles, behaviors, and attributes that might affect health outcomes differently in two countries, with potential lessons learned in each of them (Bartley, 2017, p. 263).

1.2 Research questions:

1. What are the differences and similarities in the implementation and effectiveness of tobacco control policies in Norway and Georgia, and how have these policies impacted smoking rates and cardiovascular disease prevention in each country?

2. How effective are the current public health interventions and education programs in promoting healthier lifestyles and reducing the burden of diseases associated with unhealthy dietary habits and excessive alcohol consumption in Georgia and Norway?

3. What are the factors that contribute to the prevalence of overweight and obesity in Georgia and Norway, and how do these factors differ between the two countries?

4. How can the Health Belief Model be applied to design effective interventions to prevent and control overweight and obesity in Georgia and Norway?

1.3 Background

Cardiovascular disease (CVD) remains a significant contributor to morbidity and mortality worldwide, despite substantial advancements made in recent years. In pursuit of the Sustainable Development Goals, ministries of health and international health organizations have been actively monitoring nations' preparedness in addressing CVD risk factors. Among the primary objectives is the reduction of premature deaths caused by cardiovascular diseases (Davies et al., 2020).

According to the World Health Organization (WHO), CVDs accounted for 17.9 million deaths worldwide in 2019, representing 31% of all global deaths globally (world Health Organization, 2023). However, a significant proportion of premature cardiovascular diseases are preventable by addressing behavioral risk factors (Stewart et al., 2017a, p. 1). This highlights the importance of reducing risk factors and implementing effective preventive measures to mitigate the growing burden of CVD (Aminde et al., 2018).

To guide global, regional, national, and subnational action on CVD prevention, treatment, and management, it is crucial to have population-level data on cardiovascular risk factors (Mensah et al., 2019). Analyzing CVD patterns in different countries, such as Norway and Georgia, involves examining the prevalence of risk factors, morbidity and mortality rates, and healthcare strategies employed. While both countries have made efforts to reduce the burden of CVD, variations in socio-economic status, healthcare systems, and prevention strategies have influenced outcomes (Clarsen et al., 2022; Gamkrelidze, 2017).

1.4 Cardiovascular disease patterns in Norway

Norway has made significant progress in reducing CVD-related morbidity and mortality rates in recent decades. Major risk factors for CVD in Norway include smoking, physical inactivity, unhealthy diet, high blood pressure, high cholesterol levels, and obesity. The country has implemented various public health initiatives to address these risk factors, such as promoting physical activity, encouraging healthier diets, and implementing comprehensive tobacco control policies (Clarsen et al., 2022; Nylenna, 2020a, pp. 36-55)

According to the Norwegian Institute of Public Health, age-standardized mortality rates for CVD have decreased by more than 70% since the 1970s. The decline in

smoking rates, improved management of high blood pressure and cholesterol levels, and better treatment of acute cardiovascular events have contributed to this decrease. Despite the overall reduction in CVD mortality rates, disparities still exist among different socio-economic groups, with those of lower socio-economic status having higher rates of CVD (Inger Kristine Holtermann Ariansen, 2020).

1.5 Cardiovascular disease patterns in Georgia

In Georgia, CVDs account for most of the total disease burden, with high morbidity and mortality rates. Key risk factors for CVD in Georgia include smoking, physical inactivity, unhealthy diet, high blood pressure, high cholesterol levels, and obesity. In recent years, Georgia has made efforts to improve primary healthcare services and implement policies to address these risk factors, such as the National Tobacco Control Law (NCDC, 2021, p. 5; WHO, 2021).

However, the country still faces challenges in effectively implementing and enforcing these policies. Limited financial resources, gaps in healthcare infrastructure, and socio-cultural factors contribute to these challenges. As a result, the prevalence of CVD risk factors remains high, particularly among vulnerable populations such as those of lower socio-economic status and those living in rural areas (A.Gamkrelidze, 2018; Organization, 2020; Verulava & Maglakelidze, 2017).

1.6 Comparison of cardiovascular disease patterns in Norway and Georgia

While both Norway and Georgia face the challenge of addressing CVD, differences in socio-economic status, healthcare systems, and the effectiveness of prevention strategies have led to varying outcomes (WHO, 2021). Norway has made significant progress in reducing CVD morbidity and mortality rates, primarily due to the

implementation of effective public health policies, a well-funded healthcare system, and increased awareness of CVD risk factors (Nylenna, 2020). In contrast, Georgia still faces challenges in reducing CVD morbidity and mortality rates, with limited financial resources, gaps in healthcare infrastructure, and barriers to implementing comprehensive prevention policies (Gamkrelidze, 2017, p. 27; Worldbank, 2023).

Even though Georgia is an middle-income country and Norway is a high-income country, there are similar risk factors and primary prevention of cardiovascular diseases (Worldbank, 2023). In terms of tobacco use, the prevalence of smoking in high-income European nations, including Norway, has achieved better results than in Georgia. In addition, a WHO survey revealed a substantial gender difference in the prevalence of smoking in Georgia, compared to a much lower gender gap in Norway (WHO, 2021)

1.7 Prevention of cardiovascular diseases

Cardiovascular disease prevention encompasses three categories: primary, secondary, and tertiary prevention. The first category, primary prevention, targets individuals who are at risk of developing cardiovascular diseases but have yet to display clinical manifestations. Secondary prevention focuses on individuals who already have established cardiovascular diseases, while tertiary prevention aims to mitigate the impact of these diseases (Prasad, 2021, p. 177).

Major component of primary prevention of cardiovascular diseases are to reduce main risk factors of cardiovascular diseases that are: smoking, overweight and obesity, unhealthy diet, physical inactivity, dyslipidemia, hypertension, diabetes mellitus (Hennekens et al., 2022).

This project is centered around the vital aspect of primary prevention strategies to

mitigate cardiovascular diseases. Specifically focusing on the primary causes, which include smoking, overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption, the study aims to address these modifiable risk factors at their core. Primary prevention is widely acknowledged as the most crucial stage in the spectrum of preventive approaches for cardiovascular diseases, emphasizing proactive measures taken before clinical manifestations occur (Stewart et al., 2017b).

The thesis will primarily focus on the main causes of cardiovascular diseases, including smoking, overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption. By concentrating on these specific risk factors, the study aims to provide a comprehensive understanding of their impact on cardiovascular health. These risk factors are significant contributors to the development of cardiovascular diseases, and they are also closely associated with the development of dyslipidemia, diabetes, and hypertension.

Smoking cessation takes center stage in this thesis due to its unparalleled significance as the most cost-effective strategy in preventing cardiovascular diseases (CVD). The advantages of quitting smoking are remarkable, with visible improvements in health outcomes often observed within just a few months after cessation. Irrespective of the duration or intensity of one's smoking habit, guidelines universally recommend quitting, highlighting the immediate and long-term benefits it brings in reducing the risk of CVD (Stewart et al., 2017b).

Figure 1. main risk factors of cardiovascular diseases. (Hennekens et al., 2022)

1.8 Thesis outline

The thesis consists of five chapters that delve into primary prevention and reduction methods for cardiovascular diseases in Norway and Georgia. Each chapter serves a specific purpose in exploring these methods. The first chapter is the introduction, which sets the context and objectives of the study. The second chapter outlines the methodology used for the thesis. The third chapter focuses on the primary prevention of cardiovascular diseases and smoking in Georgia and Norway. The fourth chapter specifically examines the primary prevention of cardiovascular diseases, highlighting the role of risk factors like overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption in Georgia and Norway. The fifth chapter of the thesis applies the Health Belief Model (HBM) to the information and findings gathered about Georgia and Norway. Finally, the sixth chapter concludes the thesis by summarizing and providing recommendations.

Chapter One is an introduction to the thesis, presenting the research questions and providing an overview of the study and structure. The chapter starts by highlighting the global significance of cardiovascular diseases as a major health concern. It then poses the research questions that will guide the investigation into primary prevention and reduction methods for cardiovascular diseases in Norway and Georgia. The chapter emphasizes the importance of understanding the challenges and potential solutions in preventing cardiovascular diseases. It concludes by outlining the expected outcomes and implications of the research, setting the stage for the subsequent chapters.

Chapter Two outlines the methodology used to investigate primary prevention and reduction methods for cardiovascular diseases in Norway and Georgia. It discusses the data sources, data collection and analysis methods, ethical considerations, qualitative approach that was used for the thesis, interview process, and thematic analysis. This chapter presents the PRISMA chart utilized as a guide during the literature search process.

Chapter Three focuses on answering the research questions related to the primary prevention of cardiovascular diseases and smoking in Georgia and Norway. It examines the prevalence of cardiovascular diseases and smoking in each country and investigates the effectiveness of preventive measures implemented to address these issues. The chapter explores the impact of smoking on cardiovascular health and evaluates the success of smoking cessation programs. Additionally, it analyzes the role of public health policies, educational initiatives, and awareness campaigns in promoting cardiovascular health and reducing smoking rates. By comparing the strategies employed in Georgia and Norway, this chapter provides valuable insights into the primary prevention efforts targeting cardiovascular diseases and smoking in both countries. The chapter includes the findings and the results of the chapter separately and part of the qualitative research findings.

Chapter Four delves into the research questions concerning the primary prevention of cardiovascular diseases related to overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption in Georgia and Norway. It examines the prevalence of these risk factors in both countries and investigates their impact on cardiovascular health. The chapter explores the role of lifestyle factors, such as diet and physical activity, in the development of cardiovascular diseases and analyzes the effectiveness of preventive measures, including health promotion programs and policies targeting these risk factors. By comparing the experiences and strategies in Georgia and Norway, this chapter provides insights into the challenges and successes of primary prevention efforts for cardiovascular diseases in relation to overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption. Chapter four, similarly to chapter three, includes the findings and the results of the chapter separately and qualitative research findings.

Chapter Five concludes the thesis by summarizing the main findings and implications of the study. It discusses the effectiveness of primary prevention strategies for cardiovascular diseases in Georgia and Norway, highlighting the importance of addressing risk factors such as smoking, overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption. The chapter offers recommendations for policymakers, healthcare professionals, and researchers to enhance primary prevention efforts and reduce the burden of cardiovascular diseases. Overall, it provides a comprehensive wrap-up of the thesis, emphasizing the significance of primary prevention in combating cardiovascular diseases.

Chapter six of the thesis focuses on the application of the Health Belief Model (HBM) to the findings in Georgia and Norway regarding cardiovascular health behaviors. The HBM provides a theoretical framework to understand the factors influencing health beliefs and behaviors, including perceived susceptibility, severity, benefits, and barriers. The chapter examines demographic variables, psychosocial characteristics, and the influence of perceived susceptibility, severity, benefits, and

barriers on individuals' health behaviors in both countries. It also discusses the role of health motivation, action, and cues to action in promoting behavior change.

