

# ***Am I my brothers' keeper?***

*'The influence of lifestyle related diseases on solidarity  
in the Dutch health care'*

**Rotterdam, December 2011**

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*Heb 13:16: En houd de liefdadigheid en de onderlinge solidariteit in ere, want dat zijn offers waarin God behagen scheidt.*

## **I Acknowledgements**

The topic of this thesis, the influence of lifestyle related diseases on the solidarity in health care, has my personal interest, because it is a current issue in health care. Often it has been in the news or in the papers during the past months, which kept me thinking about the content of my thesis. Furthermore, I emphasize this topic because solidarity can be put in a wider perspective. The society is merely focused on the individual nowadays, what value has solidarity got in our society? Are our fellow men and women still important or is our own success more important? I believe that solidarity is an essential part of a well functioning society.

This process has also been a great learning process for me. Writing in academic English was a real challenge, but due to a writing course and feedback I managed to complete this thesis. I also discovered that I am an impatient writer/researcher and learned that it is better to take enough time to think about something. During the writing of this thesis, I have discovered my insecurities and learned how to deal with them.

This thesis would not have been possible without the support of many people. I wish to express my gratitude to my supervisor, Prof van de Ven, who was very helpful and offered many critical views on my work. His wide knowledge and logical ways of thinking have been of great value to me. I would also want to thank my co-evaluators, Dr Mosca and Prof. Dr. Schut, for their time and effort. I also wish to express my gratitude to my friends and family for their understanding and support during this process and my entire study. Last, but definitely not least, I want to thank Adriaan for his trust, patience, critical view and never-ending support. – THANK YOU ALL!

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## II Summary

The prevalence of lifestyle related diseases is growing rapidly, and so do the costs of health care. A combination of these developments might put pressure on the solidarity and financing of health care. This thesis examines the influence of lifestyle related diseases and their costs on the solidarity in the Dutch health care. The main research question is: *Do obesity- and smoking-related diseases and costs have a negative influence on the solidarity in health care? If so, to what extent and what are the potential implications and options for future health care financing?*

The prevalence of and costs attributable to obesity have grown in the past years and these numbers are expected to increase in the future. Between 2008 and 2009, 11.5% of the adults suffered from obesity in the Netherlands. Costs attributable to obesity are 2% of the total health care costs in 2003. The prevalence of smoking and the related health care costs have decreased over the past years. 27% of the 15 year-olds and older smoked in 2010. However, the costs due to smoking are still a substantial part of our health care costs, which was 3.7% in 2003. Lifestyle diseases as a consequence of obesity or smoking might influence the level of solidarity in the Dutch health care.

The concept of solidarity has many interpretations. In this thesis it is defined as: "Solidarity is the feeling of reciprocal sympathy and responsibility among members of a group which promotes mutual support". In the Dutch health care system, this is arranged by cross-subsidies; low-risk and high-income groups contribute to the high-risk and low-income groups (by an income dependent contribution and a community rate premium). In addition, every Dutch citizen has access to a broad range of health care service. Feelings of solidarity can be influenced by the level of individual responsibility in health behavior. In lifestyle related diseases, individual responsibility plays a greater role than in lifestyle independent diseases. As a result, the feelings of 'reciprocal sympathy' can differ for lifestyle related diseases.

The empirical part of this thesis examines the willingness to pay (WTP) for people with a lifestyle independent disease and the willingness to pay for people with a disease related to smoking or obesity. The latter two are combined in the variable 'lifestyle dependent diseases', in order to measure the difference between willingness to pay for treatment. Respondents were asked what they were willing to pay for inclusion of a treatment for others, on top of the yearly costs for the basic health insurance. The mean willingness to pay for a treatment of a lifestyle independent disease is €24.96 and €7.26 for lifestyle dependent diseases, which is a significant difference. In sum, the respondents are willing to pay 3.4 times as much for lifestyle independent treatment than for lifestyle dependent treatment.

