

https://dspace.org/

A normative analysis of the sugary drinks tax as an intervention to reduce obesity in South Africa

Alport, Belinda Carole

2019
https://hdl.handle.net/10539/29788

Downloaded from a DSpace repository. https://dspace.org/

A NORMATIVE ANALYSIS OF THE SUGARY DRINKS TAX AS AN INTERVENTION TO REDUCE OBESITY IN SOUTH AFRICA

Belinda Carole Alport

A Research Report submitted to the Faculty of Health Sciences, University of Witwatersrand, Johannesburg in partial fulfilment of the requirements for the degree Master of Science in Bioethics and Health Law.

Johannesburg, 2019

Declaration

I **Belinda Carole Alport** declare that this Research Report is my own, unaided work. It is being submitted for the Degree of Master of Science in Bioethics and Health Law at the University of Witwatersrand, Johannesburg.

It has not been submitted before for any degree or examination at any other University

Belinda Alport

Signature of Candidate

18 day of June 2019 in Parktown

I dedicate this to my loving partner, Mark Samuelsson, who supported and encouraged me during the two years it took to complete this degree.

Abstract

Is the implementation of a sugary drinks tax an ethically justifiable intervention to reduce obesity in South Africa?

The purpose of this research is to normatively analyse the justifications for and against the use of a sugary drinks tax as a public health intervention and to normatively evaluate whether it is an effectiveness intervention to reduce obesity in South Africa. I also apply the Nuffield Council of Bioethics Framework to normatively assess the ethical conflict of whether the restriction imposed by taxation on individual autonomy is ethically justified.

This research is a purely normative study and is based on desk-top and library-based research. The sources of literature include, but was not limited to, research articles, books, Google Scholar, Pubmed, Government legislation and policies and other academic research engines for gathering the research data.

There is no scientific evidence that the consumption of a single product type i.e. sugar sweetened beverages (SSB) is directly linked to the high incidence of obesity in South Africa nor is there scientific evidence that the sugary drinks tax will reduce the incidence of obesity as claimed by the state. This is supported by reports from most countries where this tax has already been implemented. This intervention has no public health benefit and therefore can't be justified as an ethical public health intervention. Furthermore, the restriction imposed by the introduction of the sugary drink tax on individual choice through affordability is not ethically justified due to the regressive nature of taxation and its higher impact on the socially disadvantaged. This puts the intervention in conflict with the core value of public health, i.e. social justice, and thus exposes the familiar use of statistics by the state as a tactic to justify the implementation of ineffective and unethical health policies.

Acknowledgement

I wish to acknowledge my supervisor, Dr Jillian Gardner, for her valuable input and contribution to this research report.

List of Abbreviations

ADA	:	American Diabetes Association
BMI	:	Body Mass Index
NCD	:	Non-Communicable Diseases
SSB	:	Sugar Sweetened Beverage
STD:		Sexually Transmitted Disease
T2D	:	Type 2 Diabetes
TB	:	Tuberculosis
USA	:	United States of America
WHO	:	World Health Organisation

Table of Contents

Declaration ii

Abstract iv

Acknowledgement v

List of Abbreviations vi

Chapter I: Introduction 1

Background Literature, Analysis and Critique 1

Rationale and Justification 5

Research Objectives 5

Research Methodology 6

Argumentative Strategy 7

Chapter II: Justifications for the Implementation of the Sugary Drinks Tax as a Public Health Intervention 10

What is Public Health? 10

The Role of Ethics in Public Health 14

Social Justice 15

Paternalism 17

The Harm Principle 19

Chapter III Ethical Evaluation of Issues Raised For and Against a Sugary Drinks Tax 23

Fiscal Policy used to Influence Behaviour 24

Is Behaviour always a Choice? 25

Do Sugary Drinks cause Obesity? 27

Justification of the Sugary Drinks Tax 29

Are Taxes Successful at Influencing Behaviour? 32

Has the Sugary Drinks Tax been Successful? 34

Chapter IV: A Sugary Drinks Tax is Unethical: Applying the Nuffield Council Framework 38

Stewardship Model 39

Interventional Ladder 42

Is the Sugary Drinks Tax Ethical? 43

Applying the Stewardship Model 43

Applying the Interventional Ladder 45

Conclusion 48

References 52

Appendices 62

Ethics Clearance Letter 62

Plagiarism Form (Turnitin) 63

Chapter I: Introduction

Background Literature, Analysis and Critique

The life expectancy of most populations has increased significantly over the past 150 years[1]. This change is attributed to various public health interventions that are provided by the state such as the "provision of clean drinking water, safer and healthier foods, ,motor vehicle safety as well as sanitation and other health initiatives including control of infectious diseases, mandatory vaccinations and family planning"[1] . Despite this improvement in life expectancy, "non-communicable diseases (NCDs) are today, the leading causes of death globally and were responsible for 38 million (68%) of the world's 56 million deaths in 2012. More than 40% (i.e. 16 million) of NCD-related deaths were premature (i.e. under the age of 70 years) and the majority of premature deaths (82%) occurred in low and middle-income countries"[2]. In the past 30 years many countries have seen a significant increase in the average body mass of its population and in some countries, the prevalence of obesity has reportedly doubled[3]. Epidemiology studies have linked a high body mass index (BMI, person's weight in kilograms divided by the square of their height in meters) as a risk factor for NCDs[3]. NCDs include obesity, type II diabetes, cardiovascular diseases as well as certain types of cancer[2]. The World Health Organisation (WHO) attributes an unhealthy diet and lack of physical activity as risk factors to developing NCDs. According to WHO, "Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health" [4]. For adults, WHO defines overweight and obesity as follows: "Overweight is a BMI greater than or equal to 25; and obesity is a BMI greater than or equal to 30"[4].

The global "obesity pandemic" and its associated increase in burden of disease[3] has understandably attracted the attention of global public health organisations and governments, including the department of health in South Africa, as these statistics highlight the urgent need to, not only understand the cause(s) of the problem, but also the need to establish and implement interventions that will address this growing public health problem. It is estimated that obesity and the treatment of T2D costs the South

African economy more than R700 billion per year[5]. The prevalence of T2D has increased rapidly in South Africa,[6] and in particular over the past decade has been shocking, notably 26.8% of the population have a BMI ≥30 and it is listed in the top 50 fattest countries in the world[7]. The latest demographic and health survey reported that "two thirds (68%) of women and one third (31%) of men are obese (BMI ≥30%) and one in five women (20%) included in this survey were morbidly or severely obese (BMI ≥35%)"[8)(p17). "The increase in the prevalence of type 2 diabetes (T2D) is thought to be directly attributed to the increase in the prevalence of obesity in the majority (87%) of T2D cases in South Africa"[9)(p684)]. In 2009, it was estimated that approximately 2 million adults, of age 30 years and older, roughly 9% of the population in South Africa have T2D, which is a two fold increase from the 5.5% reported in 2000[10].

The global increase in obesity is attributed to many factors including changes in food environment and food systems but more specifically the "availability, accessibility and affordability of energy dense foods and drinks" are considered the key drivers[3]. Energy dense food products have a high number of calories per serving (>4kcal/g) and tend to have a high fat as well as a high sugar content[11] some examples are biscuits, pastries, deep fried food, processed foods, fast foods, juices and fizzy drinks[12]. WHO recommended that to counter this global obesity trend, "individuals must reduce their intake of free sugars to less than 10% of their total energy intake"[2] and "that governments use fiscal policies to promote healthy eating patterns"[13]. Like parts of Asia, Denmark, Finland, France, Hungary, Ireland, Mexico, Mauritius and Norway, the South African government recently announced the implementation of a tax of sugary drinks from 1 April 2018 as an intervention to reduce the consumption of sugar and reduce the prevalence of obesity by 10% in the South African population by 2020[14].

The use of taxes to influence public behaviour is not a new public health strategy. Since 1994 the South African government, like other governments, have introduced taxes on products aimed at influencing purchasing and consumption behaviour as a public health intervention. As an example, the introduction of taxes by governments on the sale of cigarettes and tobacco products aimed at reducing smoking because of its adverse health risks have been in place for at least a decade in many countries

and in South Africa since 1994[15]. However despite these taxes, the prevalence of smoking is still relatively high, particularly in the low and middle income groups[16]. While policy makers directly attribute the reduction in smoking to the taxes imposed on the sale of cigarettes, there are a number of other initiatives including regulations that have made smoking 'inconvenient', for example the restrictions on smoking in public places such as restaurants and public transport. These regulations together with global anti-smoking campaigns, health awareness and education campaigns are more likely to have had a significant role in the reduction in smoking.

A tax on sugary drinks as a public health intervention has emerged from the "assertion that individuals are responsible for their own health and if they can't make the right choice, then the state needs to intervene"[3] While there is some available scientific evidence of a reduction of obesity following the introduction of a tax of sugary drinks, the reduction has not been what was expected and the limitations of these studies often calls the results into question [4]. In Asia, it is acknowledged that the introduction of taxes of sugary drinks has not had the desired effect on reducing obesity with only a 3% reduction following the introduction of a 20% tax in one year[17]. In other countries including Mexico, where a similar tax was introduced in 2014, there has been an increase the sales of sugary soft drinks [18] with very little effect in reducing obesity[19]. Research also showed that "low income households were most affected by the tax since they allocate a higher percentage of their income to soft drinks"[19] .

The cause of obesity is complex and therefore cant been exclusively attributed to the consumption or overconsumption of one food type. Not every person who consumes sugary drinks is overweight or obese and not every person who is considered overweight or obese consumes sugary drinks. The introduction of a sugary drinks tax in South Africa is therefore unlikely to address this public health problem and likely to impact on low income households who may rely on sugary drinks as their main source of daily energy. It may be that due to their availability, accessibility and affordability these products have become a substitute for drinking water in communities still affected by poor service delivery. Even if the sugary drinks tax succeeds in reducing the consumption of these selected sugary drinks products in South Africa, it may not necessarily reduce the overall consumption of sugar as individuals may merely switch to other cheaper energy dense food products or may even forgo other essential

household commodities to be able to afford their preferred brand of sugary drinks. Without convincing evidence of a causal relationship between the consumption of sugary drinks and obesity, making these products 'less affordable' is more likely to impact on the overall well-being of those South Africans for whom sugary drinks is an important component of the daily energy intake as well as fluid intake, as well as their right to make autonomous decisions.

It has been shown that the introduction of a tax alone as a public health intervention is not adequate to influence public behaviour. The 'plastic bag' tax which was introduced by the South African government in 2003 and is aimed at reducing the demand for plastic bags to reduce the amount of plastic in landfill sites and littering of plastic in the environment is a case in point. Since its introduction up until the end of August 2014, R1.1bn had been collected[20]. However, there has been no allocation of funds towards recycling initiatives or much needed public education. The net result is that there has been a steady increase in the demand for plastic shopping bags confirming there has been no change in public behaviour[21] . A 50% increase in the plastic bag tax was announced in February 2018 which confirms that this tax is purely an additional measure to help plug the revenue gap of government spending[20] and that the government has no intention to use the revenue generated to address the environmental impact of plastics. The sugary drinks tax is attractive as it is an administratively 'easy' intervention for the South African government to implement and to collect. Furthermore, it will contribute significantly to the annual revenue collection at a time when the country is experiencing slow economic growth resulting is a significant revenue shortfall, and thus scoring much needed political points. However, the tax collected is unlikely to be allocated towards the funding of other interventions such as dietary education and improvements to public health care which are more likely to influence the public's food choices and lifestyle which are required to reduce obesity in South Africa.

The research question addressed in this research report is: "Is the implementation of a sugary drinks tax an ethically justifiable intervention to reduce obesity in South Africa? This research provides a normative analysis of whether it is ethically justifiable for the state to implement a sugary drinks tax in an effort to reduce obesity in South Africa and argues that the sugary drinks taxation policy is ethically indefensible for

consequentialist and deontological reasons. The stewardship model and the interventional ladder evaluated against the Nuffield Council Framework (NCF).

Rationale and Justification

Although recommended by WHO[4] as a global policy to address the increase in obesity, the ethics of the use of taxes to influence and change eating behaviour as a means of reducing life-style related illnesses and subsequently its impact on reducing the associated cost of treatment to the state has not been adequately researched**.** South Africa has a unique socio-economic landscape with the majority of the population classified as having a low socio-economic status. The inequalities that exist in socio-economic status is further exacerbated by inequalities in health with non-communicable diseases (NCD) reported as being a significantly burden in the lower socio-economic groups[22].

It is acknowledged that the causes of obesity are complex including environmental and genetic factors which can have a significant impact on body weight[23]. Furthermore the consumption of sugar-sweetened beverages is not evenly distributed across the population[24] which raises the question regarding the motive for the implementation of this tax by the state as a means to reduce obesity in South Africa. I argue that the implementation of a sugary drinks tax is a clear example of overreach by the state on an individual's autonomy and self–determination; is unlikely to be effective in reducing the incidence of obesity and therefore is not an ethically justifiable public health intervention for South Africa.

Research Objectives

This research has the following objectives:

1. To review and establish the effectiveness of taxation as an intervention to influence individual behaviour
2. To review the effectiveness of the sugar tax in countries where the intervention is already implemented.

3. To normatively analyse and critique the justifications for and against the use of a sugar tax as public health intervention to reduce obesity in South Africa.
4. To normatively assess the use of the sugary drinks tax as an intervention to reduce obesity by applying the Nuffield Council of Bioethics framework.

Research Methodology

This research is a purely normative study and is based on desk-top and library-based research. No new data was collected or analysed, and the research did not involve human participants. The research received ethics clearance from the University of Witwatersrand Human Research Ethics Committee (Medical) – certificate number W-CBP-180529-3. Typical research methods used in philosophical research have been employed.

This research discusses findings from literature and primarily involves the interpretation and ethical analysis of the most important texts and postings as well as relevant government legislation and policies to answer the research question.

The analysis of relevant texts includes the definition and clarification of concepts, the identification and criticisms of assumptions, the analysis of theoretical frameworks and the articulation of the most reasonable interpretation of significant concepts found in the source. The sources of literature include, but was not limited to, research articles, books, Google Scholar, Pubmed, online news articles, Government legislation and policies and other academic research engines for gathering the research data.