The last chapter, Chapter seven of the thesis serves as the concluding chapter, summarizing the key findings and implications of the study on primary prevention and reduction methods for cardiovascular diseases in Norway and Georgia. At the end of the thesis, there are appendices that provide additional supporting materials and information.

2. Methods and theories

2.1 Methods

For this master thesis, a document analysis studied official documents from the World Health Organization (WHO), Norwegian and Georgian government sources. Additionally, journal publications were obtained from various databases and analyzed.

To support the research, secondary data analysis of individual-patient, nationally representative, and cross-sectional data was conducted. Data were collected between 2015 and 2023 from national-level surveys such as WHO's Stepwise Approach to Surveillance (STEPS) or comparable household surveys.

This approach allowed for a comprehensive examination of the various factors related to cardiovascular diseases, including their causes and prevention methods. By analyzing these various sources of data, the thesis aimed to provide a better understanding of the challenges associated with preventing cardiovascular diseases

in Georgia, and to identify potential solutions for improving prevention efforts in the future.

The scarcity of studies on the primary prevention of cardiovascular diseases in Georgia, as compared to Norway, presented a compelling rationale for conducting a qualitative study in Georgia. Based on a literature review, the need to explore primary prevention strategies in Georgia was identified as a gap in the existing research. A qualitative approach was deemed appropriate due to its ability to delve into complex and nuanced topics, such as healthcare policies and practices.

The qualitative study involved six key informants, including three cardiologists and three policymakers, who provided valuable insights into primary prevention of cardiovascular diseases in Georgia. To ensure participant confidentiality, nicknames were assigned to the informants, with policymakers referred to as Petre, Pavle, and Maryam, and medical doctors as Nino, Keso, and Lika.

The interviews were conducted between February and April 2023 using Zoom, with each interview lasting between one and two hours. Participation was voluntary, and a semi-structured interview guide was utilized to explore participants' experiences, knowledge, and challenges related to primary prevention of cardiovascular diseases. Topics discussed included the current situation in Georgia compared to other countries, policy changes, and the effectiveness of primary prevention healthcare services.

When conducting research that involves human subjects, it is crucial to obtain ethical clearance from an appropriate governing body (Bryman, 2016, p. 93). Ethical clearance was obtained from the Norwegian Centre for Research Data (NSD), which ensures compliance with ethical guidelines in research involving human subjects. The study received approval from the NSD, as detailed in the NSD assessment of personal data processing (Appendix 2.3). During the interviews, a flexible approach was taken

to allow informants to provide additional relevant information. All interviews were recorded and transcribed to ensure accurate data analysis.

The data analysis process involved a systematic and rigorous review of the interview transcripts to identify key concepts, ideas, and themes. Descriptive codes were then assigned to segments of data related to the identified themes, with an iterative process used to refine and ensure accuracy in coding. A codebook was developed to document the codes and their definitions, ensuring consistency throughout the analysis.

Thematic analysis revealed several key themes, including health promotion and disease prevention programs, cultural and social factors, socioeconomic status and inequality, the role of doctors, education and information gaps, insurance, and future plans. These themes provided valuable insights into the perceptions and experiences of Georgian policymakers and doctors regarding the healthcare system in Georgia. The findings derived from the thematic analysis are presented and discussed in subsequent chapters of the thesis.

The analytical approach employed in the study was both explanatory and inductive, aiming to gain a comprehensive understanding of the factors influencing primary prevention of cardiovascular diseases in Georgia. The study followed a rigorous and systematic approach to ensure reliability of the collected data and to inform evidence-based strategies for prevention.

2.2 Search strategy and Prisma

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) chart was used to guide the literature search process. Several databases were

searched, including Academic Search Ultimate, CINAHL, SocINDEX, and MEDLINE, along with relevant websites such as UpToDate, Helsebibliotek, FHI, and NCDC. To ensure comprehensive coverage, specific keywords were prepared, as shown in Appendix 1. However, a challenge arose when searching for information about Georgia, as numerous articles were related to the Georgian state rather than the country itself. Thus, it was important to include both country-specific and state-specific terms to capture relevant articles effectively.

Flow diagram of searches, included and excluded studies, developed from Page (et al. 2021).
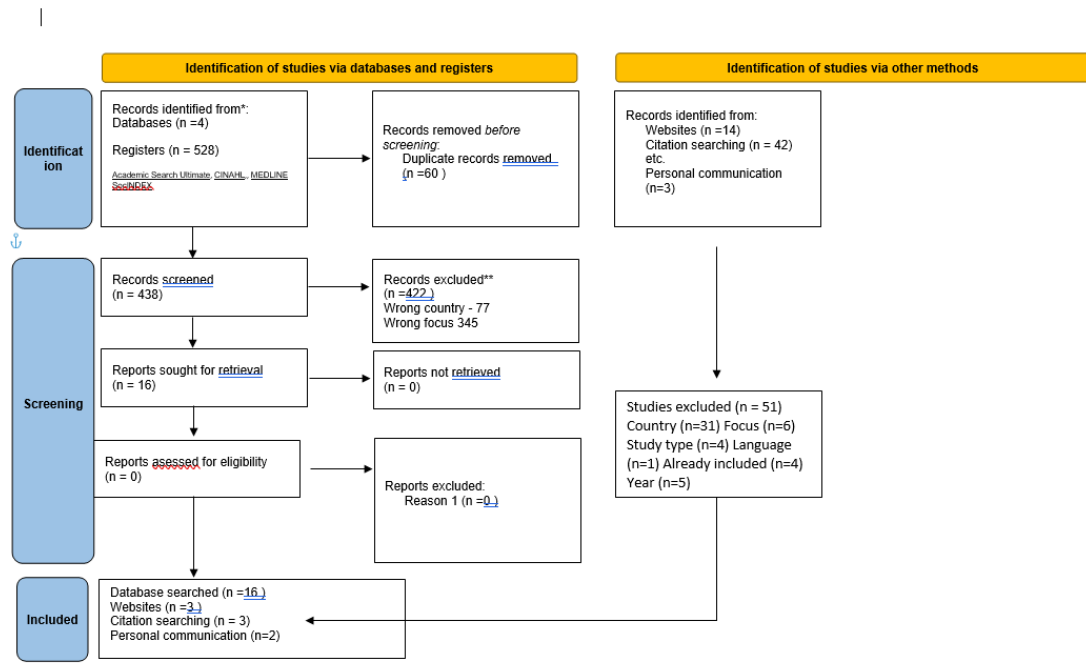
Figure 2: Prisma Chart

2.3 Theories

The theoretical framework I apply to my research is Health Belief Model. The Health Belief Model (HBM) is a widely used theoretical framework for understanding health behaviors. The HBM proposes that individuals' health behaviors are influenced by

their perceptions of the severity of a health threat, their susceptibility to the threat, the benefits of taking action, and the barriers to taking action (Abraham & Sheeran, 2015, pp. 31-32). According to this model, an individual's health behavior is influenced by their level of self-efficacy, which refers to their belief in their ability to successfully execute the appropriate behavior if they were to try (Skolnik, 2019, p. 152)
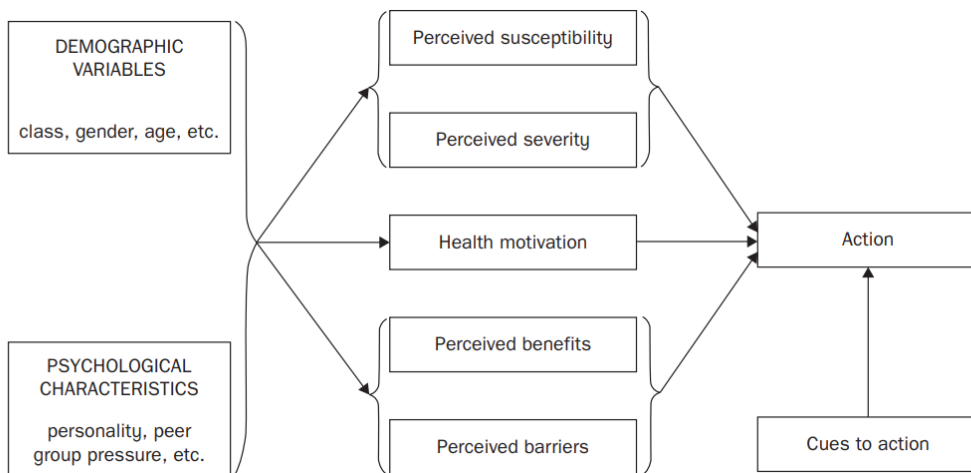
Figure 3: Health belief model (Abraham & Sheeran, 2015, p. 32)

The Health Belief Model is useful to find out how individuals in Norway and Georgia perceive their risk of developing cardiovascular diseases, their attitudes towards preventive health behaviors, and the factors that may influence their decision-making processes.

Chapter 3 primary prevention of cardiovascular diseases and smoking in Georgia and in Norway

This chapter provides an overview of the impact of smoking on cardiovascular diseases and smoking cessation efforts in two countries, Georgia and Norway. The chapter discusses the progress made by Georgia and Norway in implementing tobacco control policies and regulations, as well as the challenges and barriers faced by both nations. Georgia has made significant progress in reducing smoking rates and improving primary prevention of cardiovascular diseases in recent years, thanks to international support and donor countries (T. Verulava, 2022). Norway has a long history of tobacco control legislation and has successfully managed to curb smoking habits more effectively than many other EU nations (Saunes et al., 2020, p. 10). The chapter concludes with a comparative analysis of MPOWER measures in Georgia and Norway and highlights the significant gender gap in smoking prevalence in Georgia compared to a much smaller gap in Norway.

3.1 Smoking and cardiovascular diseases

Cigarette smoking is the leading preventable cause of early mortality and a significant preventable cause of illness globally (Hennekens et al., 2022). Nicotine addiction is a medical condition defined using tobacco and a pathological yearning for its products, as well as an overwhelming desire to consume them regardless of the serious health consequences (Stewart et al., 2017b).

Tobacco use has long been recognized as a significant risk factor for cardiovascular diseases. Both active and passive smoking are harmful and increase CVD risk (Stewart et al., 2017b). The number of cigarettes currently smoked increases morbidity and death from cardiovascular disease (Hennekens et al., 2022). Cigarette smoking contributes to the formation and progression of atherosclerosis (Prasad, 2021). Half of all preventable deaths among smokers are attributable to cigarette smoking, with half of these fatalities attributable to atherosclerotic cardiovascular diseases (Visseren et al., 2021). Smoking cessation is the single most cost-effective strategy in CVD prevention. The advantages of quitting smoking might be visible within months after quitting. Regardless of the length or intensity of one's smoking habit, all guidelines recommend quitting, with both immediate and long-term advantages (Stewart et al., 2017b).

WHO offers support and guidelines to nations in developing their capacity to improve their smoking cessation activities. The European Strategy for Tobacco Control and Warsaw Declaration for a Tobacco-Free Europe emphasize that smoking cessation is an essential component of a complete tobacco control policy. These actions will have a significant impact on the reduction of smoking prevalence. Smoking cessation policies are widely regarded as a cost-effective measure that can have a positive impact on public health globally. There are various approaches that can be used to promote smoking cessation, such as mass population approaches and interventions to motivate smokers to quit (WHO, 2004).