This difference in WTP indicates a different level of solidarity between people with a lifestyle related disease due to smoking or obesity and a disease independent of lifestyle. This might have a consequence for the financing of health care: in the future people might not be willing to pay for health care costs of others. People with lifestyle related diseases become responsible for their own health care costs. There are several options for future financing. The composition of the basic benefit package can be changed by the government, so that treatments for lifestyle related diseases will not be reimbursed anymore. Lifestyle adjusted premiums are a second option. The third option is taxes on food ('fat-tax') and cigarettes, these taxes flow in to the risk equalization fund and can be used to compensate insurers. In addition, prioritizing people with a lifestyle independent disease for treatments is a option in which the different level of solidarity is expressed. Finally, healthy behavior can be rewarded and stimulated with a bonus-system. All options incorporate more individual responsibility than the current financing. In sum, lifestyle diseases related to obesity and smoking have a negative influence on the solidarity, which can have consequences for the financing of health care.

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# 1. Introduction

The Dutch health care is often a topic of debate in politics or news these days. Two current developments in the Dutch health care sector will come together in this thesis. First, the financing of health care. Currently, the health care costs are increasing and there is pressure on the financing of health care, because of governmental cutbacks. Second, the development of lifestyle related diseases. Nowadays many diseases can be related to a persons' lifestyle. The costs of health care and lifestyle diseases are both increasing and can have consequences for the financing of health care and the solidarity in the future. Are people still willing to contribute to health care for each other, even when someone has a lifestyle disease?

## 1.1 Health Care Expenditures

In the Netherlands the expenses on health care as part of the GDP have been growing rapidly over the past 40 years (Elk et al. 2009). From the fifties until this decade the health care expenses are increased tenfold (Meerding et al. 2007). Health care expenses are therefore already many years topic of debate. Figure one illustrates that the health care expenses as part of the GDP were 13.3% in 2008. In 2009 this percentage has grown to 14.7% (CBS 2010).

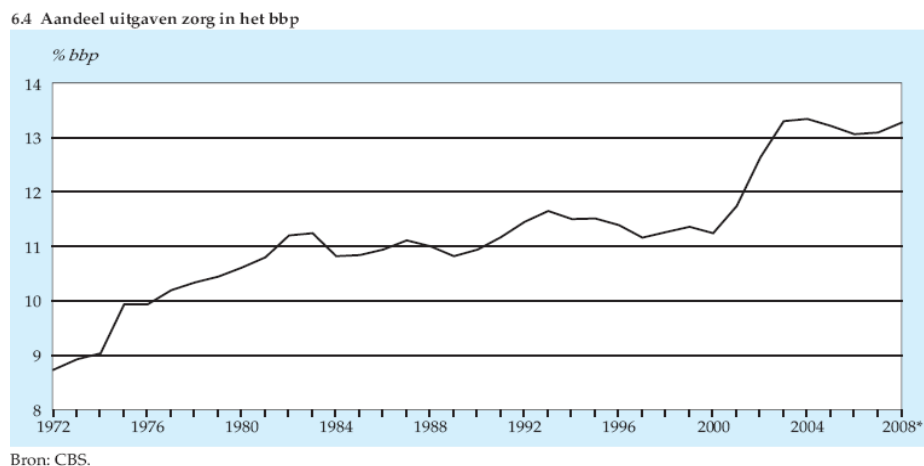


Figure 1: Expenses on health care as a percentage of the GDP, 1972-2009 (CBS 2009).

In addition, the economic crisis puts pressure on the expenses of health care and cutbacks are therefore inevitable. A sustainable financing of health care becomes questionable with growing health care costs and increased cutbacks. Simultaneously to the growth of health care expenditures, the number of people with lifestyle related diseases is increasing (Galobardes 2003:1302). This might have implications for further development of the health care expenses. Expected is that prevalence of lifestyle diseases and the costs of health care will grow in the future (CBS 2009, Polder 2006).

## **1.2 Lifestyle related diseases**

Lifestyle related diseases are associated with choices that are made in lifestyle (Morabia 1996 & McGraw-Hill Dictionary of Modern Medicine 2002). Cardiovascular diseases, diabetes, obesity, sexual transmitted diseases and certain cancers (e.g. lung cancer) are typed as lifestyle related diseases. These diseases are caused by risk factors as: tobacco use, physical inactivity, unhealthy diets, unsafe sex and harmful use of alcohol (WHO 2009, Mackenbach & van der Maas 2008, Tsukamoto 2007). Especially in western developed countries, like the Netherlands, people suffer more and more from lifestyle diseases.