The following key words and phrases were used to search for literature:
global obesity; obesity and sugar; obesity in South Africa; WHO and obesity; fiscal policy to reduce obesity; tax on sugar sweetened beverages; sugar tax in South Africa; public health interventions; success of a tax on sugar; moral justification for a sugar tax; Mill's Harm principle, Nuffield Council of Bioethics; behaviour and public health interventions; paternalism; public health; public health ethics; is behaviour a choice; Stewardship Model; Interventional Ladder; tax on alcohol; tax on tobacco products; success of the plastic tax; social justice;

In addition, the reference lists of key articles were reviewed for further literature as well as online search for articles, publications and other relevant material by the same author of key articles.

Argumentative Strategy

The research question addressed in this research report is: “Is the implementation of a sugary drinks tax an ethically justifiable intervention to reduce obesity in South Africa?

The first premise of my argument is that it the sugary drinks tax is unethical because the state’s use of affordability to influence purchase choices impacts on autonomy and self-determination. Competent adults have the right to choose what they eat and drink and also whether they wish to be healthy or unhealthy. I argue that the implementation of a sugary drink tax in South Africa is not an ethically justified intervention because this is a clear example of over-reach by the state which impedes on citizens right to make autonomous decisions regarding their choice of daily nutrition.

The second premise is that the causes of obesity are complex and that there is no reliable evidence that the consumption or overconsumption of a single type of product, i.e. sugar, is directly linked to the cause of obesity and therefore without reliable scientific evidence its implementation is morally baseless. To address this premise requires background information to establish the reason why the global implementation of a sugar tax is gaining traction. I present the significance of the increase in global and South Africa obesity statistics and provide the reasons why there is need to find solutions to address obesity and why this is considered an important public health problem. This research includes an ethical evaluation of the arguments used to support a tax on sugar and sugary drinks as well as those used to oppose the implementation of this tax.

The third premise of my argument is that the implementation of a sugary drinks tax has the potential to worsen the economic challenges of the disadvantaged, without making any attempt to deal with the underlying causes of obesity and is therefore in

conflict with social justice, the core value of public health, and is therefore regressive and unfair.

In Chapter II I provide an overview of public health, the role public health ethics and the importance of social justice as a core ethical principle in public health. I also discuss Mill's 'Harm Principle' and its relevance to opposing public health interventions that interfere with the autonomous rights of competent adults. The chapter ends with a review of the principle of 'paternalism' and how this approach to public health policies sets up a moral dilemma of whether respect for individual rights and liberties are more important than the state imposing regulations and policies that restrict what the state perceives as risk-to-self behaviour.

In Chapter III I evaluate two ethical concerns that arise from the state's use of taxation as a public health intervention. The first is that of autonomy and the second is that the sugary drinks tax is unfair because it is regressive. To address these concerns this chapter firstly looks at the notion of individual choice and the role of taxation as well as its success as a public health intervention with reference to the tax on smoking, alcohol and the plastic bag tax in South Africa. I also review available scientific evidence used to support the state's claim that the sugary drinks tax will improve health and therefore reduce the incidence of obesity and NCDs. This chapter evaluates the causes of obesity and whether there is sufficient reliable scientific evidence to link the consumption of sugar sweetened beverages (SSB) as a likely cause of obesity. I conclude with case studies of countries were a similar tax has been implemented highlighting the reason for its success or its failure in addressing their obesity problem providing useful insight and a degree of predictability of how successful this tax will be in achieving its stated health outcome in South Africa.

In Chapter IV I review a public health framework described by the Nuffield Council of Bioethics as an alternative to the paternalistic, also known as 'nannying', approach typically used by the state to achieve its intended health outcome. I describe the two analytical tools offered by this framework namely the 'Stewardship Model' and the 'Intervention Ladder' that can be used to assess ethical conflicts of public health policies and their interventions. Finally, I apply these two analytical tools to assess

whether a sugary drinks tax is an ethically justifiable public health intervention to reduce obesity in South Africa.

Chapter II: Justifications for the Implementation of the Sugary Drinks Tax as a Public Health Intervention

Who is responsible for health? Should health be left to individuals or does the state have a role to play in ensuring their well-being? There are a wide range of views in response to these questions and as many reasons put forward as a justification of having public health. To understand and appreciate the responsibility of government to maximum the health of its citizens through public health policies, we need to establish how we regard our health and whether or not health is a fundamental right. On the one hand it is argued that health is a shared human interest and therefore the state has an active role to play, while on the another hand it is argued that there is no obligation for the state to force its citizens to have a healthy life[25].

In this introductory chapter I present the justifications used for public health as well as the justifications used for interventions, such as the sugary drinks tax, that influence an individual's food and life-style choices and therefore encroach on their autonomy. Also included is a discussion of the role of public health ethics in determining the moral implications of interventions aimed at protecting and improving the health of the population. There is a discussion of social justice as the core ethical principle of public health highlighting the fact that public health policies should not only focus on health outcomes but also the broad notion of well-being of a population[40]. This chapter concludes with a discussion of Mill's 'harms principle' as well as 'paternalism' as these two concepts are important in the justification of public health.

What is Public Health?

To justify public health we have to make the assumption that health is "a fundamental good" [25 p243] and that health is a core social value that is essential for long term economic growth as well as sustainable economic development[25]. Thus, improving the health status or well-being of its citizens is a key social and economic development goal for the state. Although health is just one aspect of well-being, "if health is maximised this increases the potential for life without disability as well as the potential to experience and benefit from the other aspects such as autonomy and self-

determination for longer"[25 p245]. It is for this reason that public health is concerned with providing the conditions necessary for citizens to be healthy and includes environmental, economic as well as social factors as these are directly linked to the well-being of individuals[26]. Over the past 50 years, a number of significant achievements are attributed to public health policies. This includes the control of infectious diseases through immunization that led to the decrease in outbreaks of measles, mumps, small pox and polio; improved maternal and child care; family planning through hormonal contraception; Motor vehicle safety and the reduction of tobacco use [1].

Public health is regarded as the "science of preventing disease, prolonging life and promoting health in a population with the emphasis on prevention rather than the treatment of ill-health"[25 p242]. The principles and values that guide public health differ from the practice of medicine. While "the practice of medicine focuses on the health of individuals as well as a personal physician-patient relationship, public health policies reflect society's responsibility to promote and protect the health of the population"[28] .

It is therefore generally accepted that there is a need for a universal approach to improving health and well-being as, even in developed countries, there are still significant health disparities that persist along gender, racial and ethnic lines highlighting the role of social economic factors on health. Public health not only includes policies that address the health needs of the population but also societal conditions and environmental conditions that may affect the incidence of morbidity and mortality. It is for this reason that public health policies include both health and welfare interventions and is described as being "aimed at the community and measures its success by improved population health and longevity"[26]. Today, it is accepted that a modern state has a moral obligation to provide its citizens with basic services including access to quality drinking water, clean air, sanitation, housing and education. While policies that assure "equal access to quality health care are important, this aspect of public health is relatively minor compared with broader policy initiatives that are needed to assure equitable access to healthy living conditions and therefore the general well-being of the population"[28].

Although the duty of the state is to "protect the public which is a collective good, any intervention that the state implements to protect the public must be weighed against individual rights"[29]. Public health could be seen as a social contract between the state and its citizens, as individuals must "obey rules and put aside their own interests, not for the sake of themselves, or their rights or interest but for the sake of their own protection or their own good"[30 p173]. Policy makers must therefore understand the factors that influence both the health and well-being of the population and recognise their interrelatedness because the health and wellbeing of one person can have an impact on the health and well-being of others and even an entire community[30]. Public health is unique as it relies on legislation to define what the state considers 'authorised' or 'approved' or 'acceptable' behaviour or life-style choices. Citizens are therefore controlled and coerced by the state using legislation to behave in a certain way to achieve better health and wellbeing. However, various definitions of public health emphasize the need for cooperation and shared obligations between governments and communities to achieve a healthy population. Because the state is responsible for the implementation and enforcement of public health policies, transparency, fairness, accountability and participation are crucial elements to bring about behaviour changes across the population. "Policymakers must be willing to not only clearly explain the reasons for restrictive measures, but also openly acknowledge and admit when there is new scientific evidence available that requires a reconsideration of certain policies"[26]. Therefore, to be able to legitimize public health policies that encroach individual choice, the state must fulfil its obligation towards its citizens not only through the implementation of taxation but also ensuring there is adequate resource in the form of funding allocated to support disease prevention and other interventions that promote health and well-being.

There are many risks to the health and well-being of a population and as many interventions used by the state to reduce or eliminate these risks. However, each of these interventions is associated with one or more ethical concern. For example, where there is a significant risk to the population, the intervention used by the state may lead to the restriction of individual autonomy[31]. The concept of 'risk' in its self is associated with controversy as is the more ethically charged question of "what level or risk or degree of risk is socially acceptable and at what point should the state step in and be making decisions on behalf of individuals that reduce or eliminate their

exposure to risk?"[28]. What makes the ethics of a public health policy decision more difficult to establish "is the presence of scientific complexity and scientific uncertainty"[31] . Typically in human medicine the evidence used to make claims about disease causation as well as claim about the efficacy of preventative and treatment interventions comes from data collected in clinical research[31]. But even in these circumstances, being able to make valid and reliable claims about an intervention is difficult. Public health policy makers react when 'harm' is identified using available emerging and evolving information and knowledge. Policy decisions are therefore seldom based on strong irrefutable scientific evidence that can be used to justify that the public's health and well-being will ultimately benefit from the implementation of proposed intervention[31].

Today important health issues that affect the general population are linked to so called 'life-style choices' which are considered contributory factors of NCDs such as type 2 diabetes, heart disease and cancer that result in a significant mortality and morbidity[2]. In an attempt to address this burden, the scope of public health policies has widened to include policies that influence an individual's choice and behaviour prescribing for example what they should or should not eat, as an attempt to promote public health and reduce the cost associated with the treatment of NCDs. However, these measures, while claiming to 'protect' the general population, are considered intrusive as well as an infringement on individual autonomous rights. Public health decisions that restrict individual behaviour are frequently made without sound scientific evidence and therefore to claim that a policy or legislation is 'for the good of the public' will be challenged, as the burden of proof lies with the state who is required to prove to the public that the intervention is justifiable[32]. Importantly, it is not the objectives of public health policies that are problematic but rather the methodology that gives rise to a number of ethical conflicts that generate tension between individual rights on the one hand, and government obligations to protect the public from harm, on the other[31]. Therefore, if behaviour and life-style restrictive interventions are perceived or prove to be unlikely to succeed in achieving their public health objective, the general public will view them as draconian, regressive and unfair. The net result is that their implementation is unlikely to deter or change the behaviour of citizens.

The Role of Ethics in Public Health

Developing public health policies is not as straight forward as the collection of information on the health problem and then deciding on an evidence-based strategy that can be justified in ethical terms needs to be adopted[33]. First and foremost, policy development must be supported by evidence as well as an estimated quantification of the magnitude of the perceived risk. However these two elements are not always present and therefore public health policy decisions need to reflect the delicate balance of individual autonomous rights versus the rights of communities and society as these are interrelated and therefore inherently result in ethical tension[26]. To justify public health we have to accept the assumption that health is a "fundamental good"[25]. Interventions that alter how people think and what they desire to achieve this fundamental good should have a normative critique in a democratic society to establish if they are ethically justified[30]. Public health ethics provided a normative framework that interrogates the moral implications as well as the ethical justification of interventions that claim to protect and therefore improve the health of the population to the field of public health[32]. As the scope of public health has widened, so have the ethical issues that are associated with it[31]. Although, because public health is supported by legislation, it is difficult to clearly define underlying ethical principles and policies as these appear to be more closely aligned with human rights and health law.

Policy development is one of the core functions of public health. Policy makers typically need to rely on available scientific and economic information as well as social and political considerations at the time. The inclusion of ethics in the decision-making process provides an opportunity to develop balanced and sound policies that offer reflection of what 'we ought to do to achieve maximum public health'. The role of ethics in public health is to "guide just and effective policies to achieve effective population health"[30 p172]. Public health ethics must therefore be used to interrogate and address the "issue of legitimisation and preserve progressive human values and individual rights by ensuring ethical principles and sound ethical reasoning is incorporated in the decision making process and that these are reflected in policies and legislation"[30 p169]. The inclusion of ethical principles provides an "understanding of what is right or good, what is the justification for this right or good and how we should act in accordance with what is right or good"[34]. Public health ethics ensures that policies and interventions

are justified by the state to be able to achieve public health goals. There are however many competing ethical frameworks that can be applied to public health policies. According to consequentialist theories, the action or policy that has the best consequences is morally right. By contrast, according to deontological theories, individual autonomous rights determine which action is ethically mandated. As a consequence, the results of an normative assessment of a public health policy will vary considerably depending on the ethical theory applied[32] . An ethical appraisal of a public health policy must start with an assessment of what the benefit will be to the general population as well as its quantification i.e., "there needs to be evidence that supports the prospect of achieving the benefit as well as the expected magnitude of the benefit"[33 p4]. It is important that there is consideration of alternatives, particularly if an intervention is ethically problematic[32]. The 'potential harm', i.e. possible unintended consequences, of the intervention "should also be assessed for those directly and indirectly affected and be compared with the expected benefit for the target population to determine the net- benefit"[33 p4]. A systematic review of publications over recent time shows there has been a shift in moral norms of ethical frameworks that support public health, from liberal autonomous values towards collective community values[35]. This is illustrated by the increase in the welfare benefits and social grants provided by the state that offer social protection to the poor and disadvantaged. In addition, public health interventions that were once considered 'socially unacceptable' are now part of daily life, for example the banning of smoking in public places. The conclusion is that the involvement of the state in core health and welfare functions has led to a "compromise of individual liberty and choice as well as a blending of equality, human rights and justice as the leading ethical and moral considerations for public health policies" [30 p169].