Mass population approaches include strategies such as increasing taxes on tobacco products and implementing regulations to reduce exposure to environmental tobacco smoke. These measures are intended to discourage smoking and promote a healthier lifestyle. Interventions to motivate smokers to quit may include telephone helplines and tobacco dependence treatment. These interventions aim to provide

smokers with the tools and support they need to successfully quit smoking. The role of mass media and education in smoking cessation is also significant. Mass media campaigns can raise awareness about the dangers of smoking and promote the benefits of quitting. Educational programs can help to increase knowledge about the risks of smoking and provide individuals with the skills and motivation to quit (WHO, 2004).

A comprehensive approach that combines mass population strategies and individual interventions to motivate smokers to quit, along with mass media and education, can be an effective way to reduce smoking rates and improve public health (WHO, 2004).

Every smoker in Norway can get frequent advice on how to stop. There are several methods, including behavioral therapy, nicotine replacement therapy, and other pharmacological medications. Pharmacological replacement of smoking is universally recommended. In terms of cardiovascular risk, e-cigarettes remain controversial (Hennekens et al., 2022).

3.2 Effect of smoking on cardiovascular diseases and smoking cessation in Georgia

Georgia was one of the first post-Soviet nations to implement primary healthcare policies. In 1995, Georgia started a process of reorganizing its healthcare system with the goal of activating preventative medicine via the expansion of its primary healthcare system. The reforms in Georgia were based on the recommendations of the World Health Organization (WHO) and the experiences of other nations. International organizations, including the World Bank, WHO, the British government, the European Union, Japan, and Sweden, played a significant role in supporting Georgia in developing its primary healthcare system. The WHO provided technical

assistance and expertise to help Georgia implement its primary healthcare reforms. The World Bank financed several projects aimed at improving primary healthcare services, including the provision of medical equipment and the renovation of health facilities. The British government and the European Union also provided financial and technical assistance to support the reforms. Japan supported the training of primary healthcare workers, while Sweden assisted in the development of health information systems (T. Verulava, 2022).

Overall, the support of international organizations and donor countries has been crucial in helping Georgia to develop and strengthen its primary healthcare system. Through these efforts, Georgia has made significant progress in expanding access to healthcare services, improving the quality of care, and promoting preventative medicine. With World Bank support, the Georgian government implemented a primary health care development project (T. Verulava, 2022).

Georgia has made progress in tobacco reduction in recent years. In 2017, the Georgian parliament passed the National Tobacco Control Law. The bulk of the modifications that were enacted at the time took effect on May 1, 2018 (Bakhturidze et al., 2021).

In Georgia, tobacco control initiatives were developed by the government, among them a state tobacco control program - an action plan for 2013-2018 and a legislative amendments draft. These modifications were made to match tobacco control methods with international and national regulations. In addition, a national health promotion plan for 2014–2019 and a health promotion program with a tobacco control component were designed (Gamkrelidze, 2017, p. 20). Beginning in 2021, a new tobacco control strategy 2021-2025 was implemented. The plan and idea of the new strategy is to improve and continue the policies and activities of the previous year's effective policies and strategies (NCDC, 2021, p. 2).

In recent years Georgia has implemented new policies and regulations of tobacco such as smoke-free regulations of 2018, which implies that smoking is banned in any enclosed public places or other structures. Prohibition of smoking includes e-cigarettes and hookah, prohibition on the retail. Tobacco advertising, promotion, and sponsorship legislation prohibits tobacco product promotion and display in shops. After the tobacco packing and labeling regulations, there are health warning covers on tobacco products. There is a law of cigarette contents control law and authority regulate the content of cigarettes (NCDC, 2021, pp. 9-19).

There was an improvement in cardiovascular diseases after 1.5 years of implementing comprehensive tobacco control efforts in Georgia. According to Ministry of Health statistics from 2018, the number of myocardial infarction incidents reduced by 32% when compared to 2017. When comparing recorded instances in 2019 to 2018, it declined by 6%. In addition, tobacco policies has no negative influence on the country's economic progress (Bakhturidze et al., 2021). The amount of money used for the healthcare system exceeds greatly the amount of money the country receives from the tobacco industry (NCDC, 2021, p. 9).

Even with new regulations and policies, a large number of people die prematurely each year from tobacco-related diseases and disorders. According to a national study of Georgia, 30.7% of the population uses tobacco and more men than women use tobacco (55.5% men and 7.8% women). There are many women who do not admit that they use tobacco, meaning that the number of female smokers could be higher than it stands in statistical data. After the new policies and regulations were implemented in recent years, studies revealed that 23.9% of men and 18% of women attempted to quit smoking. According to 2019 studies, the average age of beginning smoking for men was 18.3 and for women, it was 21.3. After 2015, there is a positive trend, but smoking among young adults in Georgia remains a problem (NCDC, 2021, p. 5).

Use of tobacco is higher in capital city of Georgia, Tbilisi and other big cities, compared to small villages and regions (Georgia, 2017, pp. 11-12). In Georgia, the age-standardized prevalence of tobacco use found that 58.5% of males and just 5.8% of females were predicted to smoke tobacco in 2013. According to a student survey, 21% of students had tried smoking at the age of 13 or younger (28% of males and 13% of girls). 4% of these students smoked on a daily basis. (Gamkrelidze, 2017, p. 20).

Although there has been improvement, preventing cardiovascular diseases caused by tobacco use in Georgia still faces several barriers and challenges. One critical factor in tobacco control is financial stability. Effective management of the finances and activities of both government and non-government organizations is necessary for successful implementation and sustainability of tobacco control measures aimed at preventing cardiovascular diseases caused by tobacco use (NCDC, 2021). Financial stability plays a crucial role in ensuring the effectiveness of tobacco control policies and programs.

Qualitative research results

Based on the accounts of three form six participants in a qualitative research study conducted for a master's thesis, it was reported that the state of tobacco use in Georgia has undergone notable improvements in recent times. Specifically, the participants pointed out that there has been a decrease in smoking among the younger generation and an increase in the average age of smoking initiation. According to the interviews:

"„„many young people have stopped smoking, and the average age at which people begin smoking has increased… These positive changes are attributed to the implementation of new policies in Georgia" (Petre).

Two of the participants in the qualitative research study for the master's thesis reported that the younger generation in Georgia is more inclined towards a healthier lifestyle, which has a positive impact on reducing tobacco use.

According to the participant,

"…new generation is more health-conscious and actively engages in sports and other physical activities, while also avoiding tobacco use. This suggests a shift in attitudes and behaviors towards a healthier lifestyle among the younger population in Georgia" (Nino).

Georgia has implemented various tobacco control policies and regulations in recent years, including smoke-free regulations, tobacco advertising and promotion bans, health warning labels on tobacco products, and cigarette content control laws that had significant positive effect (NCDC, 2021, pp. 9-19).

Based on interviews conducted in Georgia for the thesis, it was observed that a considerable number of individuals used to smoke in public places, including restaurants and cafes.

[…] The implementation of restrictions individuals experienced discomfort as they were unable to smoke as frequently as before. (…) the increase in cigarette prices has made it difficult for young people to afford them, leading to a shift in the smoking culture of Georgia […] (Pavle).

3.3 Effect of smoking on cardiovascular diseases and smoking cessation in Norway

Over the past few decades, Norway has made significant progress in reducing smoking rates. According to data, the proportion of daily smokers in Norway has decreased substantially, from more than 40% in the 1970s to around 12% in 2016 and approximately 13% in 2020 (Saunes et al., 2020).

This decline is particularly noteworthy, as Norway's current smoking rate is lower than the average for the European Union (EU). The EU average smoking rate is around 25%, which means that Norway has successfully managed to curb smoking habits more effectively than many other EU nations (Saunes et al., 2020, p. 10).

In Norway, there is more than 40 years history of tobacco control legislation. According to the statistics of the Norwegian directorate of health, In 1975, the Norwegian Tobacco Act went into effect, mandating health warnings on tobacco packaging. In 2005, Norway was the first nation to ratify the WHO Framework Convention on Tobacco Control. In 2014, the manufacture, sale, and presentation of tobacco products are regulated by national law. In 2018, Norway ratified the Protocol to eliminate illegal trade of tobacco. Norway is exempt from the prohibition on selling tobacco for oral use, snuff. Nowadays the minimum age for buying tobacco is 18 years old. Since 1988, there has been legal protection against exposure to tobacco smoke in the workplace, and since 2004, smoking has been completely banned in enclosed buildings such as bars and restaurants. In 2014, smoking rooms were prohibited. In 2010, a prohibition on the retail display of tobacco products was enacted to increase the effectiveness of the advertising restriction. Since 2011, all cigarette packaging has been required to include graphic health warnings. In 2017, a new regulation mandating standardized tobacco packaging went into effect (helsedirektoratet, 2023).

Everyone in Norway, including those at risk for cardiovascular disease, can receive assistance for quitting smoking. There are national guidelines that provide comprehensive information on quitting smoking. If there are additional concerns, such as a family history of heart disease, individuals must exert additional effort to stop smoking. The main points of this approach are to consult with high-risk smokers and gather extensive information about their smoking behaviors before making a specific offer of aid to stop smoking via pharmacological therapy and motivational support In Norway, patients at high risk of cardiovascular disease should be offered a smoking cessation program that may include medical treatment. On the website of the Norwegian directorate of Health, there is information for health professionals who may stimulate patients, as well as information for patients. As a result, Around 1% of population stop smoking per year in Norway (Helsedirektoratet, 2018, p. 33).

3.4MPOWER - Comparative analysis of Norway and Georgia

The World health organization has a Framework Convention on Tobacco Control (WHO FCTC). The measures of MPOWER are introduced by WHO and these measures are designed to aid in the country-level implementation of successful tobacco-demand-reduction strategies outlined in the WHO FCTC. WHO framework convention on tobacco control signed in 2003 and ratified in 2003 in Norway. In Georgia the framework was ratified in 2006. The most recent available year (2018) of government spending on tobacco control in currency reported by countries shows that Norway spends around 5.5 times more than Georgians. The number of persons who smoke on a daily basis in Georgia is twice compared of Norway. In Georgia, there is a significant gender disparity while in Norway, the numbers are almost equal

(WHO, 2021).