The increase of lifestyle related diseases is reflected in changes in causes of death over the past centuries, which is known as the epidemiologic transition. In the late 19<sup>th</sup> century the main causes of death were infectious diseases, in the 20<sup>th</sup> century this shifted to non-communicable diseases. The 21<sup>st</sup> century is dominated by non-communicable, chronic diseases and an increase of delayed degenerative and lifestyle diseases (Mackenbach & van der Maas 2008:60 & Gaziano 2010). Due to the shift in causes of death and an increased prevalence and costs, lifestyle related diseases receive nowadays much public attention. For example, there are several television programs, like 'Obese' or 'Help, my child is too fat'. Also the health policy of the government gives attention to lifestyle diseases (VWS 2011).

There are many lifestyle related diseases and it would be too extensive to discuss them all in the scope of this thesis. Therefore, a choice is made to examine obesity and smoking. Obesity is a fast growing problem, especially in developed western countries (Mackenbach & van der Maas 2008:233, Gaziano 2010, Finucane et al. 2011). At this moment obesity and overweight are the fifth risk-factor for global deaths (WHO 2011). This growing problem can cause high costs and comorbidities. Smoking is chosen because there is a strong causal relationship between smoking and the effects, like lung cancer. Even though the prevalence is decreasing, smoking is a long existing example of a lifestyle disease (Mackenbach & van der Maas 2008). Both lifestyles, smoking and overweight, have influences on the costs of health care and are interesting to discuss in the light of the financing of health care.

## **1.3 Solidarity Dutch Health care**

The previous sections described the attention for health care financing and the increase of lifestyle related diseases. This combination might have consequences for the solidarity in the Dutch health care. Solidarity, arranged by a financial contribution to health care by everyone, is the basis of the Dutch health care system (Paolucci et al. 2006). Are people still willing to contribute to health care when people have diseases which are associated with lifestyle, behavior and own responsibility? A recent study of Statistics Netherlands showed that over half of the Dutch population thinks that smokers should pay a higher premium for their health



insurance than non-smokers (CBS 2011). This recent example shows that solidarity and lifestyle are a current topic of debate. Should smokers pay a higher premium, or should obese people pay for diet support or for their own health care costs? A different level of solidarity with certain lifestyle groups can have large consequences for the financing of our health care.

This leads to the following research question:

*Do obesity- and smoking-related diseases and costs have a negative influence on the solidarity in health care? If so, to what extent and what are the potential implications and options for future health care financing?*

To answer this research question, the following questions will be addressed:

1. What is the prevalence of smoking and obesity and how can this be expected to develop in the future?
2. Which proportion of total health care costs are obesity- and smoking-related?
3. What is solidarity and what is the relationship between solidarity and lifestyle related diseases?
4. How is solidarity arranged in the Dutch Health care system?
5. To what extent is there a difference in willingness to pay for other people with lifestyle related and non-lifestyle related diseases?
6. What are the potential implications and options for future health care financing in the Netherlands?

#### **1.4 Relevance of this thesis**

The topic of this thesis is relevant, because it will address current issues in health care. Not much research has been done to the difference in willingness to pay for lifestyle dependent and independent diseases. Hopefully, the outcomes will contribute to the discussion about lifestyle related diseases and might be a basis for further research.

## 2. Obesity- and smoking related diseases and costs

This chapter will focus on the prevalence and costs of lifestyle-related diseases attributable to obesity and smoking. Before the influence of lifestyle related diseases on the solidarity can be examined, the costs and prevalence of lifestyle diseases have to be made clear. This chapter will answer two research questions: (1) *'What is the prevalence of smoking and obesity and how can this be expected to develop in the future?'* and (2) *'Which proportion of total health care costs are smoking- and obesity-related?'* These questions will be respectively answered in the following two paragraphs.