Social Justice

There are many ways an individual may be considered socially disadvantaged including being unemployed, have a poor education, living in informal housing, living in a polluted environment as well as lack of access to drinking water and sanitation. Social injustice affects the way people live as it has a direct bearing on their risk of disease and life expectancy[36]. Although the life expectancy of most populations has increased significantly over the past 150 years, a high burden of disease and reduced

life expectancy still affects many and is fundamentally linked to poverty, patterns of discrimination (in particular women), and economically marginalised communities[36]. According to the WHO, "The poorest of the poor have high levels of ill-health and premature mortality. The lower their social position the worst their health"[36 p31]. It follows then that in places where significant differences in health exist and these are judged to be avoidable by the implementation of reasonable interventions; they are unfair and unjust and must be addressed by society. The "elimination of social inequality is the only way to prevent health epidemics in the future and prompt opportunity, growth and well-being of a society"[37 p181]. The fair and equitable distribution of health resources in a population is therefore as important as the implementation of interventions that are aimed at promoting and protecting health. Public health policies therefore should not only focus on health outcomes but also the broad notion of well-being of a population[38]. "The principle of justice requires that individuals and groups receive fair, equitable and appropriate treatment in light of what is due or owed to them"[26]. To achieve this, every individual is required to act in a way that benefits society and not solely the individual. Social justice is therefore central to the objectives of public health and regarded as its core value[26].

At first public health may appear to be fundamentally utilitarian, as its objective appear to be to achieve "the greatest good for the most number of people", however, public health policies are also required to ensure fair distribution of health and therefore the ethical principle of justice is considered the imperative behind the need for the state to focus on the health needs of its citizens[31]. Social justice is seen by some[38] as the moral foundation of public health and broadly aims to provide not only a sufficient level of health to all but also to reduce unjust inequality[37] **.** According to Powers and Faden, the "purpose of public health programmes should be to ensure a sufficiency of wellbeing in each of 6 dimensions (health, personal security, self-determination, attachment, reasoning, and respect) as well as the actual existence of the desirable state of affairs, and not just the individual's potential capability for achieving them"[38]. Therefore in the context of public health, social justice provides guidance to the state on how to allocate its resources as it "demands more than fair distribution of resources" especially when considering the poor and disadvantaged who are at a heightened risk than the rest of the population[26]. However "if justice is outcome orientated, then public health policies must deal with the underlying cause of both poor and good health"[39].

In developing countries like South Africa, where social injustice and poverty have a significant impact of health public health plays an important role in the well-being of its population as the majority rely on the state to provide basic services. However, the "delivery of ethical and effective public health policies requires knowledge as well as political accountability and policy makers need to consider the potential consequences of policy decisions on health inequalities"[39]. Fairness is an essential part of social justice and is therefore important for the justification of public health policies that impede individual autonomy[36]. For example a campaign that encourages people to exercise through gym membership or eat 3 portions of a fresh fruit and vegetables a day, would not be achievable by the socially disadvantaged and would not be considered a fair response to addressing obesity in South Africa as it may "further contribute to an increase in health inequalities"[40]. Failure to adequately address social justice in public health policies can therefore result in the perpetuation of conditions of inequality. However, "before implementing a public health strategy that involves conflict between normative criteria, it is important that policy makers consider alternatives that are less ethically challenging"[32].

Paternalism

Paternalism involves "some kind of limitation on the freedom or autonomy of an agent and it does so for a particular reason"[40 p1]. When the limitation, in the form of rules or policies is justified solely on the grounds "that the person affected would be better off, or would be less harmed but the person in question would prefer not to have this restriction, this is paternalism"[40 p1]. Paternalism is "an action limiting a person's or group's liberty or autonomy which is intended to promote their own good or the intentional interference with a person's freedom of action exclusively or primarily to protect his or her own health, safety, welfare, or happiness"[26] . Paternalism refers to "the relationship between the state and its citizens and the notion that those in power have the right and the obligation to overrule the preferences of those who are deemed incapable of knowing what is in their best interest, similar to the relationship between a parent and a child"[42]. Paternalism involves "competing claims between individual liberty and control by the state as its actions usurp the decision making power of an individual by preventing or interfering in how they arrive at their decision or attempts to substitute their judgement with another for the purpose of promoting their welfare

and effectively denies the individual the right to choose"[42 p16]. Paternalism policies are controversial "because they are premised on the notion that the state is better able to make decisions that are in a person's best interests than the person them self"[42]. This may also be referred to as 'Nannying'.

The philosopher John Mill had strong views on this and proposed that all forms of paternalism should not be permitted[44]. He suggested that individuals are a more reliable judge of what is best for them and this should not be determined by the state [44], not because individuals are capable of making a better choice but "as long as individuals understand the risks involved, they should be free to make their own choice to engage in risky activity if it provides personal fulfilment"[29] . Nonetheless Mill did concede that "paternalism can be justified when a person has compromised decision making for example policies that restrict the freedom of children and mentally disabled adults to prevent them from harming themselves"[44]. However he was concerned with the tendency for the state to abuse their power promoting their own interests and not those of citizens whose liberty they restrict[44]. Therefore, according to Mill, taxes on unhealthy products such as alcohol and tobacco are an overreach by the state to disincentivize their use or consumption as individuals should be allowed to choose for themselves, even if they make what others might consider an "unhealthy" or "unsafe" choice. "Consequently the inclusion of policy restrictions that are considered "risk-to-self" behaviours are controversial justifications for public health regulation"[26].

Public health policies are considered paternalism as many of them are aimed at the restriction of 'risk-to-self' behaviour and directed towards overall societal welfare through health-enforcing legislation. Supporters of paternalism claim not everyone knows what is good for them due to certain limitations, such as lack of understanding or will power, and therefore need to be forced to do what is good for them to achieve health and well-being[29]. Even when there is sufficient information available, the public may be misled or misunderstand the risks[26]. "This is seen with clever advertising and other marketing tools which can be used to persuade consumers to make unhealthy decisions about tobacco, alcoholic beverages, sugary drinks or high-calorie take-away food"[26]. Furthermore, paternalistic policies become persuasive when considering that the accumulative effect on morbidity and mortality of individuals choosing not to wear seatbelts or helmets. Intervention by the state is therefore sometimes necessary and

justifiable “to protect an individual’s health or safety and while risk-to-self is often the least ethically acceptable reason for regulation, it is nonetheless understandable that paternalistic policies can be effective in preventing injuries and deaths in the population”[26]. This supports the consequentialist view that because more good than harm results from a particular ‘risk-to-self’ policy, it is ethically justified but these policies still require reliable scientific evidence of its effectiveness to ensure ethical justification.

There is a range of different forms of paternalism are described in the literature including ‘soft’ versus ‘hard’[42] · Soft paternalism refers to the notion that “the only conditions under which the state is entitled to intervene in individual decision-making are those in which an individual is considered to be making decisions that are either involuntary or ill-informed”[42]. In this case “the intervention is only justifiable to the extent that the person needs to be protected from harm to which they did not consent, or to ascertain whether or not they are in fact acting voluntarily and knowledgeably. By contrast, hard paternalism is that, in some instances, it is legitimate for the state to intervene in a person’s choice without their consent, even when that person is acting voluntarily and knowledgably. In the context of attempting to reduce the incidence of obesity, an example of ‘soft’ paternalism would be educating the public on the risks of eating too much sugar, whereas a total ban on sugar consumption would be considered ‘hard’ paternalism”[42]. The sugary drinks tax appears to be neither ‘soft’ nor ‘hard’ paternalism, as the intervention is more restrictive than education but does not directly prevent purchase or consumption of these products. Other types of paternalism include ‘pure’ versus ‘impure’, ‘broad’ versus ‘narrow’, ‘weak’ versus ‘strong’, ‘pure’ versus ‘impure’ and ‘moral’ and ‘welfare’[41].

The Harm Principle

The risk of causing harm to others is accepted as one of the few ethical and moral justifications, aside from justice and beneficence, for public health policies and regulations that limit individual choice. In philosophy this is known as the ‘harm principle’ described and defended by John Mill in his essay “On Liberty”, as the only ethical justification for interfering with the rights to liberty of a competent adult individual. The ‘harm principle’ prescribes that competent adults should be able to

make their own choices unless their choice and the consequent action of that choice can or will harm others[45]. According to Mill, social disapproval, harm to oneself or immoral conduct does not justify state intervention in the decisions and choices of competent individuals unless again it will harm others[44]. The "harm principle is therefore not intended to determine the moral actions of individuals, but to restrict the scope of laws proposed by the state that impact on personal liberty"[44]. According to Mill, competent individuals therefore have the right to choose if they want to smoke tobacco, drink alcohol, use recreational drugs or consume sugary drinks. Mill's definition of harm does not include all negative consequences but only those actions that would have a lasting and significant impact on individuals such as an infringement of their rights. Even public health policies such as mandatory wearing a seat belt or wearing a helmet are not ethically justifiable according to Mill. The libertarian view is that everyone has their own preferences and should have the right to make their own choices even if it causes them 'some' harm. It is therefore ethically acceptable that competent adults pay no attention to their own health and it is fundamentally wrong for the state to coerce and force individuals to lead healthy lives or look after their health if that is not their choice, as long as their choice does not harm others [34] . There is consensus that influencing behaviour to prevent harm to others is not considered paternalistic. A number of public health interventions that impose restrictions on the behaviour of smokers would not have been considered acceptable but are now the norm because of the evidence of harm to others. An example is the banning of smoking in public places because of the scientific evidence that confirmed the harm caused by secondary smoking[46].

"However, the use of the 'harm principle' carries with it a number of problems and areas of disagreement. One area of disagreement relates to the question of which acts can be said to harm only the person whose behaviour is in question"[47]. The philosopher Peter Suber argues that all acts that harm an individual will also harm others, even if this is indirectly or remotely and therefore, "In a welfare state which shifts costs to compensate those who harm themselves, virtually all self-harm will be other-harm too; hence, virtually every corner of life could be regulated by law without violating the harm principle, and virtually all paternalism would be justified"[47]. Over time the scope of the 'harm principle' has been expanded in its interpretation in public health ethics to include threats of "economic harm"[27]. Anti-smoking policies, for

example, are justified by the potential ‘economic harm to the state’ that results from the financial burden of caring for individuals with smoking-related illnesses in public health facilities. The relative successes achieved by taxes on tobacco products has led to the justification of the implementation of similar interventions that restrict individual choice on so-called ‘unhealthy lifestyle choices’ because of the cost of caring for individuals with so-called lifestyle illnesses, such as hypertension and diabetes. However, the view that an individual’s behaviour is simply determined by ‘choice’ is problematic, as choice is often determined by other factors and therefore the ethical justification to use interventions that aim to modify certain ‘life-style choices’ must be closely scrutinised[48].

In conclusion, the overarching ethical principle of Mill’s ‘harm principle’ is that competent adults have a “strong claim to be able to self-govern, at least to the extent that those decisions do not imposing consequences on others. If a person has the capacity to understand the nature and consequences of their choice, then they should be able to make their choice without outside interference and especially without interference by the state”[26]. Lifestyle choices and food choices should therefore remain a matter of autonomy and not be influenced by the state even though these choices may be considered ‘unhealthy’.

Public health policies are considered a form of ‘paternalism’ as many of them are aimed at the restriction of ‘risk-to-self’ behaviour and directed towards overall societal welfare through health-enforcing legislation. However, public health and its interventions are justified if we accept that health is a fundamental good. Social justice is the core ethical principle of public health[26] where the objective is to improve the health and well-being of the population. This provides an ethical justification for the premise that health is important and therefore a matter of state and public concern that justifies its intervention in areas of communicable diseases and sanitation. However, social justice does not provide an ethically justified defence against claims of over-reach by the state regarding the implementation of restrictive interventions, such as taxation, in the absence of supporting scientific evidence of its effectiveness especially if the intervention is likely to impact negatively on the socially disadvantaged. Furthermore, public health policies that fail to adequately address

social justice and result in the perpetuation of conditions that lead to inequality in society, can't be ethically justified.

Even though in recent years 'economic harm' has become an ethical justification for public health policies because of the financial burden incurred by that state in caring for individuals that have made 'unhealthy life-style choices', "before implementing a public health strategy that involves conflict between normative criteria, it is important that policy makers consider alternatives that are less ethically challenging"[32].

.

Chapter III Ethical Evaluation of Issues Raised For and Against a Sugary Drinks Tax

Public health interventions are justified by the assumption that health is a fundamental good and is therefore of paramount concern to the state as well as the general public. However, should food choices, good or bad, remain a private matter or have we reached a point where the projected burden of health costs associated with treating obesity and NCDs justifies the state's intervention? Included in this chapter is background information that establishes the reason why the global implementation of 'sugar taxes' has gained traction in recent years. I include the latest available South African obesity statistics and contextualise the reasons why there is a need to find solutions to address obesity and why this is considered an important public health problem.

I evaluate two ethical concerns that arise from the state's use of taxation as a public health intervention to influence individual behaviour as a means to address the incidence of obesity. The first is concern around individual autonomy and whether it is justifiable for the state to restrict or decrease autonomy by use of taxation to influence purchase choices, and the second is that the sugary drinks tax is unfair because it is regressive.

To address these ethical concerns, this chapter firstly looks at the notion of behaviour and whether this is always determined by choice, then the state's use of fiscal policy in the form of taxation to influence behaviour as well as its success as a public health intervention (with reference to the tax on alcohol, smoking and the plastic bag tax) in South Africa. I evaluate the justification for the implementation of the sugary drinks tax, including a review of available scientific evidence used to support the claim that the tax will improve health and therefore reduce the incidence of obesity and NCDs.

Secondly, this chapter evaluates the causes of obesity and whether there is sufficient reliable scientific evidence to link the consumption of sugary sweetened beverages with obesity. I explain the importance and benefit of sugar as a nutrient, including the notion that sugar may be 'addictive and 'toxic' and therefore over consumption may

be attributed to craving rather than a choice. Finally I review case studies of countries where a similar tax has been implemented, and evaluate the reason for its success or its failure in being able to address their obesity problem thus providing useful insight and a degree of predictability of how successful this tax will be in achieving its stated health outcome in South Africa.