MPOWER framework

Monitoring	• Monitoring tobacco use and prevention policies.
Protecting	• Protecting people from tobacco smoke.
Offering	• Offering help to quit tobacco use.
Warning	• Warning about the dangers of tobacco.
Enforcing	• Enforcing bans on tobacco advertising, promotion and sponsorship.
Raising	• Raising taxes on tobacco.
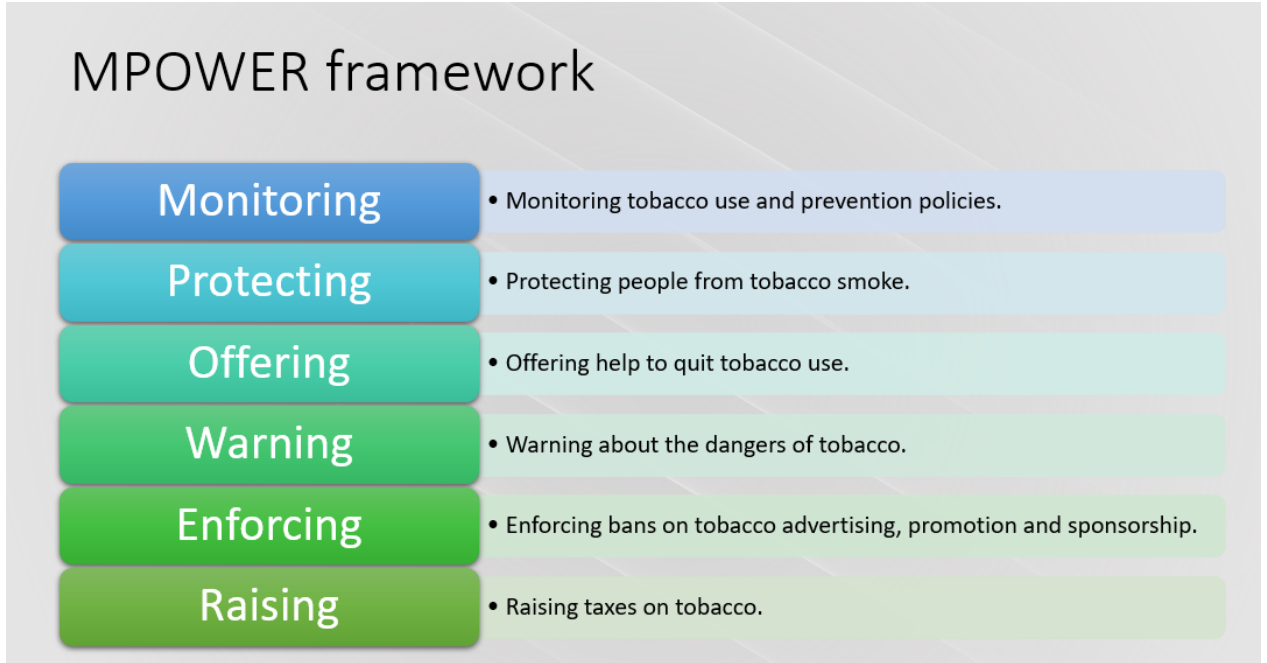
Figure 4. MPOWER measures (WHO, 2021)

WHO report on the global tobacco epidemic, 2021 revealed MPOWER measures in Norway and in Georgia.

	Norway	Georgia
M-MONITORING	Complete measure	Complete measure
P-SMOKE-FREE ENVIRONMENTS	Complete measure	Moderate measure
O- CESSATION PROGRAMMES	Moderate measure	Moderate measure
W-HEALTH WARNINGS / MASS MEDIA	Moderate measure/ Complete measure	Complete measure / Complete measure
E- ADVERTISING BAN	Moderate measure	Moderate measure
R- TAXATION	Moderate measure	Complete measure
CIGARETTES LESS AFFORDABLE	yes	no trend change in affordability of

Figure 5. Summary of MPOWER measures in Georgia and in Norway 2021 (WHO, 2021).

While Georgia, a middle-income nation, still has a high prevalence of smoking, high-income countries in Europe, including Norway have managed to achieve better

outcomes in terms of tobacco usage. In addition, a WHO survey revealed a significant gender gap in smoking prevalence in Georgia, compared to a much smaller gap in Norway. (WHO, 2021)

By 2030, smoking mortality is expected to decrease in high-income nations while increasing in low- and middle-income countries. Because of the significant link between tobacco use and socioeconomic deprivation, this is causing rising health inequities at the national and global levels (Hennekens et al., 2022).

3.5 Findings and Discussion

From the comparative analysis of primary prevention of cardiovascular disease through tobacco cessation in Norway and Georgia, the differences and similarities between the two countries can be highlighted. Both countries have implemented significant tobacco control policies including smoke-free regulations, tobacco advertising and promotion bans, health warning labels on tobacco products, and cigarette content control laws. These policies have had a positive impact on reducing smoking rates and ultimately preventing cardiovascular diseases. However, there are some key differences in the implementation and effectiveness of these policies.

Both Norway and Georgia have recognized the importance of addressing tobacco use as a significant risk factor for cardiovascular diseases. As a result, both countries have ratified the World Health Organization (WHO) Framework Convention on Tobacco Control and have implemented the MPOWER measures, which aim to reduce the demand for tobacco at a country level (WHO, 2021).

These measures have led both Norway and Georgia to adopt comprehensive tobacco control policies, including smoke-free legislation that bans smoking in public places and enclosed spaces (Bakhturidze et al., 2021; Gamkrelidze, 2017, p. 20; NCDC, 2021,

p. 2). Additionally, both countries have imposed strict restrictions on tobacco advertising and promotion, ensuring that fewer people are exposed to enticing marketing campaigns that could potentially increase tobacco use (helsedirektoratet, 2023; NCDC, 2021, pp. 9-19). In an effort to further educate their populations about the dangers of smoking, Norway and Georgia have also mandated the use of health warnings on tobacco products. These warnings serve as a constant reminder of the potential consequences of tobacco use and help to motivate individuals to quit smoking or avoid picking up the habit in the first place (helsedirektoratet, 2023; NCDC, 2021, pp. 9-19).

Differences between Norway and Georgia are that Norway has a lower smoking prevalence compared to Georgia (WHO, 2021). The smoking rate in Norway is lower than the European Union average, while Georgia's smoking rate remains high, particularly among men (Saunes et al., 2020, p. 10; WHO, 2021). There is a significant gender disparity in smoking prevalence in Georgia, with more men smoking than women, while in Norway, the gender gap is much smaller (Organization, 2020; WHO, 2021).

The healthcare systems in the two countries differ significantly, with Norway having a high-income, well-funded healthcare system, and Georgia having a middle-income healthcare system that has improved in recent years, thanks to international support. Norway spends more on tobacco control than Georgia (A.Gamkrelidze, 2018; Nylenna, 2020b; WHO, 2021). The higher government spending on tobacco control in Norway likely contributes to the lower smoking prevalence and better outcomes in terms of tobacco usage.

The primary prevention of cardiovascular disease through tobacco cessation in Norway and Georgia presents different challenges and opportunities. Although both countries have implemented significant tobacco control policies, there are differences in the effectiveness of these policies and the prevalence of smoking.

High-income countries such as Norway have had more success in reducing smoking rates and addressing tobacco-related health issues.

The study revealed that tobacco control policies and smoking cessation programs are cost-effective measures that can have a positive impact in Norway and in Georgia and on public health globally, particularly in preventing cardiovascular diseases.

The literature and qualitative research findings presented in this thesis offer valuable insights that can inform future research and policy implications, particularly in Georgia where smoking prevalence rates remain high. The evidence suggests that successful tobacco control policies and programs require a collaborative effort between the government, international organizations, and other stakeholders. It is also evident that investing in tobacco cessation programs, strengthening tobacco control policies and regulations, and addressing gender disparities in tobacco use are essential steps that can be taken to curb smoking rates and reduce the burden of cardiovascular disease in the country.

It is recommended that both Georgia and Norway strengthen their tobacco control policies and regulations to reduce smoking rates and prevent cardiovascular diseases caused by tobacco use. To ensure their effectiveness, policies must be enforced and strengthened, and price increases on tobacco products should be implemented step-by-step in Georgia. In Norway, it is important to control the use of oral nicotine, such as snuff and other nicotine products that are more popular nowadays.

Gender disparities in smoking prevalence exist in Georgia, with more men smoking than women, while Norway has a smaller gap. To address this disparity, Georgia should implement gender-sensitive tobacco control policies and promote gender equity in their efforts. The Gender disparities in smoking in Georgia was a significant in World Health Organization STEPS research. It is recommended to have national

and international research and use other countries' experience to address the problem.

Collaboration with international organizations, such as the WHO, has played a vital role in supporting both Georgia and Norway in developing and implementing tobacco control policies and programs. Ongoing collaboration with these organizations is essential to receive technical assistance, expertise, and financial support, and to learn from the experiences of other countries.

To measure the impact of tobacco control measures, it is important for both countries to establish comprehensive monitoring and evaluation systems and make necessary adjustments to improve their effectiveness. Research should also be conducted on the use of all nicotine products, not just smoking, as they can all have an impact on cardiovascular diseases. Overall, these recommendations will inform future research and policy implications, particularly in Georgia where smoking prevalence rates remain high.

Chapter 4: primary prevention of cardiovascular diseases - overweight, obesity, unhealthy diet, physical inactivity and alcohol consumption in Georgia and Norway

Medical professionals have known about the risks of being overweight or obese since Hippocrates' time, more than 2500 years ago. Overweight and obesity are medical conditions characterized by an excessive amount of body fat, which can lead to negative health outcomes. These conditions are usually determined by a person's body mass index (BMI), which is calculated by dividing their weight in kilograms by their height in meters squared. A BMI between 25 and 29.9 is considered overweight, while a BMI of 30 or higher is considered obese. People who are

overweight or obese have an increased risk of developing a range of health problems, including diabetes, heart disease, stroke, and high blood pressure. Overweight refers to a weight that exceeds the "normal" range, as indicated by actuarial statistics. The body mass index is used to calculate this (WHO, 2023).

BMI = weight in kilograms\ height in meters squared

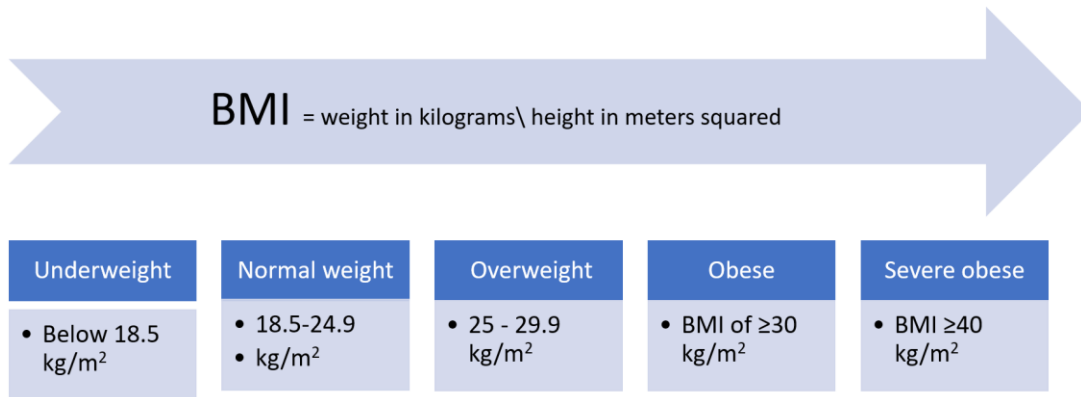| Underweight	Normal weight	Overweight	Obese	Severe obese
• Below 18.5 kg/m^2	• 18.5-24.9 • kg/m^2	• 25 - 29.9 kg/m^2	• BMI of ≥30 kg/m^2	• BMI ≥40 kg/m^2

Figure 6. BMI definition and weight ranges (WHO, 2023).