### 2.1 Prevalence of smoking and obesity

#### 2.1.1 Obesity

Since the 1980s overweight has become an increasing health problem (Finkelstein 2005:241). Overweight and obesity are caused by a higher daily energy intake than energy expenditure (van den Berg et al. 2007:6). According to the World Health Organization obesity is defined as "abnormal or excessive fat accumulation that may impair health" (WHO 2011) and classified, by the international classification of diseases, as a disease (WHO 2007). To measure and indicate the level of overweight, the Body Mass Index is used.<sup>1</sup> A BMI greater than or equal to 25 is called moderate overweight and a BMI greater than or equal to 30 is severe overweight or obesity (WHO 2011, Bemelmans et al. 2004).

An increase of the BMI is related to several risk factors. Examples of these factors are: physical inactivity (Lindström et al. 2003), age (Bartali et al. 2002), a high intake of daily energy, and socioeconomic factors (Berghöfer et al. 2008). In addition, the risk for obesity is partly genetically determined (van den Berg et al. 2007). Many of these factors are related to the lifestyle of an individual. Being overweight or obese is a major risk for co-morbidities, like ischemic stroke or coronary heart disease, type 2 diabetes and several cancers (Gaziano 2010, Haslam & James 2005, Rippe et al 1998). Another consequence of being overweight or obese is a decrease in life expectancy. An obese twenty years-old person lives 4.4 years (female) or 4.7 years (male) shorter than a normal weight person (Van Baal et al.(2) 2006). For a forty years-old obese the life expectancy is 7.1 years (female) and 5.8 years (male) lower than people with normal weight. An obese smoking person will lose even more in comparison with a normal-weight non-smoker: 13.3 (female) and 13.7 (male) years (Peeters et al. 2003).

The increased prevalence of overweight and obesity is a growing health problem and is a public health concern (VWS 2011, WHO 2004). A large comparative study<sup>2</sup> to the growth

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<sup>1</sup> BMI is calculated as: weight in kilograms divided by height in meters squared

<sup>2</sup> This study is performed in 199 countries and territories (Finucane 2011).

of the BMI concluded that the mean BMI is increased worldwide since 1980, especially in developed countries. This study further shows that 1,46 billion people world wide have overweight (BMI >25) in 2008. 502 million people of this group are obese (Finucane 2011). Based on a world population of seven billion people (WHO), this would imply that around 20% of the world population has overweight.

In the Netherlands obesity is also a growing problem. Figure two shows the development of obesity since the eighties (Giesbers 2011). The blue line represents the males, the red one the females and the green one the total percentage of adults with obesity. The prevalence of obesity was 4.9% in the period 1981-1983 and 11.5% in 2008-2009 (ibid.). As can be seen in the figure, more women than men have obesity.

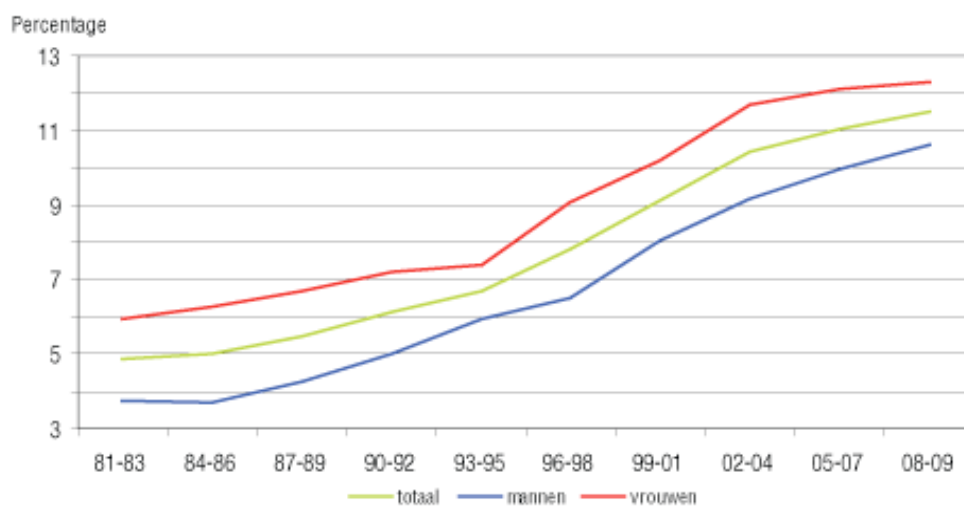


Figure 2: Development of obesity in the Netherlands among adults (BMI >30) 1981-2009. Source: Giesbers 2011