Fiscal Policy used to Influence Behaviour

"For a public health system to be sustainable, all members of the population need to minimise relying on its resources as much as possible. It is therefore legitimate for the state to consider measures that ensure its sustainability"[40] . Governments use taxation to collect revenue and redistribute resource from the private to the public sector to provide goods and services needed by all of society. The rational for the use of taxation as a public health intervention varies but includes its use as a deterrent to modify behaviour as a strategy aimed at reducing the incidence of risk factors for chronic disease (associated with tobacco smoking and alcohol abuse) to minimise the burden on the health care system, and to also raise revenue to be able to fund the health care needs of its population[49]. The "core ethical principles that justify these fiscal policies in public health are; there must be a public health benefit, the intervention must be necessary, it must be based on good evidence, have minimum infringement on liberty and lead to a reduction reduce in inequality"[50]. These policies work best when public institutions are strong, the government is credible and the design as well as the application of the fiscal intervention is appropriate[49]. An effective tax is "one that reaches the intended target and there is evidence to support that it alters health-related behaviour of the population in the desired manner. A fiscal policy should be effective, efficient, and cost-effective and should promote or maintain equity goals. An effective tax reaches the intended target and alters health-related behaviour in the desired manner" [49]. It is however important to acknowledge that the benefit of an intervention may be difficult to prove scientifically.

The proliferation of taxes on 'unhealthy foods' and poor life-style choices is justified because of the assumption that health is a fundamental right and therefore of paramount importance to the general public[25]. The argument follows that for the state to take no-action in the face of what is considered preventable morbidity and mortality

caused by unhealthy food and poor life-style choices, could be regarded as unethical and therefore justifies the incorporation of what are referred to as 'life-saving' interventions in the public health policies[51]. In addition, unhealthy individual choices constitute an 'economic harm' for those who share the health care system of the chooser. The high financial risk to society is also regarded as an ethical and moral justification for the implementation of 'economic behaviour' interventions such as a tax on sugary drinks that overrides individual autonomy to prevent the general population from adopting unhealthy behaviours or life-style choices[43]. Economists that support of fiscal public health policy interventions argue, in this way 'consumers' of unhealthy foods or individuals that make poor life-style choices contribute towards the societal cost of their choices as the taxes form part of government revenue with some apportioned to public health-care[52].

Is Behaviour always a Choice?

Our freedom to make our own choices, as competent adults, is critical to our wellbeing. It is these choices that shape our lives according to our values and determine our version of a fulfilled life and is key to liberal societies[53]. "To be autonomous, one must be free of control by others, have control over oneself, and understand what one's doing"[54]. An autonomous decision included the capacity to make choices, being able to act as well as understanding of the consequences of these choices or actions[54]. The universal provision of education is therefore of great importance. Making autonomous decisions and actions requires being free from the control of others is a libertarian perspective, which "affirms what are classically regarded as the 'natural' rights of man: life, liberty and property"[55 p13]. However, all three of these dimensions of autonomy come in degrees[54]. Moreover, choice has complex origins and is determined largely by environmental factors such as the societal, economic and consumerist pressures.

"Behaviour is linked to choice and therefore understanding the extent to which individuals are able to make genuine choices is also important for discussion of the rights and responsibilities of individuals and the state in health issues"[55 p24]. However behaviour is not predicable in that people do not always act rationally, are not perfectly self-interested, nor do they have consistent preferences which results in many deviations from the standard assumptions about behaviour that are included in fiscal

policy[56]. Thaler (2008) argues that "it is false to assume that almost all people, almost all of the time, make choices that are in their best interest[57]. For example "while people may choose to eat rich and fatty foods because of the pleasures they bring, it is difficult to imagine people actively choosing to be obese"[53]. It may therefore seem reasonable to assume "that individuals are entirely responsible for their own food intake and exercise levels, and consequently their weight, however closer analysis reveals that this assumption is simplistic and one sided, as there are a number of factors outside of the control of individuals that can be attributed to the rise in the incidence of obesity"[53]. This includes an increase in private car ownership as the preferred mode of transport and less manual jobs as well as the availability and affordability of energy dense foods[40]. "The notion of individual choice, individual responsibility and autonomy are therefore difficult to apply in relation to obesity"[40]. It is clear that there are a number of barriers to individuals being able to change their behaviour because behaviour is shaped, to a large degree, by environmental factors which are in-turn determined and influenced by regulations[40]. Therefore understanding the real cause of obesity is important for determining policy and interventions that would be affective at preventing or alleviating excess weight gain, and to then to be able to examine the ethical issues involved.

If we assume that all individuals have a fundamental interest in being healthy then there is sufficient reason to discount harmful individual choices as having been made freely and therefore individual choices made by the disadvantaged sectors of the population should not be presumed to be autonomous[29]. In other words, what looks like liberty or choosing an unhealthy lifestyle or behaviour may not be liberty at all, as choice is influenced by many external factors. It is not just about being uninformed that influences individual choices but also social conditions and relationships such as peer pressure or economic dependence. For example people with a higher socio-economic status have more opportunities to make healthy life style choices[53]. Spending money on sugar sweetened beverages (SSB) may appear to be an autonomous decision however it does not necessarily reflect the true authentic choice of that individual[57]. The consumption of these products may be influenced by their availability and affordability rather than choice. It is feasible and therefore possible that these products have become a standard substitute for drinking water in communities that are still

plagued by poor service delivery in some parts of South Africa and has nothing to do with authentic choice.

Do Sugary Drinks cause Obesity?

Sugar is a carbohydrate that provides "energy" to the human body[23]. "The human body breaks down sugar into glucose which is easily absorbed after consumption and is the primary source of energy source and is can be used immediately or stored in the liver and muscles for later use. Sugar is found naturally in many nutritious foods and beverages and is also added to foods and beverages for taste, texture, and preservation. Sugar is extracted from sugar cane and 'purified' into its familiar white crystalline form which has no vitamins, minerals or fibre. Sugars are used to sweeten, preserve and improve the functional attributes of foods and beverages such as viscosity, texture, body, colour, and browning capability"[58]. "Its refined form allows it to be integrated into food products in quantities and concentrations that do not occur naturally and have thus made it possible for consumers to easily 'over-consume' sugar, making this an issue of concern for public health worldwide"[58] . "Carbohydrate foods such as breakfast cereals that have been stripped of their natural complement of nutrients and fibre, place a large metabolic burden on the body, particularly when sugar is added to these products. While it is true that glucose is essential for sustaining life, there is no stated daily requirement for dietary glucose"[58]. However, the relative un-healthiness of any nutrient, including that of sugar, needs to be judged in the context of overall diet and not on its own[59].

Obesity is generally caused "when more energy is consumed than is expended then the surplus energy is stored by the body as fat and over time this results in an increase in BMI"[40]. Obesity is a "known risk factor for many chronic health conditions, such as diabetes and heart disease which are today the leading causes of death"[2]. "The particular drivers of obesity in South Africa seem to include an increase in the availability of cheap vegetable oils as well as the increased food intake from animal sources coupled with a widespread reduction in the intake of nutritionally important foods, including legumes, coarse grains and fresh vegetables, increased proportion of foods and beverages which contain sweeteners to enhance their flavour"[60]. "As South Africans have become more urbanised, their exposure to highly processed foods has increased largely because of intense and appealing advertising campaigns as well as

the convenient placing of fast-food outlets in economic hubs as well as residential areas"[60]. For many being able to afford these products is "often seen as a mark of personal and material success"[61]. All these factors have contributed to a "nutrition transition, from traditional to westernised consumption patterns, which has added to the obesity problem"[60].

"Although this describes the process, simplistically, at an individual level, it is important for public health policy to identify interventions that might be most effective in preventing or treating obesity at the population level. Yet the underlying factors that contribute to the increase in obesity at the population level are not well understood"[26]. This is highlighted by the fact that "since the late 1970s, governments and health organisations around the world recommended low-fat diets, with reinforced messages of the dangers of saturated fats and cholesterol found in products such as meat, bacon, butter and eggs"[60]. However, reducing the fat contents in foods appears to have had unintended consequences as food manufacturers had to manipulate food to make it more palatable by adding favouring agents such as sugar[60]. This "misplaced hostility towards saturated fats is being followed by what could be an equally mistaken hostility towards sugar. Therefore before governments influence dietary choices through taxation, they need to be sure that the scientific evidence on nutrition and health supports the fiscal policy and will not have the opposite effect and lead to worst outcomes"[60]. It has been suggested that the current global obesity problem may be a result of government decisions to issue dietary guidelines that supported low-fat foods in the late 1970s and exclude saturated fats as they were attributed to cardiovascular disease and are therefore 'unhealthy'[62]. The use of official dietary guidelines and public education campaigns with extensive media coverage were highly successful in convincing the public at the time, that saturated fatty foods were 'unhealthy' and should be avoided and that low-fat products were a 'more healthy' choice[60]. Even today, these interventions have had a profound impact on what people choose to eat and further demonstrates that taxation is not necessary to change the eating habits of the general population[63].

The causes of weight gain and obesity are not simply a product of the over-consumption of sugar, poor life-style choices or lack of will-power[64]. Overeating which is attributed to weight gain and obesity is driven by many factors such as genetics,

medication, environmental, behavioural, social, psychological and cultural factors. For example "psychological and social factors that play a part in eating behaviour and food choices where food is used as a reward or as a comfort to relieve stress-there is a correlation between obesity and high rates of some mental health conditions, including depression"[65 p12]. Obesity has a strong genetic component, for example a child of obese parents is more likely to also be obese. Social cues also play an important role as there is "evidence suggesting that obesity can be passed on from generation to generation through both physiological and behavioural mechanisms. A mother with high BMI is likely to have children who also become obese when they grow to adulthood"[60]. In many countries, including South Africa, "there also seems to be an inverse correlation between socio-economic status and the prevalence of obesity and in particular amongst women"[60]. It is therefore reasonable to conclude that "the inequality in health that low-income people face is far more complicated than the over-consumption of sugary drinks and the stigmatizing this single type of nutrient (along with those who consume it) will do little to reduce, and may even exacerbate, the health issues produced by poverty and discrimination"[60]. In general terms, "obesity is the result of many changes in our environment that make it easier to consume a large amount of calorie-rich food while expending little energy"[60]. Although many contributing factors of obesity have been identified, their relative importance and contribution to this health problem remains unclear.

Notable in South Africa, "it was reported by the Food and Agriculture Organisation and the United Nations that sugar consumption decreased around 15% from 1990 to 2011 but the obesity rate increased over the same period by 40%"[60]. This is a clear indication that there is no reliable evidence that the consumption of sugar can be attributed to the leading cause of obesity. This, combined with the "fact that more than 80% of South Africans consume only moderate amounts of sugar"[23] reinforces the fact that there is actually no need for this intervention in South Africa, and "suggests that the real motive for the proposed sugary drinks tax is simply to raise additional revenue for a cash-strapped fiscus"[23].

Justification of the Sugary Drinks Tax

The statistics of the incidence of obesity in South Africa are staggering, notably 26.8% of the population have a BMI ≥30 and it is listed in the top 50 fattest countries in the

world[7] and highest in the Sub-Saharan region[66]. The latest demographic and health survey reported that "two thirds (68%) of women and one third (31%) of men are obese (BMI ≥30%) and one in five women (20%) included in this survey were severely obese (BMI ≥35%)"[8 p17]. WHO recommends that to counter this global obesity trend, "Individuals must reduce their intake of free sugars to less than 10% of their total energy intake"[2]. Excessive calorie consumption and sedentary lifestyles are claimed to be the main contributors to obesity and the development of diabetes which is largely preventable[61]. "Diabetes is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation and therefore has a profound impact on quality of life and productivity"[61]. The American Diabetes Association (ADA) has estimated that the cost to the state of treating diabetes in the USA has increased 26% in the last 5 years (2012 to 2017)[67]. Given the current scale of the obesity problem as well as predicted exponential increased in the scale of this public health problem and the associated financial burden to the state, it is understandable that governments have had to turn to a fiscal policy as a way of influencing and changing food and lifestyle choices with the implementation of taxes on food and beverages with high fat, salt or sugar content[68]. The WHO claims that taxing sugar sweetened beverages (SSB) and making them less affordable will lower their consumption and reduce obesity in the general population[2]. The implementation of a policy targeting food products that have a single nutrient such as sugar, is relatively 'easy' to implement and administer particularly in low resource settings and it has therefore been readily adopted by many countries as an intervention to address obesity[59].

Fizzy drinks such as Coca-Cola®, fruit juices and energy drinks have been singled out as the main category of food products that are high in sugar content but have no nutrition value and are considered a major factor in causing obesity and diabetes worldwide[61]. The rationale for a tax on these products is as follows: "decreased affordability of these products will lead to a reduction in the net amount of sugar consumed resulting in reduced total intake of calories and a lower the incidence of obesity in South Africa"[69]. The sugary drinks tax which was introduced in South Africa in April 2018, is described by the South African government as "the most cost-effective option available to help counter obesity and is estimated will generate an additional R10.5bn/year revenue"[60]. What the government means is that this tax is the easiest

and most cost effective way to generate revenue and influence public behaviour so it can tackle the obesity problem[60].

A tax on sugary drinks is considered the same as a tax on cigarettes by public health policy makers and with that there is an assumption that this tax will have the same effect in reducing consumption. It may therefore be reasonable to conclude that fiscal policies aimed at influencing behaviour will have an impact on individuals sensitive to product affordability and will therefore have the biggest impact on low-social economic groups. Low income consumers spend a greater proportion of their income on basic commodities such as food than higher income consumers. As a result, the burden of taxation on sugar sweetened products is likely to be larger for low-income consumers[68]. Estimates suggest that "the difference in the burden of taxation between socio-economic groups is more likely to be in the order of 10 to 1"([68]. A "systematic review of the effects of fiscal policies on diets and their related chronic diseases (e.g., obesity) by Thow et al[70] suggests that food taxes and subsidies can influence consumption in high-income countries but highlights the absence of research into consumer responses to taxes in developing countries"[52]. It is for these reasons that opponents of the sugary drinks tax argue that the implementation of this tax in a developing country like South Africa is unjust and unfair. However, proponents of the tax argue that its implementation will help improve the quality of life of low-income residents by encouraging them to choose healthier less-expensive beverages as the problem of obesity is greatest among this socio-economic group. But "unlike smoking, food is a basic necessity and therefore if one source becomes too expensive, consumers are likely to look for an alternative cheaper product as a substitute with no guarantee that the substitute will be a healthier choice"[60]. Therefore, even if this tax succeeds in reducing consumption of sugar sweetened beverages (SSB), it will not necessarily reduce overall sugar intake because individuals may purchase a cheaper brand, switch to other products that contain as much or more sugar, buy other cheaper high-calorie products or even cut down on other household items to be able to continue to afford their preferred brand of sugary drink.