Overweight and obesity are not only characterized by an excessive amount of body fat but also pose significant health risks. Individuals who are overweight or obese face an increased likelihood of developing various health problems, including type 2 diabetes, cardiovascular diseases (such as heart disease and stroke), high blood pressure, and other chronic conditions (WHO, 2023).

Unhealthy dietary choices play a critical role in the risk of obesity and cardiovascular diseases. Consuming excessive calories, sugar, and unhealthy fats contributes to weight gain and obesity. In contrast, adopting a balanced and healthy diet, rich in fruits, vegetables, whole grains, lean proteins, and low-fat dairy products, has been shown to lower blood pressure, reduce cholesterol levels, and improve overall cardiovascular health (Hennekens et al., 2022).

Changing dietary habits can significantly reduce the risk of obesity, overweight and cardiovascular diseases as individuals who consume nutritious food are less likely to develop such conditions compared to those who do not. Thus, it is imperative to

adopt healthier eating habits to prevent cardiovascular diseases (Hennekens et al., 2022).

Figure 7. healthy diet (Hennekens et al., 2022).

Therapeutic Lifestyle Changes (TLCs) such as maintaining a healthy diet and reducing alcohol consumption have been widely recommended by healthcare professionals and researchers as effective measures to reduce the risk of cardiovascular diseases (CVD). The evidence supporting the effectiveness of these TLCs is substantial and encompasses a wide range of studies, including randomized controlled trials and observational studies. A healthy diet, rich in fruits, vegetables, whole grains, lean proteins, and low-fat dairy products, has been shown to lower blood pressure, reduce cholesterol levels, and improve overall cardiovascular health. On the other hand, excessive alcohol consumption has been linked to an increased risk of hypertension, stroke, and other forms of CVD (Hennekens et al., 2022).

Obesity and overweight raise the risk of numerous main cardiovascular risk factors, including dyslipidemia, hypertension, and insulin resistance, while weight reduction has been proven to improve these parameters. Large prospective cohort studies have consistently demonstrated that morbidity and mortality from coronary heart diseases (CHD) increase linearly with body mass index, after adjusting for smoking and other risk factors (Hennekens et al., 2022). Considering obesity and overweight have a negative impact on health and increase the risk of cardiovascular disease, there are recommendations in guidelines globally for weight management within a normal range for primary prevention of cardiovascular disease (Stewart et al., 2020).

There is a well-established association between food, weight, and physical inactivity. Poor dietary choices, such as consuming excessive amounts of calories, sugar, and unhealthy fats, can lead to weight gain and obesity. Additionally, physical inactivity or sedentary behavior contributes to the development of obesity and associated health risks. On the other hand, consuming a balanced and healthy diet and engaging in regular physical activity are key strategies for maintaining a healthy weight and preventing obesity-related health problems (Leigh Perreault, 2023).

Besides the fact that obesity and overweight, physical inactivity and alcohol consumption have negative influence on health, its economic impact on patients, national and international economies are important worldwide (Osmundsen et al., 2019).

The World Health Organization has established numerous strategies and initiatives in order to reduce overweight, obesity, alcohol consumption, physical activity and healthy diet worldwide. The *WHO Global Strategy on Diet, Physical Activity, and Health* is a description of the need for healthy nutrition and physical exercise. Strategies developed by the WHO play a crucial part in ensuring action is taken at the national, international, and global levels (WHO, 2023).

4.1 Effect of overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption on cardiovascular diseases in Georgia. Including qualitative study

While several behavioral risk factors declined in Georgia between 2010 and 2016, overweight and obesity were among the biological risk factors that increased in frequency for both men and women between 2010 and 2016 (A.Gamkrelidze, 2018).

In 2016, STEPS study conducted in Georgia found that the majority of the respondents were either overweight or obese, with a total of 64.6% falling into these categories. Only 2.5% of the respondents were underweight, while 32.8% had a normal BMI (A.Gamkrelidze, 2018).

Furthermore, the study found that there were gender differences in the prevalence of overweight and obesity. The percentage of men who were overweight (BMI of 25 or higher) was significantly higher than the percentage of men who were obese (BMI of 30 or higher), with 35.3% and 27.9%, respectively. On the other hand, the percentage of women who were obese was significantly higher than the percentage of women who were overweight, with 30.2% and 36.0%, respectively. This study highlights the prevalence of overweight and obesity in Georgia and suggests that there may be gender-specific factors that contribute to these conditions. It also underscores the importance of promoting healthy lifestyles and behaviors, particularly among those who are at risk of becoming overweight or obese (A.Gamkrelidze, 2018).

The qualitative study for this thesis with policymakers and doctors revealed cultural factor of overweight and unhealthy diet, such as traditional Georgian food. It tends to contain high amounts of salt and fat, which contribute to the risk of cardiovascular

diseases. Furthermore, cultural norms around alcohol consumption during gatherings, as well as alcohol use during adolescence, remain problematic.

''…conventional Georgian dishes typically contain high amounts of salt and fat, which contribute to a heightened risk of cardiovascular diseases… cultural customs involving alcohol consumption at social events and adolescent alcohol use continue to pose challenges." (Keso).

According to STEPS and WHO study in Georgia, males are much more likely than women in most age groups to participate in behavioral risk factors for CVDs such as insufficient intake of fruits and vegetables, adding salt to the diet, and frequent consumption of processed foods. Women are far more likely than males to engage in most biological risk factors in older age groups, including overweight and obesity, as well as high blood pressure, glucose, and cholesterol. 17.4% of the respondents reported that their level of physical activity did not meet the recommendations set by the World Health Organization (WHO) for physical activity. The proportion of men who reported not meeting the WHO recommendations was slightly lower at 16.2%, while the proportion of women was slightly higher at 18.4%. Additionally, the text notes that younger men, specifically those aged 18-29 years, reported being more physically active than other groups. This information suggests that a significant proportion of the population may not be getting enough physical activity, which can have negative consequences for health and well-being (A.Gamkrelidze, 2018; Organization, 2020)

qualitative study for the thesis revealed that younger generations in Georgia are more motivated to pursue a healthy lifestyle, and new regulations have improved the situation with tobacco use. However, the prevalence of tobacco and alcohol use remains problematic. Employed individuals have access to corporate cards for sports facilities and activities, but busy work schedules and economic priorities often prevent them from taking advantage of these opportunities.

[…] younger generations in Georgia have become more aware of their health, and recent regulations have had a positive effect on tobacco consumption. Nonetheless, tobacco and alcohol consumption remain issues (…) Even though employed individuals can access sports/training facilities through corporate membership programs, hectic schedules and financial priorities often hinder their usage…[…] (Lika).

The data of STEPS presented that alcohol consumption and low intake of fruits and vegetables are common among the population in Georgia. Additionally, a significant portion of the population adds excess salt to their food, which may have negative health implications. These findings highlight the need for public health interventions and education programs to promote healthier lifestyles and reduce the burden of chronic diseases associated with unhealthy dietary habits and excessive alcohol consumption (A.Gamkrelidze, 2018; Organization, 2020).

The STEPS study results in Georgia led to the creation of a Multisectoral State Council for Prevention and Control, which is aimed at preventing and controlling non-communicable diseases. In addition to this, a four-year strategy was developed to address non-communicable diseases in the country (NCDC, 2018).

To effectively monitor and address non-communicable diseases, Georgia adopted the WHO STEPwise approach, which is a comprehensive framework for surveillance and monitoring of risk factors for non-communicable diseases. This approach involves the collection of data on behavioral, physical and biochemical indicators, as well as the implementation of policies and interventions to address risk factors associated with non-communicable diseases (NCDC, 2018).

The establishment of the Multisectoral State Council for Prevention and Control, and the adoption of the WHO STEPwise approach, highlights the importance that the Georgian government places on preventing and controlling non-communicable diseases. These efforts are crucial in addressing the high prevalence of non-communicable diseases in the country and improving the overall health of its population (NCDC, 2018).

4.2 Effect of overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption on cardiovascular in Norway

Over the past few decades, Norway has witnessed a significant increase in the prevalence of obesity, affecting individuals of all ages and socioeconomic statuses, thereby posing a substantial threat to public health (Joseph et al., 2012).

National studies conducted in 2016 revealed high rates of overweight and obesity, with 46% of the population being overweight and 23% classified as obese (Haakon Eduard Meyer, 2017). These rates show international disparities and suggest the influence of various factors such as lifestyle, culture, and access to healthcare. The study found that the gender difference in the prevalence of overweight and obesity was lower than what was observed in Georgia. However, there was still a significant international disparity in the rates of overweight and obesity. This suggests that there may be various factors that contribute to this disparity, such as differences in lifestyle, culture, and access to healthcare, among others (Haakon Eduard Meyer, 2017).

A cross-sectional study conducted in Telemark found that over 50% of the participants had a higher BMI, which is linked to an increased risk of developing diseases. Specifically, 11% of the participants were in the high-risk category, 19% in the very high-risk category, and 27% in the increased risk category. The study also

found that a lack of physical activity, as well as the presence of cardiovascular disease, hypertension, and diabetes, were all associated with higher BMI. These associations were found to be independent of factors such as age, gender, education level, and residential location. (Joseph et al., 2012).

To address these challenges, educational programs for general practitioners have been implemented, resulting in improved care delivery and better collaboration between primary and secondary care. Osmundsen asserts that while preventing diseases is the most cost-effective approach to avoid illness, there is a notable absence of robust systems that integrate disease prevention and treatment across all levels of healthcare. Specifically, obesity, a complex condition associated with various severe and chronic diseases, demands continuous monitoring throughout an individual's lifetime. Consequently, the treatment process becomes intricate and time-consuming, posing challenges in organizing healthcare services (Osmundsen et al., 2019).

In Norway, there was an educational program for general practitioners (GPs) at three hospitals in central Norway with the goal of improving care delivery for obese patients. A qualitative study was conducted to investigate the impacts of research training, and the findings suggested that educational programs for GPs are effective. The training program had a positive influence on the formation of links and networks, which aided in the closing of the organizational gap between primary and secondary care. Significant gains in knowledge and competence in both primary care and the hospital, as well as the development of common practices and the implementation of shared standards (Osmundsen et al., 2019).

Unhealthy dietary habits and inadequate consumption of fruits and vegetables are areas of concern in Norway, despite the country's high income and relatively good quality of life. Health inequalities persist among different income and education levels. However, positive trends, such as the declining proportion of smokers and the

high percentage of adults engaging in regular physical activity, indicate progress Although Norway has seen a rise in overweight and obesity rates in recent years, the prevalence of these conditions remains slightly lower than the European Union (EU) average (Saunes et al., 2020).