Expected is that this trend will proceed the next years in the Netherlands and the rest of the world. The prevalence of obesity in the United States among adults is expected to be 51,1% in 2030 and in 2048 all American adults expected to be obese (Wang et al. 2008). Future prospects for the Netherlands are slightly different than for the USA: in 2024, 41% of the Dutch inhabitants will have overweight and 18% will be obese (Bemelmans et al. 2004). Besides the growth in prevalence, Wang et al. (2008) expects that the total health-care costs attributable to obesity will double every decade. This will be discussed in the next paragraph.

### 2.1.2. Smoking

Smoking is, contrary to obesity, a longer existing phenomenon. In the 1950s the strong association between smoking and death/disease is been made clear (Doll & Hill 1956:1080). Information about the bad consequences of smoking for health was already available, but the awareness of possible health problems was made clear in the 1990s by Doll et. al. A causal relationship was found between smoking habits and long-term consequences. Further, the

study revealed that smoking had a serious effect on mortality (Doll et al. 1994 & Sloan et al. 2004). The mortality due to smoking is related to death from several cancers (lung and throat cancer), respiratory diseases and vascular diseases (ibid. & Surgeon General 2004). The difficulty in mortality measurement of smoking is that the effects become visible thirty or forty years after people have started smoking (Sloan et al. 2004). In the Netherlands 19,246 individuals have died as a consequence of smoking in 2009 (Gelder et al. 2010). Lung cancer is the main cause of death among smokers, with 8,443 people (43.9%).<sup>3</sup>

As stated before, smokers have a higher mortality rate and therefore a shorter life expectancy than non smokers (Hayashida et al. 2010). This is shown in several studies. Streppel et al. (2006) contend that average and heavy cigarette smoking will reduce the life expectancy with 6.8 - 8.8 years for men and women in Zutphen, the Netherlands. Another Dutch study also examined the consequences of smoking for the life expectancy. This study concluded that the difference in life expectancy between 20 years-old male smokers and non-smokers is 7.7 years (55.4 vs. 63.1 years). For 20 years-old female smokers vs. non-smokers this difference is 6.3 years (59.4 vs. 65.7 years) (van Baal et al.(2) 2006). The third Dutch study is already been done in 1997, but shows also a difference in life expectancy. The life expectancy for male smokers and non-smokers is respectively 69.7 and 77 years. For female smokers and non-smokers the life expectancy is 75.6 and 81.6 years. This is the life expectancy measured at birth and differs therefore from the previous studies (Barendregt 1997:1053). The above-mentioned studies illustrate that smoking has a high impact on the life expectancy compared to non-smokers, between six and ten years.

After describing the mortality and the life expectancy of smoking, the prevalence of smoking will be discussed. Since the 1950s there is a decrease in the prevalence of smoking under men and women (Lindsay and Gaw 2004). This is shown in figure three.

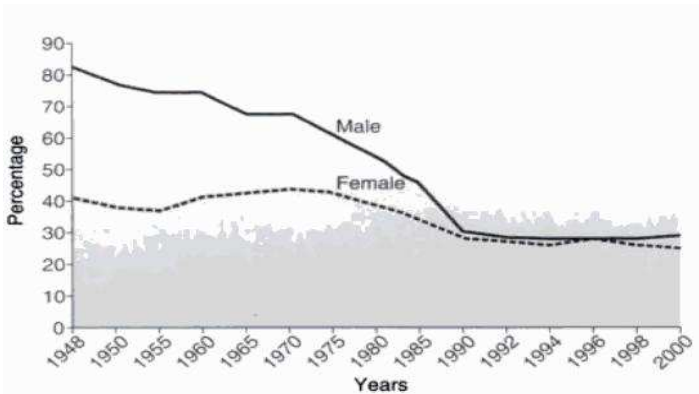


Figure 5.1 Percentages of men and women who smoke (1948-2000).

Figure 3: number of smokers in the UK, Source: Lindsay and Gaw 2004.