Are Taxes Successful at Influencing Behaviour?

The justification for interventions that influence behaviour intend to "either to improve health or reduce the cost to society of the unhealthy or bad behaviour". Taxes emerged from the assertion that "people are responsible for their own choices but if they can't make the right choice, then the state needs to intervene"[71]. The South African government, like other governments, have implemented taxes on goods aimed at reducing consumption or use by increasing cost and therefore their affordability because of their 'perceived' adverse health risks in the general public[15]. These are collectively known as 'sin taxes' and apply to all tobacco and alcohol products sold in the country.

Policy makers claim that the reduction in cigarette smoking seen over the past decade in many countries is attributed to taxes that have been imposed on tobacco products which have effectively reduced their affordability. However despite these taxes, the prevalence of smoking is still relatively high particularly in the low and middle income groups[16], while 1 in 5 of all adults in Great Britain smoke[33]. The evidence therefore suggests that punitive measures alone did not contribute to a reduction in tobacco use. There are however a number of regulations that make smoking 'inconvenient'. For example, the restrictions on smoking in public places such as restaurants and public transport and together with strong anti-smoking campaigns, health awareness and education campaigns these interventions are more likely the main reason for the reduction in smoking.

The rationale for having taxes on alcohol is that over-consumption or abuse places a burden on health, society as well as the economy of the country. It is well known that alcohol abuse and over-consumption of alcohol cause a number of serious health issues "including liver, kidney and brain damage, while a significant number of suicides and homicides are also related to alcohol abuse as well as violent behaviour (intimate partner violence), sexual assault, increased risky behaviour resulting in unwanted pregnancies and STDs and well as drunk driving fatalities"[72]. Yet despite these taxes which are increased every year, South Africa remains one of the highest consumers of alcohol with consumption even increasing in recent years[73] to a point that alcoholism and alcohol abuse is considered by some, as a national crisis[74]. It would

seem then that the ‘sin taxes’ have had an insignificant impact on reducing consumption of alcohol in South Africa. For an intervention to successfully reduce consumption of alcohol, it is necessary to understand the patterns of consumption, and in South Africa a significant amount of alcohol that is consumed is homemade and illegally produced[75]. These products are considerably cheaper than marketed products, are brewed in rural areas and consumed mostly by the poor. Therefore an increase in the cost of commercial products due to an increase in taxation is likely to have no impact on the consumption patterns of this sector of the population, which is estimated to account for 26% of total adult consumption in South Africa[75]. In the absence of other public health interventions such as education, further increases in the taxation on commercially available alcohol products may lead to an increase in consumption of these homemade and illegal products which have the added risk of harm because of unknown and potentially dangerous impurities or contaminants used to make these products[75].

Another example of a tax that has not changed behaviour of the South African public is the ‘plastic bag’ tax. The ‘plastic bag’ tax was introduced by the South African government in 2003 and is aimed at reducing the demand for plastic shopping bags to reduce the amount of plastic in landfill sites as well as littering of plastic in the environment. Since its introduction up to end of August 2014, R1.1bn had been collected in levies[20]. However, the revenue collected from these levies is used by the government as they deem fit. There is no allocation of funds towards recycling initiatives or much needed public awareness and education. The net result is that there has ”been a steady increase in the demand” for plastic shopping bags and there has been no change in public behaviour[21].

Evidence matters. The public really do need to know whether or not an intervention works. The more effective the public perceive an intervention to be, the more acceptable they found it and the more likely it is to change behaviour[76]. Without evidence, an intervention will be perceived as being an infringement rather than a legitimate safeguard for its citizens. For example, the scientific evidence[46] on the harmful effects of passive smoking is used to justify interventions that prohibits smoking in public spaces and restricts choice because this behaviour may cause harm; but the same evidence has also resulted in the general public accepting that

there is a good reason for this intervention resulting in compliance[77]. However, “while there are scientific studies that provide some evidence of a reduction in obesity levels following a tax on sugary drinks, the reduction in obesity has not been significant and the limitations of these studies often leads to a questioning of these results”[63]. There is little scientific evidence to suggest that the implementation of this type of intervention is successful in influencing behaviour and is therefore directly attributable to healthier food and lifestyle choices by individuals[49].

Has the Sugary Drinks Tax been Successful?

Since 2014, and following the recommendations made by WHO(13), 28 countries including South Africa have introduced a tax on sugar sweetened beverages to influence consumer behaviour with Ireland, the Philippines and Estonia announcing plans to introduce a similar tax during 2018[78]. An assessment of the effectiveness of this type of tax to reduce consumption of these products in these countries is reported as having mixed results and as a result the impact on the reduction of obesity remains inconclusive[79].

In Asia, it is acknowledged that the introduction of taxes of sugar sweetened beverages has not had the desired effect on reducing obesity with only a 3% reduction following the introduction of a 20% tax[17] in one year. In Mexico, the sales of sugar sweetened soft drinks increased[18] since its introduction in 2014 and had very little effect in reducing obesity[19]. Research also showed that “low income households were most affected by the tax since they allocate a higher percentage of their income to soft drinks”[19]. Recent reports by health researcher claim that the introduction of taxes on sugar sweetened beverage (SSB) in the Pacific territories including Samoa, Niue, Nauru and French Polynesia, is starting to show some ‘benefit’ in reducing obesity although supporting data to substantiate this evidence was not available(80). “A new sugar tax introduced on soft drinks in Chile has been effective in reducing consumption of sugary drinks, however, it is has not been enough to reduce socioeconomic inequalities in diet-related health”[81]. In Belgium, a tax on the vast majority of soft drinks was introduced in 2016. However, “sale volumes across all categories have been unaffected by the introduction of taxation”[79].

In a report[63] which summarise the experience of Hungary, Denmark, Mexico and Berkley, in the USA, with taxes aimed at changing consumption choices of 'unhealthy foods', it was found that consumer patterns changed in "surprising ways" to reduce the impact of their consumption of taxed goods. This included hoarding of these foods prior to the introduction of the tax as well as an increase in cross-border shopping. The negative effects on business as well as lower-income households, is also cited in this report. Denmark has subsequently withdrawn its tax on fatty foods citing the following reasons, "including the administrative burden and emergence of cross-border shopping as well as evidence of hoarding and higher calorie intake and the impact was not have as large as originally anticipated"[63]. The implementation of an effective fiscal policy must therefore take into account the potential benefits to public health versus the potential regressive nature of the tax, the impact on business as well as other negative consequences such as illicit trade or cross boarder shopping[68]. "Such unintended consequences could include 'job losses and unnecessarily burdening of consumers', while the proposed tax could also have a negative impact on poverty alleviation as well as the reduction of income inequality as taxes can have an unintended consequence of increasing the consumption of other less healthy foods as well as job losses in the sugar industry"[59]. In South African only 10 months after its implementation, the sugary drinks tax has had a significant negative economic impact on the sugar industry with reports of up to 6000 jobs being at risk[82].

Governments have a poor track record of providing sound dietary advice to the public. This was seen the early 1980's when 'fat' in food products was blamed for obesity and heart disease, yet despite this populations have steadily gained weight and the incidence of obesity has increased on fat-free diets[58]. The evidence suggests "that if we are to reduce obesity and therefore the risks of diet-related NCD, it would be more beneficial to alter overall diet rather than focusing on the consumption of an individual nutrient such as sugar"'. Therefore the global "demonization of sugar", is possibly another example of a policy that is unlikely to be of benefit to public health or make the slightest difference to the obesity epidemic[63]. Furthermore as discussed in the "Full Submission on Policy Paper on SSB Tax – 22 August 2016"[60], the 2014 McKinsey study into the causes of obesity, concludes "that a multi-faceted approach is needed to counter the growing incidence and of 44 different interventions used

around the world, the implementation of a sugar tax was one the least effective measures that could be used to reduce obesity with no direct evidence that such a tax brings about any change in weight, nor any change in consumption of sugar"(65). The McKinsey study further recommends that if implemented, the revenue generated must be invested in other health care interventions that are more likely to impact on the incidence of obesity such as public education campaigns and labelling of food products[60]. However, as with other taxes implemented in South Africa, revenue from the sugary drinks tax is unlikely to be ring-fenced, as recommended, leaving a one-dimensional strategy to tackle this growing health problem.

In conclusion, public health interventions are ethically justified if there is evidence that shows a benefit to public health. It is acknowledged that the high incidence of obesity in South African is considered an important public health problem and solutions are urgently needed to curb the economic cost of treating chronic diseases linked to obesity such as hypertension and diabetes. However, the causes of obesity are so complex that even scientists don't seem to agree on the best way to address this problem. The one-dimensional approach by the state of imposing a tax on sugary drinks ignores the complex causes of obesity choosing to hold individuals responsible for their unhealthy food and life-style choices further perpetuating an unjust and unhealthy food supply system. While chronic diseases related to poor food and life-style choices "like heart disease, obesity and diabetes affect all of society, disproportionately affect the poor"[20], imposing taxes on certain food products will simply lead to distorted food prices and an added burden on the public especially those who are already burdened by the increasing cost of food. While affordability is likely to influence consumer choice, especial the poor, and result in a reduction in the consumption of sugar sweetened beverages, there is no reliable evidence that the tax will lead to a reduction in consumption of sugar or other 'unhealthy' foods.

Currently there is limited scientific evidence of the health benefits associated with the implementation of a tax of sugar and does not correlate with the supposed health benefits stated in the South African National Policy paper[83] which claims that influencing public behaviour will reduce obesity and therefore supports the tax on sugar sweetened beverages. This is further substantiated by published results and

statistics available from various countries where the tax has already been implemented. In these circumstances it is unwise and risky to rely on the state to determine what 'healthy' or 'unhealthy' food is and influence individual autonomous choice through taxation as the state doesn't really know what is best for its population. It is well documented and understood that the role of public health policies in society are the prevention of ill-health and that fiscal policies need to be supported and reinforced by the allocation of government funding and resource to achieve its objectives which cannot be achieved through the use of legislation alone. Punitive measures such as taxation that contribute solely to the revenue collection will therefore have no impact on the reduction in the incidence of obesity in South Africa as has already been suggested by data from other countries were a similar tax has been implemented. This intervention therefore has the potential to worsen the economic challenges of the disadvantaged, without making any attempt to deal with the underlying causes of obesity[60].

In the context of developing a prevention policy to tackle the incidence of obesity in South Africa, the state should be concerned about a fair distribution of other factors including income, affordability of healthy food, geographic access to healthy food, consumer choice through education and access to health-care. While the rationale for the sugary drinks tax has political appeal because of its ability to increase tax revenue, from a normative standpoint the justification is questionable. The justification for the implementation of this tax is therefore morally baseless and its implementation is unjust, unfair and regressive and appears to be a distraction from the true motive for the tax which is government's urgent need to increase revenue.

Chapter IV: A Sugary Drinks Tax is Unethical: Applying the Nuffield Council Framework

There is consensus that a change in individual behaviour can achieve better health outcomes in a population. Moreover, there is consensus that the state has a legitimate role in promoting public health through public health policies. However, there is considerable disagreement regarding the ethical justification of certain interventions used in public health policies, particularly where the intervention places restrictions on individual's autonomy and central to this ethical debate is the relationship between the state and individuals[84]. Just how far the state can ethically and morally interfere on an individual's autonomy is highly controversial. While some argue 'paternalism' reaches too far into individual autonomy by restricting choice, others argue that for the state to "do nothing" is equally unacceptable and ethically problematic in the context of public health.

For the state to achieve its intended health outcomes in a liberal society there needs to be shift from traditional 'nannying' approach of policies that limit or influence individual behaviour to an approach that encourages individuals to behave in a responsible way for the common good, by choice. The Nuffield Council of Ethics through their work on ethical issues that arise from state intervention to improve public health put forward the 'Stewardship Model'[55] . This ethical framework is described as a form of libertarianism in which individual choice is given a central role but it also incorporates aspects of various other ethical approaches[55]. A clear objective of the framework is that public health policies should focus on finding ways to expand individual autonomy and not restrict it. Mill's view on liberty is used as their justification for the importance of autonomy in the framework as well as distributive issues and inequality. Their model proposes a voluntary approach to achieving health outcomes by promoting individual responsibility through education and information. The "framework offers two analytical tools namely the 'Stewardship Model' and the 'Intervention Ladder' that can be used to assess ethical issues of public health policy"[55].

As the cost of treating obesity and obesity-related illnesses continues to increase and burden the state, it may be considered legitimate for the state to appeal to individuals to change those behaviours that result in a significant financial cost to the state. But even in the context of the potential 'economic harm' to the state, is the sugary drinks tax an ethically justified public health intervention? In this chapter I apply these two analytical tools provided by the Nuffield Council of Ethics Framework to assess whether a sugary drinks tax is an ethically justifiable public health intervention to reduce obesity in South Africa by discussing the following:

- What evidence is available, is it reliable and will it be effective?
- Is this tax influencing public choice by providing information, restricting choice or eliminating choice?
- To what extent does this tax interfere with individual autonomy?
- Is the restriction on individual choice ethically justified?
- Does this policy meet proportionality requirements?
- Is this intervention a fair response to this public health problem?
- Will it reduce inequality?