Nonetheless, there is a need for public health intervention programs targeting adults with overweight and obesity to reduce associated health risks (Oellingrath et al., 2022).

Cross sectional study about abdominal obesity, mass index and lifestyle highlight the high prevalence of combined BMI (body mass index) and WC (waist circumference) disease risk categories among the Norwegian adult population aged 18-51 years, with more than half of the participants falling into these categories. The study also found that unfavorable health indicators such as low physical activity, cardiovascular disease history, physician-diagnosed high blood pressure and diabetes, lowered self-perceived health, and elevated hs-CRP increased in line with BMI-WC disease risk. The study emphasizes the importance of using both BMI categories and WC for personalized assessment of obesity-related risk and the need for follow-up. The findings provide crucial insights into the health risks associated with obesity, and the need for public health intervention programs targeting adults with overweight and obesity. Furthermore, the study highlights the importance of early detection and management of obesity-related health risks, which can significantly reduce the morbidity and mortality rates associated with these conditions. Follow-up studies are necessary to study morbidity development in the BMI-WC risk categories, and to develop effective prevention and management strategies for obesity-related diseases (Oellingrath et al., 2022).

Alcohol consumption is prevalent in Norway, with strict alcohol control policies in place, including high taxes, advertising bans, and restricted access. While alcohol consumption among Norwegian youth has been decreasing, risky drinking behaviors

still exist, particularly among men and older adults. Factors such as higher education and income levels influence alcohol consumption patterns, with older adults being more susceptible to the negative effects of alcohol due to age-related changes in metabolism and body composition. Understanding the factors associated with problematic alcohol consumption in older adults is crucial for identifying those at higher risk (Elin Kristin Bye, 2018; Hnilicová et al., 2017; Tevik et al., 2019).

The article "The alcohol advertising ban in Norway: Effects on recorded alcohol sales" examines the impact of the complete ban on alcohol advertising in Norway in 1975 on total alcohol sales. The study uses annual time series data from 1960 to 2006 and applies interrupted time series analysis techniques (Rossow, 2021).

The ban on alcohol advertising in Norway has had a protective effect on overall alcohol consumption, as evidenced by a significant and lasting reduction in alcohol sales following its implementation (Rossow, 2021).

However, relying solely on registered alcohol consumption data may not provide a complete picture of alcohol use among different population groups, emphasizing the value of self-reported data (Elin Kristin Bye, 2018; Tevik et al., 2019).

4.3 Comparison of Norway and Georgia regarding the effect of overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption on cardiovascular health

Norway and Georgia both face the challenge of increasing rates of overweight and obesity, which pose significant threats to public health. In Norway, the prevalence of overweight and obesity is slightly lower than the European Union average, with 46% of the population being overweight and 23% classified as obese. In contrast, Georgia

has higher rates of overweight and obesity, with 64.6% falling into these categories (A.Gamkrelidze, 2018; Haakon Eduard Meyer, 2017).

In terms of unhealthy dietary habits, both countries exhibit concerns. Norway faces the issue of inadequate consumption of fruits and vegetables, while traditional Georgian food, with its high salt and fat content, contributes to the risk of cardiovascular diseases (A.Gamkrelidze, 2018). Cultural factors play a role in influencing dietary patterns in both countries.

Physical inactivity is a shared concern, with a notable portion of the population in both Norway and Georgia not meeting the recommended physical activity guidelines. In Georgia, gender differences are observed, with males more likely to engage in insufficient intake of fruits and vegetables, adding salt to their diet, and frequent consumption of processed foods. In contrast, Georgian women are more likely to exhibit biological risk factors such as overweight, obesity, high blood pressure, glucose, and cholesterol (A.Gamkrelidze, 2018; Organization, 2020).

Alcohol consumption patterns differ between Norway and Georgia. In Norway, strict alcohol control policies have led to a decrease in alcohol consumption among youth, while risky drinking behaviors still exist, particularly among men and older adults. According to the qualitative study for the thesis in Georgia wit policymakers and doctors, alcohol consumption is prevalent, and cultural customs around alcohol consumption during gatherings contribute to the problem. Factors such as higher education and income levels influence alcohol consumption patterns in both countries (Elin Kristin Bye, 2018; Hnilicová et al., 2017; Tevik et al., 2019).

Both countries have implemented measures to address these risk factors. Norway has enacted a ban on alcohol advertising, which has had a protective effect on overall alcohol consumption. In Georgia, the establishment of a Multisectoral State Council for Prevention and Control and the adoption of the WHO STEPwise approach

demonstrate the government's commitment to addressing non-communicable diseases (NCDC, 2018; Rossow, 2021).

4.4 Findings and discussion

The comparison between Norway and Georgia regarding primary prevention and reduction methods for cardiovascular diseases reveals several key findings. Both countries are grappling with increasing rates of overweight and obesity. Unhealthy dietary habits pose a significant risk in both nations, with Norway facing issues of inadequate consumption of fruits and vegetables, while traditional Georgian food, high in salt and fat, contributes to cardiovascular disease risk. Physical inactivity is a shared concern, with a notable portion of the population in both countries not meeting recommended activity guidelines.

Alcohol consumption patterns differ between the two countries. Norway's strict control policies, including an advertising ban, have led to decreased consumption among youth, although risky drinking behaviors persist among men and older adults. Georgia faces challenges related to cultural customs around alcohol consumption during social events.

Both countries have implemented initiatives to address these risk factors. Georgia established a Multisectoral State Council for Prevention and Control, adopting the WHO STEPwise approach, indicating a commitment to tackling non-communicable diseases. In Norway, educational programs for general practitioners have improved care delivery and collaboration between primary and secondary care.

The findings emphasize the need for tailored interventions considering cultural and contextual factors. Both nations must promote healthier lifestyles to reduce the burden of cardiovascular diseases. By addressing risk factors such as overweight,

obesity, unhealthy diet, physical inactivity, and alcohol consumption, Norway and Georgia can work towards enhancing cardiovascular health outcomes. Government efforts and collaboration with healthcare professionals are essential in implementing effective strategies to combat these challenges.

The thesis findings suggest that there is a need for ongoing efforts to enhance the effectiveness of public health interventions and education programs in promoting healthier lifestyles and reducing the burden of chronic diseases in both Georgia and Norway. In Georgia, despite the establishment of a Multisectoral State Council for Prevention and Control and the adoption of the WHO STEPwise approach, the prevalence of overweight and obesity remains high. This indicates that current interventions may not be fully effective in addressing the complex factors contributing to unhealthy lifestyles in the country. Further evaluation and refinement of these interventions are necessary to improve their impact.

In Norway, although the prevalence of overweight and obesity is slightly lower than the European Union average, there is still a need for continuous efforts to prevent and reduce these conditions. The educational programs for general practitioners have shown promising results in improving care delivery for obese patients and promoting collaboration between primary and secondary care. However, there is room for improvement in terms of integrating disease prevention and treatment across all levels of healthcare. Strengthening the integration of preventive measures within the healthcare system can enhance the effectiveness of interventions in reducing the burden of chronic diseases.

The comparison of factors contributing to the prevalence of overweight and obesity in Georgia and Norway highlights both similarities and differences. In both countries, unhealthy dietary habits and physical inactivity are significant factors contributing to overweight and obesity. However, cultural factors play a more prominent role in Georgia, with traditional Georgian food and cultural customs around alcohol

consumption contributing to the risk of cardiovascular diseases. In Norway, inadequate consumption of fruits and vegetables and sedentary lifestyles are key factors.

The Health Belief Model (HBM) can be utilized to design effective interventions to prevent and control overweight and obesity in both Georgia and Norway. The model emphasizes the importance of individual beliefs, perceived susceptibility to a health problem, perceived severity of the problem, perceived benefits of taking action, perceived barriers to change, and cues to action. In the context of overweight and obesity, interventions should focus on raising awareness about the health risks associated with these conditions, promoting self-efficacy in adopting healthier lifestyles, and addressing perceived barriers such as cultural norms and access to healthy food options or physical activity facilities.

Applying the HBM in Georgia would involve addressing cultural beliefs and norms surrounding food choices and alcohol consumption. Interventions should aim to shift perceptions of susceptibility and severity of overweight and obesity-related health issues, emphasize the benefits of adopting healthier dietary habits and increasing physical activity, and provide cues to action through targeted educational campaigns and community-based programs.

In Norway, interventions based on the HBM should target perceptions of susceptibility to health problems associated with inadequate consumption of fruits and vegetables and sedentary lifestyles. Emphasizing the benefits of healthy eating and regular physical activity, addressing barriers such as accessibility and affordability of nutritious foods, and providing cues to action through community programs and policies can encourage behavior change.

6. Health belief model

The Health Belief Model (HBM) is a well-known theoretical model that explains the individual's health behavior and decision-making process. It includes four key elements: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. HBM offers valuable insights when comparing primary prevention and reduction methods for cardiovascular diseases in Norway and Georgia. By examining individuals' health beliefs, including perceived susceptibility, severity, benefits, barriers, cues to action, and health motivation, it is understandable what factors influencing health behaviors in each country. The HBM provides a structured framework for developing effective preventive strategies tailored to the specific contexts of different countries (Abraham & Sheeran, 2015) such as in Norway and Georgia.

The application of the Health Belief Model (HBM) to the findings in Georgia and Norway reveals important insights into cardiovascular health behaviors. Both countries show awareness of risks, health motivation, and perceived benefits of adopting healthy behaviors. However, cultural factors, unhealthy habits, and barriers exist. Governments have taken action and cues to action are needed to promote behavior change. Addressing these factors can foster healthier behaviors and reduce risks, improving cardiovascular health in both countries.

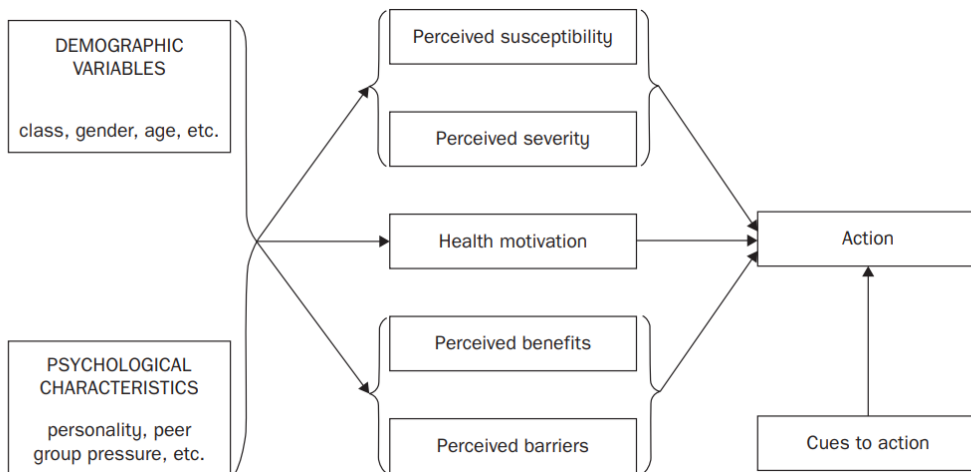## 6.1 Health Belief Model (HBM) applied to the thesis information and findings about Georgia and Norway:

Figure 8. Health belief model (Abraham & Sheeran, 2015)

- Demographic variables: In both Georgia and Norway, demographic variables such as age, gender, and socioeconomic status can influence individuals' health beliefs and behaviors related to overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption.
- Psychosocial characteristics: Psychosocial characteristics, such as cultural norms, social support, and knowledge about the risks and consequences of cardiovascular diseases, play a role in shaping individuals' health beliefs and behaviors in both Georgia and Norway.
- Perceived susceptibility: The prevalence rates of overweight, obesity, and unhealthy behaviors in both Georgia and Norway highlight the perceived susceptibility of

individuals to cardiovascular diseases. Higher rates of overweight, obesity, and unhealthy behaviors increase the perceived susceptibility to health problems.