Stewardship Model

It is accepted that the provision of a healthcare system as well as public health policies fulfils an important part of the 'stewardship' function of the state. However, acceptable public health policies should reduce risk and improve public health without restrictions on individual freedom. The Nuffield Council's ethical framework model centres on the notion of 'stewardship' as the "obligation of the state to create conditions for individuals to be able make free choices and provide assistance to those unable to look after their own interests"[55]. .According to WHO, stewardship in relation to the state is described as "effective trusteeship of the national health''[85]. The term implies the "notions of trust, ethical behaviour and good decision-making are inherent in the concept of stewardship"[84]. The term 'stewardship' implies that "the state has a responsibility to look after the important needs of its population as individuals and collectively by providing services rather than controlling its citizens"[84]. "The stewardship model emphasises the need for the state to focus on interventions that help people to lead healthy lives, especially if they are vulnerable"[40] and "must account for differing needs arising from factors such as age, gender, ethnic background or socio-economic

status"[55 p25]. "The notion of stewardship gives expression to the obligation on states to seek to provide conditions that allow people to be healthy, especially in relation to reducing health inequalities"[55 p25]. The stewardship model is respectful of individual choice and autonomy and requires that the least intrusive intervention be used to achieve the stated public health goal and it is opposed to interventions aimed at forcing or even influencing people to behaviour in a certain way[55]. However, the stewardship model acknowledges that there are certain considerations where the state does have an obligation to intervene in the promotion of the health of its citizens. One could therefore describe the 'Stewardship model' as somewhere between 'nannying' or paternalism and absolute liberty and freedom where the state pays no role in influencing behaviour to achieve public health objectives.

Interestingly the Stewardship Model not only incorporates Mill's 'Harm Principle', which is the strongest justification against public health, but also includes other observations made by Mill[55]. "The first is that he recognises that the state can rightfully intervene to protect vulnerable groups. Secondly, the state must support initiatives that are in the interest of the well-being of society such as providing good quality drinking water. Thirdly is the importance of educating and informing people so that they can make their own decisions and choices. While many important issues in public health can be addressed with reference to Mill's harm principle alone, there are a range of issues where the stewardship model as a whole, provides a more suitable reference framework. The model recognises the importance of open and transparent participatory processes as a necessary condition for public health policy development. Under the Stewardship Model, public health policy should be compatible with the views of the public, and the government should create conditions that allow the public to scrutinise and judge the appropriateness of proposed policies"[55 p25-28]. The state must therefore consult and involve the public and other stakeholders when formulating an appropriate response to be public health problem.

"The goals a public health programmes carried out by a stewardship-guide model should: aim to reduce the risks of ill health that people might impose on each other; aim to reduce causes of ill health by regulations that ensure environmental conditions that sustain good health, such as the provision of clean air and water, safe food and decent housing; pay special attention to the health of children and other vulnerable

people; promote health not only by providing information and advice, but also with programmes to help people to overcome addictions and other unhealthy behaviours; aim to ensure that it is easy for people to lead a healthy life, for example by providing convenient and safe opportunities for exercise; ensure that people have appropriate access to medical services; and aim to reduce unfair health inequalities"[55 p28]. "In terms of constraints, such programmes should: not attempt to coerce adults to lead healthy lives; minimise interventions that are introduced without the individual consent of those affected, or without procedural justice arrangements (such as democratic decision-making procedures) which provide adequate mandate; and seek to minimise interventions that are perceived as unduly intrusive and in conflict with important personal values"[55 p28].

The Stewardship Model provides several strategies to reduce health inequality. The "first is to raise the level of welfare or opportunities of those who are worst off to the level of those who enjoy the highest standards, or secondly by lowering the welfare of those at the top"[55 p22]. If implemented, each approach is likely to have different consequences and will require close monitoring to ensure the expected health outcomes are achieved. However, the model does not prioritise particular health outcomes nor does it specify which inequalities are more unacceptable than others however it does provide "a useful reference tool for establishing whether or not inequalities exist, and if so, in what sense health outcomes or opportunities are distributed unevenly, whether this distribution is unfair, and if so, how it should be corrected"[55 p22]. Under the stewardship framework, public health strategies should "aim to ensure that it is easy for people to lead a healthy life and promote health by programmes to help people overcome unhealthy behaviours"[55 p26]. Therefore the state has "an active role in ensuring that healthy options are available to its citizens, and encourage their uptake of health-promoting behaviours. Preventative interventions such as health education should be developed as long term strategies as part of school's curricula and well as changing food and exercise culture but these must be accompanied by monitoring and follow up to assess their effectiveness"[40]. The success of the Stewardship Model is therefore tied to evidence of improvement in health outcomes[84].

Interventional Ladder

The Intervention Ladder' is a tool that ranks public-health interventions according to their degree of coerciveness or intrusiveness and provides a mechanism that facilitates an assessment of acceptability[33]. "The higher up the ladder, the more intrusive the intervention and the stronger the need for justification and sound evidence for its' implementation in order to be ethical acceptable"[33 p42]. The intervention at the bottom of the ladder is 'doing nothing' or 'providing information' whilst a regulation that 'bans' or eliminates choice is at the top. When "considering which intervention is appropriate for a particular public health goal, the benefits to individuals and society should be weighed against the erosion of individual freedom. This includes economic cost and benefit as well as health and benefit to society"[33 p42]. The selection of an intervention higher up the ladder should therefore only be considered if the initial intervention is assessed as having failed to achieve the public health objective.

Eliminate choice
Restrict choice
Guide choice by disincentives
Guide choice by incentives
Guide choice by changing the default policy
Enable choice
Provide information
Do nothing or monitor

Table: 1 Intervention ladder taken directly from Nuffield Council for Bioethics[34 p42]

The Interventional ladder used evidence, effectiveness and proportionality, to assess the justification of an intervention and are described as follows[33 p42]:

- Evidence: Is there scientific evidence available to justify the restriction of individual choice?
- Effectiveness: Has the intervention achieved the health outcome objective?
- Proportionality: Does the benefit of the intervention justify the restriction of individual choice?

Thus this tool should be used to compare proposed interventions with regards to their intrusiveness or restriction on individual choice and then used to assess acceptability and justification for implementation[55].

Is the Sugary Drinks Tax Ethical?

Applying the Stewardship Model

The Stewardship model emphasises the need for the state to provide conditions that make it easy for people to lead healthy lives and public health policies should align with this objective. In addition, the Stewardship Model requires that "public health policies consider interventions that minimize intrusion or conflict with individual freedom"[34 p42]. Individual choice is therefore important and given a central role in the Stewardship Model.

The sugary drinks tax is a punitive intervention which aims to influence behaviour by penalising or punishing those who purchase beverages that contain high levels of sugar as these are considered 'unhealthy' by the state. The selection of this intervention to tackle obesity in South Africa is ethically problematic when accessed against the key principles of the 'Stewardship Model'. Firstly, rather than encouraging individuals to make responsible and healthy food and life-style choices through education and providing information to the public, it restricts individual choice by means of affordability. This is particularly concerning as there is no reliable scientific evidence to link the consumption of sugary drinks with obesity and therefore the restriction of choice by means of taxation is not ethically justified. In addition, there is evidence that less intrusive interventions such as providing education as well as information to the public are more likely to achieve better health outcomes. Making the public aware of the amounts of sugar in their favourite food products is the first step to being able to make healthier choices. The Model's approach to achieving a voluntary change in individual behaviour regarding food and lifestyle choices is dependent on the use of these alternative interventions which the state seems to have ignored.

Secondly, the Model identifies environmental factors such as the provision of clean air and water, safe food and decent housing and health care as well as strategies to increase the level of welfare or opportunities to those in low socio-economic

circumstances to improve their living standards which are more likely to achieve better health outcomes. According to the World Bank "South Africa is the most unequal of 149 countries surveyed and notes that inequality has increased since 1994"[86]. Inequality is intrinsically linked to the current high unemployment rate of 26.7% in South Africa[87]. Inequality is known to impact on the health of populations hence the core ethical principle of social justice that underpins public health. An unintended consequence of taxation is the higher impact it has on low socio-economic communities (those sensitive to price and affordability) as was seen in Mexico, a country that has a similar socio-economic profile as South Africa, and is therefore regarded as being discriminatory and unfair[19]. This intervention has the potential to further increase the inequality gap because of its impact on costs in the sugar industry which may lead to job losses and further contribute to the high unemployment in the country particularly amongst farm workers who support this industry[19]. With the gap between socio-economic groups widening, in the current economic landscape the Model requires the state to urgently develop and implement public health policies as well as strategic economic policies that reduce unfair health inequalities and make it easy for individuals to make voluntary healthier food and lifestyle choices without imposing restriction such as taxation that focus specifically on obesity.

Finally, this Model requires that these policies are applied proportionally and fairly. "The importance of open and transparent participatory processes that allow the public to scrutinise and judge the appropriateness of proposed health policies is stressed"[34 p42]. The implementation of the sugary drinks tax in South Africa at a time when emerging scientific evidence is reporting little or no impact on the reduction of obesity in countries where the tax has been implemented reflects poorly on the state and may ultimately leading to mistrust, suspicion and non-compliance of all state interventions and regulation. While the Stewardship Model can be used to justify the involvement of the state in dealing with the potential economic 'harm' attributed to the incidence of obesity in South Africa, the use of the sugary drinks tax on its own as an intervention is unlikely to achieve this health outcome and is therefore not ethically justified as it does not meet any of the model's stated acceptable goals[40].

Applying the Interventional Ladder

The Interventional Ladder describes taxation as an intervention that "guides choice through disincentives"[34 p42]. The sugary drinks tax is restrictive in nature, placed third from the top of the Intervention Ladder and therefore requires sound evidence of its effectiveness as justification for its implementation.

- Evidence: Is there scientific evidence available to justify the restriction of individual choice?

There is currently little scientific evidence that this intervention will achieve the stated health outcome. However, it is acknowledged that there are situations when the state is required to act when only incomplete or insufficient scientific evidence is available to support an intervention and failing to act 'proactively' could have negative consequences for public health. The alarming increase in the incidence of obesity in South Africa would justify the state's hastened response to the implementation of the sugary drinks tax in the absence of scientific evidence. However, the state is obligated to ensure it has sufficient tools and resource that when developing health policies the best possible intervention is established that will achieve the health outcome using the least intrusive, working up the Interventional Ladder only if an intervention is accessed as 'not-working' or there is compelling evidence that a more restrictive intervention will be effective.

It is noted that less intrusive and thus more acceptable measures, as noted in the McKinsey study[84], such as education, changes to formulation and labelling of food products such as processed foods and fast foods, or making it easier to do exercise by improving the availability of walking or cycling paths which are more likely to result in changing behaviour and more likely to be effective in encouraging healthy living and healthy food choices, have not been explored nor implemented in parallel with taxation despite the magnitude of the problem. The South African government has therefore selected a 'relatively' restrictive intervention as a starting point to address this health problem without progressing up the ladder, as required, and without reliable scientific evidence to justify the implementation of the intervention.

- Effectiveness: Has the intervention achieved the health outcome objective?

In Chapter III I presented available data from various countries that have already implemented some form of sugar tax. While there are reports of a small reduction in obesity in a few countries, the overwhelming consensus is that a tax on sugar is not working and the anticipated health outcome i.e. a reduction in the incidence of obesity, is not being achieved. Therefore, the decision by the South African government to go ahead with the implementation of the sugary drinks tax in April 2018 despite mounting evidence from these countries that this tax will not reduce obesity in South Africa is not only irrational but also can't be ethically justified.

- Proportionality: Does the benefit of the intervention justify the restriction of individual choice?

Currently there is no scientific evidence that supports the claim made by the state that increasing the cost of sugar sweetened beverages will reduce obesity in South Africa. For individuals who choose to consume these products, whether obese or not, the state is unfairly making them less affordable because there is no public health benefit associated with restricting their consumption. It is further noted that taxation on food disproportionately impacts the socially disadvantaged. As a result, regardless of where this intervention is positioned on the interventional ladder, it can't be ethically justified as a public health policy and therefore can't be viewed as an appropriate, fair or ethical response by the state to this public health problem.

In conclusion, the Nuffield Council For Bioethics' voluntary approach to achieving health outcomes by promoting individual responsibility does not support the implementation of the sugary drinks tax that restricts individual autonomy and choice by means of affordability which has been shown to disproportionately impact the socially disadvantaged. Furthermore, this intervention has been implemented without reliable scientific evidence that the consumption of sugar sweetened beverages cause obesity or that a tax of these products will reduce the incidence of obesity in South Africa. In essence there is no scientific justification and therefore no ethical justification for its implementation. This further highlights the lack of state engagement around public health interventions which is a fundamental requirement of the Stewardship Model. A transparent participatory process would allow the public to scrutinise and

judge the appropriateness of this intervention on an ongoing basis. Public consultation in the formulation of an appropriate response to a public health problem also ensures that public health policies are compatible with public opinion and therefore have a better chance of being supported and thus achieving their objectives.

Conclusion

Is the implementation of a sugary drinks tax an ethically justifiable intervention to reduce obesity in South Africa? The arguments set out in this research supports my claim that the implementation of a sugary drinks tax is a clear example of overreach by the state on an individual's autonomy and right to self-determination; is unlikely to be effective in reducing the incidence of obesity and therefore is not an ethically justified public health intervention for South Africa.

The main premise of my argument is the overarching ethical principle of autonomy. If a person has the capacity to understand the nature and consequences of their choice, then they should be able to make their choice without interference and especially without interference by the state[60]. Lifestyle choices and food choices should therefore remain the autonomous choice of individuals regardless of whether the choice is 'healthy' or 'unhealthy'. The literature reviewed and presented in Chapter II establishes that the ethical justification for public health is the premise that health is an important human need and good health is highly valued by all individuals. This premise is fundamentally flawed as being healthy and making health life-style choices is only one aspect of an individual's daily life and health may not be valued in the same way by everyone. This claim is substantiated by the fact that individuals often risk their health though participation in high adventure sport and recreation activities such as skydiving and paragliding as well as pleasure activities such as smoking, drinking alcohol or overeating and even their choice of profession like fire-fighters and the police. Competent adults therefore have the right to choose without any interference, whether they wish to be healthy or unhealthy and this is especially true when there is no scientific evidence that supports the states claim that a specific food product is 'unhealthy'. Also discussed in Chapter II, I explore whether choice and behaviour is autonomous and conclude that what might appear to be an individual choosing an unhealthy lifestyle may not be liberty at all because choice is influenced by many external factors including social conditions. Therefore, the consumption of sugar sweetened beverages may be linked to availability and affordability rather than a conscious decision by individuals to be 'unhealthy'.