- Perceived severity: The knowledge about the risks and consequences of cardiovascular diseases, as well as the prevalence rates, contribute to the perceived severity of these conditions in both Georgia and Norway. This perception can motivate individuals to take action to prevent or manage these diseases.

- Health motivation: The thesis findings indicate that younger generations in Georgia are more motivated to pursue a healthy lifestyle, and recent regulations have had positive effects on tobacco consumption. In Norway, educational programs for general practitioners have been effective in improving care delivery for obese patients. These examples reflect the presence of health motivation in both countries.

- Perceived benefits: The thesis information highlights the benefits of adopting a healthy diet, engaging in physical activity, and reducing alcohol consumption in preventing cardiovascular diseases. These perceived benefits can positively influence individuals' health beliefs and behaviors in both Georgia and Norway.

- Perceived barriers: Cultural factors, unhealthy dietary habits, and lack of physical activity are perceived barriers to adopting healthy behaviors in both Georgia and Norway. These barriers can affect individuals' health beliefs and hinder their willingness to take action.

- Action: The thesis findings suggest that both Georgia and Norway have implemented interventions and strategies to address the risk factors related to cardiovascular diseases. These actions demonstrate the commitment of the governments in both countries to promote health and prevent diseases.

- Cues to action: The thesis information highlights the role of education programs, regulations, and the adoption of the WHO STEPwise approach as cues to action in both Georgia and Norway. These cues can prompt individuals to take action towards adopting healthier behaviors and reducing the risk of cardiovascular diseases.

The application of the Health Belief Model (HBM) to the thesis findings in Georgia

and Norway reveals important insights into the factors influencing cardiovascular health behaviors.

Both countries demonstrate a high awareness of the risks associated with overweight, obesity, and unhealthy behaviors. This awareness contributes to the perceived susceptibility and severity of cardiovascular diseases. Moreover, the findings highlight the presence of health motivation, with younger generations in Georgia displaying greater interest in pursuing a healthy lifestyle, and educational programs for general practitioners in Norway improving care delivery for obese patients.

Perceived benefits play a crucial role in promoting healthy behaviors. The thesis findings emphasize the benefits of adopting a healthy diet, engaging in physical activity, and reducing alcohol consumption in preventing cardiovascular diseases. This perception of benefits positively influences individuals' health beliefs and behaviors in both countries.

However, cultural factors, unhealthy dietary habits, and lack of physical activity are perceived as barriers to adopting healthy behaviors. These barriers need to be addressed to facilitate behavior change and promote cardiovascular health. Governments in both countries have taken action, such as establishing the Multisectoral State Council for Prevention and Control in Georgia and implementing educational programs for general practitioners in Norway, demonstrating their recognition of the importance of preventive measures.

To promote behavior change, it is necessary to provide individuals with cues to action. Addressing cultural norms, improving access to healthy food options, creating opportunities for physical activity, and raising awareness about the risks of excessive alcohol consumption are all essential components.

By addressing these barriers and providing cues to action, both Georgia and Norway can foster healthier behaviors and reduce the prevalence of overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption. These efforts will contribute to improved cardiovascular health and the overall well-being of their populations.

7. Conclusion

In my thesis I provided comparative analysis of the efforts of two very different countries – Norway and Georgia – in preventing cardiovascular diseases. In order to answer my research questions, I have conducted a thorough examination of diverse data sources, such as document analysis, secondary data analysis, and qualitative interviews with key stakeholders. In this part of the thesis, I present the main findings of my research.

Firstly, the research demonstrated that Norway has achieved remarkable success in reducing smoking rates and controlling tobacco use through its extensive tobacco control legislation. The implementation of smoke-free regulations, advertising and promotion bans, health warning labels, and cigarette content control laws has contributed to lower smoking prevalence and improved health outcomes in comparison to other European Union countries. Moreover, Norway's dedication to providing support for individuals who wish to quit smoking has played a pivotal role in promoting smoking cessation and reducing the burden of cardiovascular diseases. On the other hand, Georgia has also made significant strides in reducing smoking rates and enhancing primary prevention efforts for cardiovascular diseases, with the assistance of international organizations and donor countries. The country has enacted various tobacco control measures, including smoke-free regulations, bans on tobacco advertising and promotion, health warning labels, and laws regulating cigarette content. Despite these advances, challenges such as financial stability and

the need for stricter enforcement of tobacco control measures persist in Georgia. It is essential to address these obstacles to further decrease smoking rates and improve public health outcomes related to cardiovascular diseases. There are also other challenges, particularly in the areas of overweight and obesity, unhealthy diet, and physical inactivity, that persist in Georgia. Qualitative research carrier out in Georgia, STEPT research, national surveys in Norway and Georgia and other studies revealed that both countries have unique cultural, demographic, and psychosocial factors that influence the prevalence of these risk factors, requiring tailored interventions and strategies.

The outcomes of this study provide understanding into the practical use of the Health Belief Model in formulating impactful health interventions. By addressing individuals' health beliefs and motivations and considering perceived susceptibility, severity, benefits, and barriers, policymakers and health professionals can develop targeted strategies that resonate with their populations. It is crucial that these strategies also consider the specific cultural and contextual factors of each country to ensure their relevance and effectiveness. The experiences of Georgia and Norway further demonstrate the role of education, government action, and context-specific factors in encouraging healthy behaviors. Therefore, the HBM, along with an understanding of specific cultural and contextual factors, is crucial in designing impactful health interventions. HBM revealed the influence of cultural norms on health behaviors, such as the traditional Georgian food customs and the impact of cultural customs around alcohol consumption. By understanding these cultural factors, policymakers can design culturally sensitive interventions and policies that address specific cultural norms and practices.

Qualitative research for this thesis and surveys made in Georgia let me to the conclusion that younger generations display a greater motivation to adopt healthier lifestyles, while the implementation of new regulations has a positive impact on reducing tobacco consumption. This demonstrates how individuals' health

motivations, combined with effective policy measures, can drive behavior change. Similarly, in Norway, educational programs aimed at general practitioners have been successful in improving the care delivery for obese patients. This showcases how targeted interventions, guided by an understanding of perceived severity and susceptibility of health issues, can effectively address specific health challenges.

The research findings highlight the critical role of continuous monitoring and evaluation in public health interventions, policy measures, and education programs. By regularly assessing the progress and outcomes of these initiatives, policymakers can gather valuable feedback from individuals, healthcare professionals, and stakeholders, enabling them to make informed decisions and necessary adjustments. Tobacco control policies in Georgia and Norway is an example of the importance of monitoring and evaluation. By tracking the impact of these policies on smoking rates and cardiovascular disease prevention, policymakers can assess their effectiveness and identify areas for improvement. This feedback loop allows for refining and strengthening tobacco control measures to achieve better outcomes.

In line with these findings, several recommendations for policymakers and health professionals were proposed in the thesis. Prioritizing the implementation of comprehensive tobacco control measures, enhancing support for smoking cessation, addressing cultural and contextual factors, promoting healthy lifestyles, and investing in continuous monitoring and evaluation are crucial for ………(ristvisaa crucial?). The success of comprehensive tobacco control measures in Norway, where the implementation of smoke-free regulations, advertising bans, health warning labels, and support for smoking cessation has contributed to lower smoking rates and improved cardiovascular health outcomes. This demonstrates that prioritizing and implementing comprehensive tobacco control measures can yield positive results in reducing smoking rates and preventing cardiovascular diseases.

My research shows that collaboration partnerships among policymakers, health professionals, and international organizations are the measures that should be strengthened to facilitate the development and implementation of evidence-based strategies. The establishment of the Multisectoral State Council for Prevention and Control in Georgia reflects a collaborative approach to addressing non-communicable diseases. This initiative acknowledges the importance of collaboration among policymakers, health professionals, and other sectors in developing an

Lastly, it is recommended that policymakers support further research efforts to deepen our understanding of the determinants of smoking behaviors, overweight, and obesity, as well as the effectiveness of interventions. Such research can provide valuable insights into the specific needs and challenges of the population, enabling the design of evidence-based policies and interventions. The success of tobacco control policies based on research evidence, the importance interventions informed by factors such as beliefs and cues to action, the need for continuous monitoring and evaluation of interventions, and the role of research in providing evidence for policymaking. While the effectiveness may vary, investing in research enables informed decision-making and improved health outcomes. By implementing these recommendations, both Georgia and Norway can continue to make significant strides in reducing the prevalence of cardiovascular diseases. The findings of this research highlight the potential for policy measures, public health interventions, and education programs to improve public health outcomes and enhance the overall well-being of their populations.

limitations: The findings of this study are based on the specific context of Norway and Georgia and may not be directly applicable to other countries or regions. The unique socio-cultural, economic, and healthcare factors of these countries may limit the generalizability of the findings.

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Appendixes

Appendix 1. Search strategy description

Appendix 1 provides a detailed description of the search strategy used in the thesis. This includes the process of selecting and excluding search terms. Table 1.1 presents a list of the keywords that were considered for the search process.

1.1 keywords

population	AND	Phenomenon interest 1.	AND	Phenomenon interest 2.	AND	context
Doctor* or Physician* or Policymaker*		primary prevention* or prevention* or reduction* or smoking* or obesity* or overweight* or unhealthy diet* or physical inactivity* or dyslipidemia* or hypertension* or diabetes* or DM		cardiovascular disease or cvd or heart or cardiac or coronary heart disease		Norway or Norwegian* Georgia or Georgian* Or country Georgia* or republic Georgia* or Georgia (Republic)* or Georgian republic* or Tbilisi* or Kutaisi* or Batumi*

OSLOMET

Appendix 2.

2.1 Preliminary interview guide:

The table included in the appendix presents the initial interview guide that was prepared prior to conducting the interviews for the qualitative research. It should be noted that the interview guide was subject to change during the actual interviews as some participants had already provided some answers, and some interesting and relevant details came up during the conversations, resulting in additional questions being asked.