The importance of public health is however acknowledged particularly in a developing country like South Africa and although bioethics places a premium on individual rights and autonomy, this ethical principle appears to have diminishing relevance in public health where the needs of communities and the disadvantaged are justifiably ranked higher than individual rights. Despite this, public health policies are required to meet certain criteria to be ethically justified. The first important attribute of a public health policy is that there needs to be scientific evidence that assures the public that the intervention will achieve its health objective. While the literature presented in Chapter III highlights the fact that important health issues such as obesity and diabetes that affect the general population are attributed to 'life-style' choices, there is no evidence that the consumption or over-consumption of sugar sweetened beverages alone is a significant contributor or cause of this health problem as claimed by the state. This is further supported by information released by countries such as Mexico where a tax on sugar sweetened beverages is not working and thus is having no impact on reducing the incidence of obesity[19]. In the absence of supporting scientific evidence of its effectiveness, there is no ethically justified defence against claims of over-reach by the state regarding the implementation of this intervention. The second important attribute, as discussed in Chapter II, is that a health policy needs to address social inequality by implementing interventions that distribute resources that benefit the socially disadvantaged in the population and reduce conditions that perpetuate inequality. This requires that the state is equally concerned about developing a prevention policy that addresses the fair distribution of other resources that contribute to health and well-being such as employment, education, housing, access to drink water and access to affordable 'healthy' food products. It is noted that the state has not adequately implemented policies aimed at reducing inequality and improving the overall well-being of its citizens as South Africa remains one of the most unequal countries in the World and the gap has increased since 1994[86].

Finally, in Chapter IV I apply two tools developed by the Nuffield Council of Bioethics to normatively assess the sugary drinks tax as an intervention to reduce obesity in South Africa, namely the Stewardship Model as well as the Interventional Ladder. The Stewardship Model emphasises the need for the state to provide conditions that make it easy for people to lead healthy lives and public health policies should align with this objective. The Stewardship Model places a premium on individual rights and autonomy

and describes the importance of providing education and information as preferred interventions to encourage voluntary changes in individual behaviour. The Model claims these less restrictive interventions are more likely to result in healthier food and lifestyle choices rather than punishing and holding the individual responsible for their behaviour. Therefore, the restriction imposed by the introduction of the sugary drink tax on individual choice is not ethically justified according to the Stewardship Model. This intervention has the potential to further increase the inequality gap in South Africa because of its higher impact on the socially disadvantaged and well as the negative economic impact on the sugar industry which may lead to job losses. This highlights taxation as being a regressive and unfair intervention when used in public health as it conflicts with the core ethical value of public health i.e. social justice and is therefore not ethically justifiable. Also discussed in Chapter IV is the Interventional Ladder which I used to assess the degree of intrusiveness of the sugary drinks tax according to its position on the ladder. Because this intervention is ranked as 'relatively restrictive', being placed third from the top, it requires sound scientific justification for its implementation as the preferred intervention over less intrusive interventions that are placed lower down the ladder[33]. However, with no reliable scientific evidence that the consumption of sugary drinks is the cause of obesity, as well as the lack of reliable scientific evidence that the sugary drinks tax will reduce obesity as claimed by the state, the implementation of this intervention is not ethically justified according to both tools provided by the Nuffield Council of Bioethics ethical framework.

While the state does have a legitimate role in promoting public health through public health policies, the implementation of the sugary drinks tax which has no health benefit can't be ethically justified as a public health intervention by the South African Government. It is therefore reasonable to conclude that this tax is an clear example of the state abusing its power to promote its own interests, most likely economic to address a widening revenue short-fall, and not those of the South African public whose liberty the tax has restricted[60]. This exposes the familiar use of statistics by the state as a tactic to justify the implementation of ineffective and unethical health policies which undermine the values bioethics seek to promote in this setting[49].

Furthermore, the implementation of the sugary drinks tax in South Africa at a time when emerging scientific evidence is reporting little or no impact on the reduction of

obesity in countries where the tax has already been implemented, reflects poorly on the proportionality and fairness of the intervention which may ultimately lead to mistrust, suspicion and non-compliance by the public of all state interventions and regulations.

It is acknowledged that a limitation of this research is the fact that the sugary drinks tax has fairly recently been implemented in South Africa and further empirical research is needed to determine the effectiveness of this intervention in reducing the incidence of obesity.

References

1. Merrick J. Public Health in a Global Context [Internet]. Vol. 1, Front Public Health. 2013 [cited 2018 Oct 14]. p. 9. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3854862/
2. WHO | Reducing free sugars intake in adults to reduce the risk of noncommunicable diseases [Internet]. Who. 2017 [cited 2018 Mar 17]. Available from: http://www.who.int/elena/titles/free-sugars-adults-ncds/en/
3. Health Effects of Overweight and Obesity in 195 Countries over 25 Years [Internet]. Vol. 377, New England Journal of Medicine. 2017 [cited 2018 Jul 7]. p. 13–27. Available from: http://www.nejm.org/doi/10.1056/NEJMoa1614362
4. World Health Organization. WHO Obesity and Overweight. Who. 2012.
5. Obesity costs SA economy more than R700bn per year - study _ Fin24 [Internet]. Fin24; [cited 2018 Nov 4]. Available from: https://www.fin24.com/Economy/obesity-costs-sa-economy-more-than-r700bn-per-year-study-20171012
6. SAMRC. Obesity and diabetes in Africa on the rise. 2017.
7. World Rankings: Obesity Rates by Country (July 2017) [Internet]. renewBARIATRICS.COM. 2017 [cited 2018 Mar 17]. Available from: https://renewbariatrics.com/obesity-rank-by-countries/
8. National Department of Health. South African Demographic and Health Survey 2016 [Internet]. Statistics South Africa. 2016 [cited 2018 Mar 17]. p. 1–76. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25340318
9. Joubert J, Norman R, Bradshaw D, Goedecke JH, Steyn NP, Puoane T. Estimating the burden of disease attributable to excess body weight in South Africa in 2000. Vol. 97, South African Medical Journal. 2007. p. 683–90.
10. Pheiffer C, Pillay-Van Wyk V, Joubert JD, Levitt N, Nglazi MD, Bradshaw D. The prevalence of type 2 diabetes in South Africa: A systematic review protocol [Internet]. Vol. 8, BMJ Open. 2018 [cited 2018 Dec 9]. Available from: https://authorservices.bmj.com/
11. British Heart Foundation. What is energy density? - British Nutrition Foundation [Internet]. 2017 [cited 2018 Jul 7]. Available from: https://www.nutrition.org.uk/healthyliving/fuller/what-is-energy-density.html
12. Are These Energy-Dense Foods Wrecking Your Fat Loss_ - UP Fitness

[Internet]. [cited 2018 Jul 14]. Available from: https://upfitness.com/en/article_posts/food-nutrition/diet/energy-dense-foods-kill-off-fat-loss

13. WHO News Release. WHO Urges Global Action to Curtail Consumption and Health Impacts of Sugary Drinks. International. 2016. p. 31–3.
14. South Africa introduces sugar tax [Internet]. [cited 2018 Jul 7]. Available from: https://www.beveragedaily.com/Article/2018/04/03/South-Africa-introduces-sugar-tax
15. Van Walbeek C. Tobacco Excise Taxation in South Africa [Internet]. Vol. s. d., Research Center, University of Cape Town, South Africa. 2000 [cited 2018 Apr 8]. p. 56. Available from: https://www.who.int/tobacco/training/success_stories/en/best_practices_south_africa_taxation.pdf?ua=1
16. Bader P, Boisclair D, Environmental RF-I journal of, 2011 U. Effects of tobacco taxation and pricing on smoking behavior in high risk populations: a knowledge synthesis [Internet]. Mdpi.Com. [cited 2018 Apr 8]. Available from: http://www.mdpi.com/1660-4601/8/11/4118/htm
17. Biswas AK, Hartley K. Taxes on sugary beverages are not enough on their own to halt march of obesity in Asia [Internet]. The Conversation. 2017 [cited 2018 May 12]. Available from: https://theconversation.com/taxes-on-sugary-beverages-are-not-enough-on-their-own-to-halt-march-of-obesity-in-asia-84236
18. Amy Guthrie ME. Soda Sales in Mexico Rise Despite Tax - WSJ [Internet]. The Wall Street Journal. 2016 [cited 2018 May 12]. Available from: https://www.wsj.com/article_email/soda-sales-in-mexico-rise-despite-tax-1462267808-lMyQjAxMTE2MjAxMzYwOTMyWj
19. Lessons from Mexico_ “Our sugar tax hasn’t worked”, says beverage association - FoodBev Media [Internet]. [cited 2018 May 12]. Available from: https://www.foodbev.com/news/lessons-mexico-sugar-tax-hasnt-worked-says-beverage-association/
20. SA’s plastic bag tax diverted _ IOL Business Report [Internet]. [cited 2018 Jul 7]. Available from: https://www.iol.co.za/business-report/economy/sas-plastic-bag-tax-diverted-2045284
21. Dikgang J, Leiman A VM. Analysis of the Plastic Bag Levy in South Africa

[Internet]. [cited 2018 Jul 7]. Available from: https://www.researchgate.net/profile/Johane_Dikgang/publication/257326387_Analysis_of_the_Plastic_Bag_Levy_in_South_Africa/links/5b044f9da6fdccf9e4f85b95/Analysis-of-the-Plastic-Bag-Levy-in-South-Africa.pdf?origin=publication_detail

22. Ataguba JE et al. Socioeconomic-related health inequality in South Africa: Evidence from General Household Surveys [Internet]. Vol. 10, International Journal for Equity in Health. 2011 [cited 2018 Mar 17]. p. no pagination. Available from: http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed13&NEWS=N&AN=51714531
23. Bhardwaj V. Are South Africans the 8th highest sugar consumers in the world? 9 November 2016 [Internet]. Africa Check; [cited 2018 Mar 17]. Available from: https://africacheck.org/reports/are-south-africans-sugar-consumption-8th-highest-in-the-world/
24. NICHD Child Development and Behavior Branch (CDBB). Eunice Kennedy Shriver National Institute of Child Health and Human Development [Internet]. [cited 2018 Mar 17]. Available from: https://www.nichd.nih.gov/about/org/der/branches/cdbb/Pages/overview.aspx
25. Cliffe C. Introducing a Sugar Tax, Morally Justifiable? A Debate on the Introduction of the UK Soft Drinks Industry Levy [Internet]. Vol. 5, Universal Journal of Public Health. 2017 [cited 2018 Oct 13]. p. 242–7. Available from: http://www.hrpub.org/journals/article_info.php?aid=6196
26. Gostin LO, Wiley LF. Public Health Ethics and Law [Internet]. Hastings Center Bioethics Briefings For Journalists, Policy Makers and Educators. [cited 2018 Jun 10]. Available from: http://www.thehastingscenter.org/briefingbook/public-health/
27. Childress FJ, Faden RF, Gaare RD et al. Public Health Ethics: Mapping the Terrain - The Journal of Law, Medicine & Ethics. 30 (2002) 170-178 - Wiley Online Library. [Internet]. American Society of Law, Medicine & Ethics; [cited 2018 Jul 14]. Available from: https://doi.org/10.1111/j.1748-720X.2002.tb00384.x
28. Wilkinson R, Marmot M. Social Determinants of Health: the Solid Facts [Internet]. Vol. 2, World Health Organization. 2003 [cited 2018 Aug 19]. p. 1–

33. Available from: http://www.euro.who.int/__dhttps://apps.who.int/iris/bitstream/handle/10665/108082/e59555.pdf?sequence=1&isAllowed=y%0D
29. Radoilska L. Public Health Ethics and Liberalism [Internet]. [cited 2018 Aug 19]. Available from: https://academic.oup.com/phe/article/2/2/135/1538813
30. Jennings B. Right Relation and Right Recognition in Public Health Ethics: Thinking Through the Republic of Health [Internet]. Vol. 9, Public Health Ethics. 2016 [cited 2018 Jul 29]. p. 168–77. Available from: https://academic.oup.com/phe/article-abstract/9/2/168/2240700
31. Callahan D, Jennings B. Ethics and public health: Forging a strong relationship [Internet]. Vol. 92, American Journal of Public Health. 2002 [cited 2019 Jul 1]. p. 169–76. Available from: https://www.ncbi.nlm.nih.gov/pubmed/11818284
32. Marckmann G, Schmidt H, Sofaer N, Strech D. Putting Public Health Ethics into Practice: A Systematic Framework [Internet]. Vol. 3, Frontiers in Public Health. 2015 [cited 2018 Aug 25]. p. 1–8. Available from: http://journal.frontiersin.org/Article/10.3389/fpubh.2015.00023/abstract
33. Nuffield Council on Bioethics. Nuffield Council on Bioethics. Public Health Issues Chapter 3: Policy Process and Practice [Internet]. Public health: ethical issues. 2007 [cited 2018 Oct 6]. p. 31–47. Available from: http://nuffieldbioethics.org/wp-content/uploads/2014/07/Public-health-Chapter-3-Policy-process-and-practice.pdf
34. Petrini C. Ethics-Based Public Health Policy? [Internet]. Vol. 100, American Journal of Public Health. 2010 [cited 2018 Aug 19]. p. 197–8. Available from: https://search.proquest.com/docview/1020977486?accountid=8144%0Ahttp://sfx.aub.aau.dk/sfxaub?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=unknown&sid=ProQ:ProQ%3Aabicomplete&atitle=ETHICS-BASED+PUBLIC+HEALTH+POLICY%3F&title=American+
35. Ethical framework - Nuffield Bioethics.
36. Commission on Social Determinants of Health (WHO): Closing the gap in a generation. Health equity through action on social determinantes of health. [Internet]. 2008 [cited 2018 Aug 11]. p. 246. Available from: http://www.bvsde.paho.org/bvsacd/cd68/Marmot.pdf%5Cnpapers2://publication/uuid/E1779459-4655-4721-8531-CF82E8D47409

37. Mackenbach JP. Politics is nothing but medicine at a larger scale: Reflections on public health's biggest idea [Internet]. Vol. 63, Journal of Epidemiology and Community Health. 2009 [cited 2018 Jun 10]. p. 181–4. Available from: https://www.ncbi.nlm.nih.gov/pubmed/19052033
38. Madenson Powers and Ruth Faden. Social Justice The Moral Foundations of Public Health and Health Policy. New York: Oxford; New York : Oxford University Press; 2006.
39. Gostin L, Powers M. What Does Social justice Require For The Public's Health? Public Health Ethics [Internet]. Health Affairs. [cited 2019 Jan 20]. Available from: /citations?view_op=view_citation&continue=/scholar%3Fhl%3Des%26start%3D200%26as_sdt%3D0,5%26scilib%3D1%26scioq%3Dallintitle:%2Bethic%2BOR%2Bmoral%2BOR%2Bethics%2BOR%2Bmorals%2B%2522public%2Bhealth%2522&citilm=1&citation_for_view=VxwTfdsAAAAJ:SjuI4pbJlxcC&
40. Nuffield Council on Bioethics Public Health Ethical Issues Chapter 5: Case Study Obesity. [Internet]. 2005 [cited 2018 Mar 8]. Available from: http://nuffieldbioethics.org/wp-content/uploads/2014/07/Public-health-Chapter-5-Obesity.pdf
41. Dworkin; Gerald. Paternalism (Stanford Encyclopedia of Philosophy) [Internet]. The Stanford Encyclopedia of Philosophy (Winter 2017 Edition); [cited 2018 Feb 2]. Available from: https://plato.stanford.edu/entries/paternalism/#HardVsSoftPate
42. Thomas M, Buckmaster L. Paternalism in social policy when is it justifiable? [Internet]. Research Paper no. 8 2010–11. 2010 [cited 2018 Nov 25]. p. 1–23. Available from: https://legacy.earlham.edu/~peters/writing/paternal.htm
43. Buchanan DR. Autonomy, paternalism, and justice: Ethical priorities in public health. Vol. 98, American Journal of Public Health. 2008. p. 15–21.
44. The Ethics Centre - Ethics Explainer_ What is The Harm Principle_ [Internet]. Stanford Encyclopedia of Philosophy. First published Tue Oct 9, 2007; substantive revision Fri Aug 22, 2014; [cited 2018 Nov 25]. Available from: http://www.ethics.org.au/on-ethics/blog/october-2016/ethics-explainer-the-harm-principle
45. Edward NZ. Mill's Moral and Political Philosophy (Stanford Encyclopedia of Philosophy) [Internet]. [cited 2018 Aug 12]. Available from:

https://plato.stanford.edu/entries/mill-moral-political/#Bib

46. Passive Smoking _ KwaZulu-Natal Department of Health [Internet]. [cited 2018 Nov 11]. Available from: http://www.kznhealth.gov.za/passivesmoking.htm
47. Suber P. Paternalism. Philosophy of Law: An Encyclopedia. 1999, II.632-635. [Internet]. Garland Pub. Co; [cited 2018 Feb 10]. Available from: https://legacy.earlham.edu/~peters/writing/paternal.htm
48. Krebs J. The importance of public-health ethics [Internet]. Vol. 86, Bulletin of the World Health Organization. 2008 [cited 2018 Jul 15]. p. 579. Available from: https://www.ncbi.nlm.nih.gov/pubmed/18797608
49. Nugent R, Knaul F. Fiscal Policies for Health Promotion and Disease Prevention [Internet]. [cited 2018 Sep 15]. p. 211–24. Available from: https://www.ncbi.nlm.nih.gov/books/NBK11714/
50. Parliament of the Republic of South Africa. Constitution of the Republic of South Africa No. 108 of 1996 [Internet]. Vol. 230, Constitution of the Republic of South Africa. 1996 [cited 2018 Jul 14]. p. 1241-1331(56). Available from: http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:CONSTITUTION+OF+THE+REPUBLIC+OF+SOUTH+AFRICA#2
51. George J Annas. Worst Case Bioethics: Death, Disaster, and Public Health. New York: Oxford University Press. 2010; 2010.
52. Brambila-Macias J, Shankar B, Capacci S, Mazzocchi M, Perez-Cueto FJA, Verbeke W, et al. Policy interventions to promote healthy eating: A review of what works, what does not, and what is promising [Internet]. Vol. 32, Food and Nutrition Bulletin. 2011 [cited 2018 Sep 8]. p. 365–75. Available from: https://www.nber.org/papers/w15328
53. Behaviour change , public health and the role of the state – BMA Position Statement December 2012 [Internet]. British Medical Association. 2012 [cited 2018 Oct 7]. Available from: https://www.bma.org.uk/collective-voice/policy-and-research/public-and-population-health/diet-and-obesity/behaviour-change
54. Barnhill A, King KF. Ethical agreement and disagreement about obesity prevention policy in the United States [Internet]. Vol. 1, International Journal of Health Policy and Management. 2013 [cited 2018 Mar 17]. p. 117–20. Available from: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85002369585&doi=10.15171%2Fijhpm.2013.21&partnerID=40&md5=19121820a45a7f5f26d7311a1e53f597

55. Nuffield Council on Bioethics. Public Health Issues Chapter 2: An Ethical Framework [Internet]. 2007 [cited 2018 Mar 8]. p. 13–28. Available from: http://nuffieldbioethics.org/wp-content/uploads/2014/07/Public-health-Chapter-2-An-ethical-framework.pdf
56. Congdon W, Kling JR. Behavioral Economics and Tax Policy [Internet]. NBER Working Paper Series. 2009 [cited 2018 Jul 22]. Available from: https://www.nber.org/papers/w15328
57. Thalas, RH and Cass R. Nudge: Improving decisions about health, wealth and happiness. Penguin; 2008.
58. DiNicolantonio JJ, Berger A. Added sugars drive nutrient and energy deficit in obesity: A new paradigm [Internet]. Vol. 3, Open Heart. 2016 [cited 2018 Oct 14]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4975866/
59. Thow AM, Downs SM, Mayes C, Trevena H, Waqanivalu T, Cawley J. Fiscal policy to improve diets and prevent noncommunicable diseases: from recommendations to action. [Internet]. Vol. 96, Bulletin of the World Health Organization. 2018 [cited 2019 Sep 18]. p. 201–10. Available from: http://www.ncbi.nlm.nih.gov/pubmed/29531419%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC5840623
60. Full Submission on Policy Paper on SSB Tax – 22 August 2016 — Institute Of Race Relations [Internet]. [cited 2018 Sep 15]. Available from: https://irr.org.za/reports/submissions-on-proposed-legislation/full-submission-on-policy-paper-on-ssb-tax-2013-22-august-2016
61. Ruder S. How South Africa can beat its sugar-fuelled diabetes epidemic [Internet]. 2016 [cited 2018 Jul 15]. p. 1–4. Available from: https://www.wits.ac.za/news/latest-news/in-their-own-words/2016/2016-11/how-sa-can-beat-its-sugar-fuelled-diabetes-epidemic.html
62. Keys A, Menotti A, Aravanis C, Blackburn H, Djordevič BS, Buzina R, et al. The seven countries study: 2,289 deaths in 15 years. Vol. 13, Preventive Medicine. 1984. p. 141–54.
63. Jeffery A. A stealth tax. Not a health tax. [Internet]. Johannesburg, South Africa; 2016 [cited 2018 Sep 15]. Available from: https://irr.org.za/reports/occasional-reports/files/irr-policy-paper-a-stealth-tax-not-a-health-tax.pdf
64. 10 Leading Causes of Weight Gain and Obesity [Internet]. [cited 2018 Jul 15].

Available from: https://www.healthline.com/nutrition/10-causes-of-weight-gain
65. Dobbs R, Sawers C, Thompson F, Manyika J, Woetzel J, Child P, et al. Overcoming obesity : An initial economic analysis [Internet]. McKinsey Global Institute. 2014 [cited 2018 Jul 15]. p. 120. Available from: https://www.mckinsey.com/~/media/McKinsey/Business Functions/Economic Studies TEMP/Our Insights/How the world could better fight obesity/MGI_Overcoming_obesity_Full_report.ashx
66. Analysis_ Sugar tax – sweet deal or sour consequences_ _ South Africa _ Daily Maverick.
67. American Diabetes Association. The Cost of Diabetes: American Diabetes Association® [Internet]. American Diabetes Association. 2013 [cited 2018 Jul 15]. p. 2. Available from: http://www.diabetes.org/advocacy/news-events/cost-of-diabetes.html
68. Sassi F, Belloni A. Fiscal incentives, behavior change and health promotion: What place in the health-in-all-policies toolkit? Vol. 29, Health Promotion International. 2014. p. i103–12.
69. KPMG. Taxing your sweet tooth: Effective nudge or economic burden? [Internet]. 2016 [cited 2018 Sep 16]. Available from: https://assets.kpmg.com/content/dam/kpmg/pdf/2016/05/KPMG-Taxing-Your-Sweet-Tooth.pdf
70. Thow AM, Jan S, Leeder S, Swinburn B. The effect of fiscal policy on diet, obesity and chronic disease: a systematic review [Internet]. Vol. 88, Bulletin of the World Health Organization. 2010 [cited 2018 Sep 15]. p. 609–14. Available from: http://www.who.int/bulletin/volumes/88/8/09-070987.pdf
71. Fessenden S. How sugar taxes punish the people [Internet]. The Conversation; 2018 [cited 2018 Oct 13]. Available from: file:///C:/Users/Belinda/Documents/Documents/PhD/MSC/Resource Project/How sugar taxes punish the people.html
72. Strnad J. Conceptualizing the 'Fat Tax":The Role Of Food Taxes In Developed Economies. Vol 78:1221-1326 [Internet]. Vol. 1, Heinonline. 2016 [cited 2018 Oct 13]. Available from: https://southerncalifornialawreview.com/wp-content/uploads/2018/01/78_1221.pdf
73. Staff Writer. South Africa alcohol consumption vs the world [Internet]. BusinessTech. 2016 [cited 2018 Oct 21]. Available from:

https://businesstech.co.za/news/lifestyle/124939/south-africa-alcohol-consumption-vs-the-world/

74. South African Medical Association. Alcohol Abuse in South Africa - A National Crisis — Soul City Institute for Social Justice [Internet]. Soul City. 2018 [cited 2018 Oct 21]. Available from: https://www.soulcity.org.za/news/alcohol-abuse-in-south-africa-a-national-crisis
75. Ara. Economic Impact of Advertising Ban on Alcoholic Beverages. 2011;Chapter 2:23–36.
76. Marteau T. When it comes to sugary drinks , people prefer a nudge than a tax [Internet]. The Conversation. 2016 [cited 2018 Oct 14]. Available from: https://theconversation.com/when-it-comes-to-sugary-drinks-people-prefer-a-nudge-than-a-tax-58617?utm_medium=email&utm_campaign=Latest from The Conversation for June 10 2016 - 5011&utm_content=Latest from The Conversation for June 10 2016 - 5011+CID_40d0c
77. Tobacco Products Control Amendment_Act_23_of_2007.Pdf [Internet]. [cited 2018 Oct 14]. Available from: http://www.tobaccosa.co.za/wp-content/uploads/amendment_act_23_of_2007.pdf
78. Dozens of countries now tax sugary drinks but sweet-toothed Australia isn't interested [Internet]. [cited 2018 Mar 8]. Available from: https://www.smh.com.au/healthcare/dozens-of-countries-now-tax-sugary-drinks-but-sweettoothed-australia-isnt-interested-20180103-h0cv21.html
79. Countries with the sugar tax -- How it's changed countries around the world _ Verdict [Internet]. [cited 2018 Jul 15]. Available from: https://www.verdict.co.uk/sugar-taxes-changed-countries-around-world/
80. Pacific sugar taxes show early signs of success _ RNZ [Internet]. [cited 2018 Sep 15]. Available from: https://www.radionz.co.nz/international/programmes/datelinepacific/audio/2018650358/pacific-sugar-taxes-show-early-signs-of-success
81. The impact of the sugar tax in Chile_ A bittersweet success_ -- ScienceDaily [Internet]. The Conversation; [cited 2018 Sep 15]. Available from: www.sciencedaily.com/releases/2018/07/180703141442.htm%3E.
82. Zulu S. Calls for Tito Mboweni to shelve sugar tax in Budget speech. EWN Feb 2018 [Internet]. [cited 2019 Feb 19]. Available from: https://ewn.co.za/2019/02/19/calls-for-tito-mboweni-to-shelve-sugar-tax-in-

budget-speech

83. Treasury SAND of. Taxation of sugar sweetened beverages [Internet]. 2016 [cited 2019 Feb 19]. p. 1–30. Available from: http://www.treasury.gov.za/publiccomments/Sugar sweetened beverages/POLICY PAPER AND PROPOSALS ON THE TAXATION OF SUGAR SWEETENED BEVERAGES-8 JULY 2016.pdf
84. Saltman RB, Ferroussier-Davis O. The concept of stewardship in health policy [Internet]. Vol. 78, Bulletin of the World Health Organization. 2000 [cited 2018 Oct 6]. p. 732–9. Available from: https://www.who.int/bulletin/archives/78(6)732.pdf
85. WHO. WORLD HEALTH ORGANIZATION FIFTY-THIRD WORLD HEALTH ASSEMBLY. The world health report 2000: Health systems: improving performance [Internet]. 2000 [cited 2019 Feb 19]. Available from: http://apps.who.int/gb/archive/pdf_files/WHA53/ea4.pdf
86. Head T. "Inequality has increased in South Africa since apartheid " – World Bank South Africa has most inequality out of 149 Countries. 2018: [Internet]. 2018 [cited 2019 Feb 20]. p. 1–6. Available from: https://www.thesouthafrican.com/inequality-increase-apartheid-south-africa/
87. Masutha M. SA unemployment rate stable at 26.7%. EWN 2018: [Internet]. Stats SA. 2018 [cited 2019 Feb 20]. Available from: https://ewn.co.za/2018/05/15/sa-unemployment-rate-unchanged-for-q1

Appendices

Ethics Clearance Letter

Plagiarism Form (Turnitin)