1	Explanation of the research project	Project: Primary prevention of cardiovascular diseases: a comparison of Norway and Georgia.
		Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will be anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.
		I will only use your data for the purpose(s) specified in this information letter. I will

		process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act). • I am the only person who will have access to personal data. • I will replace your name and contact details with a code. The list of words, contact details and respective codes will be stored separately from the rest of the collected data.
2	Consent to record the interview	You can ask me any questions about the project. Can we start the interview?
3	Profession	What is your profession? -Can you tell me what your main task is in an everyday setting?
4	Cardiovascular diseases	How is the general situation about primary prevention of cardiovascular diseases in Georgia? Is it is problematic, why? What are the main reasons for cardiovascular diseases In Georgia? Do people have enough information? Tobacco use? Unhealthy diet?

		Physical inactivity? Do many people have an active lifestyle? If not, why
		High alcohol consumption?
		Arterial hypertension?
		Diabetes?
		Culture and traditions?
		Other reasons?
		Which reasons do you find most important?
		Which reasons do you find easiest to change?
		Which reasons do you find most difficult to change?
		Other reasons?
5	Prevention and reduction	How can you as a medical doctor help to prevent cardiovascular diseases?
		How can you as a policymaker help to prevent cardiovascular diseases?
		How can people prevent cardiovascular diseases?
		Are there any programs? projects? Political changes?
		If yes, are they helpful? Do many people participate in? what about age group? Is there any difference in different generations? Why? if not, why?
		If yes, what has changed?
6	Doctors, government, and patients.	Who has the responsibility to prevent and reduce cardiovascular disease? Why?
		What is the role of doctors? Policy makers? Patients?

7	barriers and facilitators	What do you find to be the main barriers to prevent cardiovascular diseases? How can your country facilitate better prevention of cardiovascular diseases? How do you advocate for change? Social groups? Cultural? Economic? Social inequality? Why?
9	New policies	Do you know of any new policies for changes? If yes, how do they work? Has it proved to be helpful? If not, how do you know? Do you have ideas about new policies? Are there some policies that could improve reduction and prevention of cardiovascular diseases?

Appendix 2.2 Use private devises – Oslomet

Use of private devices - OsloMet

We refer to the notification form, reference number 122511 in connection with the master thesis: A prevention and reduction methods of the leading reasons of cardiovascular disease compared in Norway and Georgia.

In the following paragraph concerning processing of personal data NSD provides the following information:

In this project the following information will be processed:

On the project, general categories of personal data name, telephone number, profession and sound recordings will be collected during the interview. All participants will provide written and oral information about the project. The written forms will be presented orally. The interviews will be audio recorded and transcriptions will be written after the interviews. In transcriptions they will be used fictional names to ensure anonymity and confidentiality. Audio files will be stored in Netsjema and only PI will have access (Tamar Nodia), Audio recordings will be deleted after transcriptions.

We refer to the guidelines on the web page OsloMet R&D guide:
https://ansatt.oslomet.no/en/protection-privacy-data-processing-ethics
According to these guidelines personal information of special categories should NOT be stored on private devices. General personal data may be stored on private devices, provided encryption of data. Devices which are connected to the internet should NOT be used for audio and video recordings, for instance cell phone or tablet.

For information about how to conduct research interviews online we refer to the following guidelines : https://ansatt.oslomet.no/en/rutine-zoom-forskningsintervjuer.
According to these guidelines private devices may be used to host zoom meetings but not to record the meeting. Instead, the interviews may be recorded by using the Nettskjema Dictaphone app which is recommended for small amounts of sensitive data (master thesis).

OsloMet accepts the use of private computer to analyze data and to write the master thesis, provided:
- Encrypt data stored in the project
- Turn off the wireless internet connection and pull out the internet cable before decryption of data files
- You will find more information about encryption of here:
  https://ansatt.oslomet.no/en/kryptering

Signature by the data controller (institution responsible for the project)

Oslo, December 9th 2022

Inger Johanne Flatland
GDPR contact person at the Faculty of Social Science

Appendix 2.3 NSD assessment of processing of personal data.

Assessment of processing of personal data

Reference number	Assessment type	Date
122511	Standard	16.01.2023

Project title
Primary prevention of cardiovascular diseases: a comparison of Norway and Georgia.

Data controller (institution responsible for the project)
OsloMet – storbyuniversitetet / Fakultet for samfunnsvitenskap / Institutt for sosialfag

Project leader
Simon Innvær

Student
Tamar Nodia

Project period
15.12.2022 - 31.12.2023

Categories of personal data
General

Legal basis
Consent (General Data Protection Regulation art. 6 nr. 1 a)

The processing of personal data is lawful, so long as it is carried out as stated in the notification form. The legal basis is valid until 31.12.2023.

Notification Form

Comment

ABOUT OUR ASSESSMENT
Data Protection Services has an agreement with the institution where you are a student or a researcher. As part of this agreement, we provide guidance so that the processing of personal data in your project is lawful and complies with data protection legislation.

FOLLOW YOUR INSTITUTION'S GUIDELINES
We have assessed that you have legal grounds to process the personal data, but remember that you must store, send and secure the collected data in accordance with your institution's guidelines. This means that you must use data processors (and the like) that your institution has an agreement with (i.e. cloud storage, online survey, and video conferencing providers).

Our assessment presupposes that the project will meet the requirements of accuracy (art. 5.1 d), integrity and confidentiality (art. 5.1 f) and security (art. 32) when processing personal data.

NOTIFY CHANGES
If you intend to make changes to the processing of personal data in this project, it may be necessary to notify us. This is done by updating the information registered in the Notification Form. On our website we explain which changes must be notified. Wait until you receive an answer from us before you carry out the changes: https://sikt.no/en/notify-changes-notification-form

FOLLOW-UP OF THE PROJECT
We will follow up the progress of the project at the planned end date in order to determine whether the processing of personal data has been concluded.

Good luck with the project!

Apedix 2.4 information letter

Information letter

Are you interested in taking part in the research project?

Primary prevention of cardiovascular diseases: a comparison of Norway and Georgia.

This is an inquiry about participation in a research project where the main purpose is to investigate strategies to reduce the leading reasons of cardiovascular diseases in Norway and Georgia. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

This thesis aims to compare the implementation and effectiveness of primary prevention strategies for cardiovascular disease in Norway and Georgia. It focuses on factors such as smoking, overweight, obesity, unhealthy diet, physical inactivity, and alcohol consumption. The research will utilize comparative analysis, including data from national surveys, health records, policy documents, and qualitative research. The findings can inform tailored interventions and have implications for policy and practice.

Title: A comparison of primary prevention and reduction methods of the leading causes of cardiovascular diseases in Norway and Georgia

Research questions:

1. What are the differences and similarities in the implementation and effectiveness of tobacco control policies in Norway and Georgia, and how have these policies impacted smoking rates and cardiovascular disease prevention in each country?

2. How effective are the current public health interventions and education programs in promoting healthier lifestyles and reducing the burden of diseases associated with unhealthy dietary habits and excessive alcohol consumption in Georgia and Norway?

3. What are the factors that contribute to the prevalence of overweight and obesity in Georgia and Norway, and how do these factors differ between the two countries?

4. How can the Health Belief Model be applied to design effective interventions to prevent and control overweight and obesity in Georgia and Norway?

Who is responsible for the research project?

Student- Tamar Nodia, supervisor -Simon Innvær and Oslo Metropolitan University.

Why are you being asked to participate?

It is a semi-structured interview with the focus on experienced doctors and key policymakers in Norway and in Georgia. The experience, opinion and knowledge of doctors and policymakers will be important and useful for the project. The interviews will be audiotaped, transcribed, and thematically analyzed.

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will be anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data

I will only use your data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

• I am the only person who will have access to the personal data.

• I will replace your name and contact details with a code. The list of words, contact details and respective codes will be stored separately from the rest of the collected data

All participants will submit written forms of informed consent that they have freely chosen to give. Participants will have enough time to ask any questions about the project. The information will be provided by written paper and orally. As part of the documentation of informed consent, the interview will be audio recorded. Names and personal information will be anonymous.

What will happen to your personal data at the end of the research project?

Data protection regulations will be followed when storing information. By the end of november 2023, all participant information, included audio files will be deleted.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

OSLOMET

Based on an agreement with Oslo Metropolitan University (Olsomet), Data Protection Services has assessed that the processing of personal data in this project is by data protection legislation.

Where can I find out more?

If you have questions about the project or want to exercise your rights, contact:
• Oslo Metropolitan University (Olsomet) via Tamar Nodia (principal investigator and data collector), a master's student at Oslo Metropolitan University. Email: s360880@oslomet.no Tel:+4794077136 (Norway)
• Simon Innvær (Main supervisor) Associate professor at Oslomet. Email: simoinn@oslomet.noTel: +47 99038241
• Our Data Protection Officer: Ingrid Jacobsen: ingrid.jacobsen@oslomet.no or by telephone: +47 993 02 316
• Data Protection Services, by email: personverntjenester@sikt.no or by telephone: +47 53 21 15 00.

Yours sincerely,

Project Leader   Student (if applicable)
(Researcher/supervisor)
Simon Innvær   Tamar Nodia

Consent form

Consent can be given in writing (including electronically) or orally. NB! You must be able to document/demonstrate that you have given information and gained consent from project participants i.e. from the people whose personal data you will be processing (data subjects). As a rule, we recommend written information and written consent.

- *For written consent on paper you can use this template*
- *For written consent which is collected electronically, you must chose a procedure that will allow you to demonstrate that you have gained explicit consent (read more on our website)*
- *If the context dictates that you should give oral information and gain oral consent (e.g. for research in oral cultures or with people who are illiterate) we recommend that you make a sound recording of the information and consent.*

If a parent/guardian will give consent on behalf of their child or someone without the capacity to consent, you must adjust this information accordingly. Remember that the name of the participant must be included.

Adjust the checkboxes in accordance with participation in your project. It is possible to use bullet points instead of checkboxes. However, if you intend to process special categories of personal data (sensitive personal data) and/or one of the last four points in the list below is applicable to your project, we recommend that you use checkboxes. This because of the requirement of explicit consent.

I have received and understood information about the project *[insert project title]* and have been given the opportunity to ask questions. I give consent:

- ☐ to participate in *(insert method, e.g. an interview)*
- ☐ to participate in *(insert other methods, e.g. an online survey) – if applicable*
- ☐ *for my/my child's teacher to give information about me/my child to this project (include the type of information)– if applicable*

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☐ *for my personal data to be processed outside the EU – if applicable*

☐ *for information about me/myself to be published in a way that I can be recognised (describe in more detail)– if applicable*

☐ *for my personal data to be stored after the end of the project for (insert purpose of storage e.g. follow-up studies) – if applicable*

I give consent for my personal data to be processed until the end date of the project, approx. *[insert date]*

(Signed by participant, date)