<sup>3</sup> Table with exact numbers and causes of deaths in 2009 can be found in appendix A

In 1958, 60% of the Dutch population of 15 years and older smoked (occasionally or often). In 2010 this percentage was decreased to 27% (Stivorro 2010). Figure four presents the percentage of smokers under men and women for different age categories in the Netherlands (Zeegers 2011). It can be concluded that the number of smokers in the Netherlands is decreasing over time, but that there are differences between different age groups. The highest percentages of smokers are in the age category 20-34 and 35-39 (both men and women). The prevalence of smoking is quite high in the Netherlands, compared to other European countries. Besides the Netherlands, have Germany, Latvia, Hungary and Poland also a high prevalence of smokers (Wilk 2011).

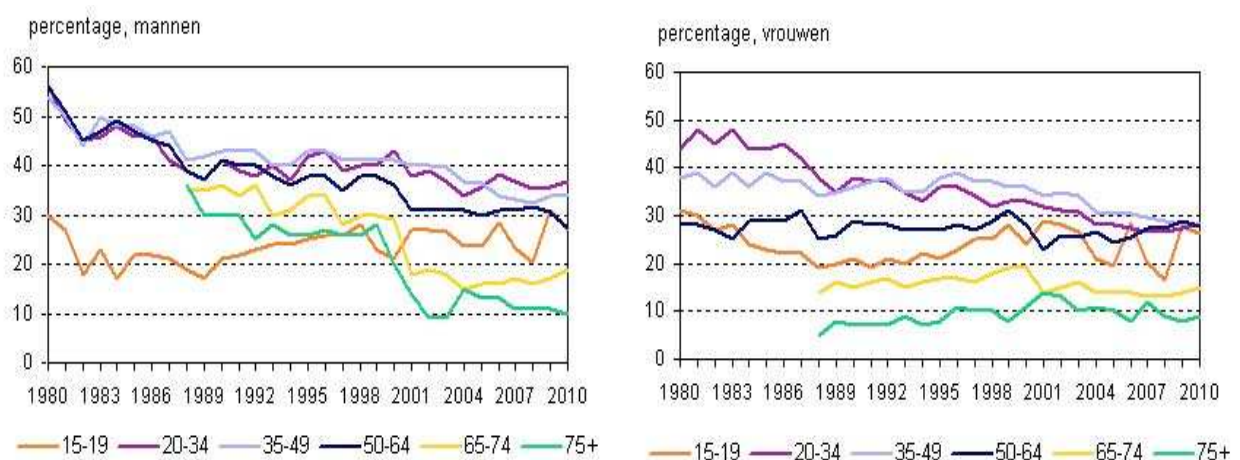


Figure 4: Percentage of male (left) and female (right) smokers in the Netherlands between 1980-2010  
Source: RIVM.

## 2.2 Costs of smoking and obesity

This paragraph examines the costs of obesity and smoking and in which proportion they are attributable to health care costs. Only the costs that are attributable to health care services and treatments are taken into account. For example, costs attributable to adjustments in the society, wider seats in an airplane for example, are not taken into account.

### 2.2.2 Costs of Obesity

The costs of obesity are particularly caused by comorbidities. Since the 1980s many studies have examined the medical costs attributable to obesity, especially in the United States. This section will discuss therefore first examples from the United States, subsequently a Dutch example will be discussed.

In 1986 the estimated costs of obesity in the United States were 39.3 billion US dollar (Colditz 1992), this was 5.5% of the total health care costs. In this study the costs attributable

to obesity were divided into costs for several comorbidities<sup>4</sup>. In 1995 the direct costs associated with obesity were 5.7% (51.6 billion USD) of the total health care costs in the United States. These direct costs include personal health care, physician services, allied health care services, and medications (Wolf & Colditz 1998). Another study found that the costs for obesity as part of the annual medical costs in the United States were 5.3% (47.5 billion USD) (Finkelstein et al. 2003). When individuals with overweight are also included, this percentage is even higher: 9.1% (78.5 billion USD). In 2003 Finkelstein did the same study with new data and the costs then were estimated at 75 billion USD, which presents 6% of the health care costs (Finkelstein et al. 2004).

It is quite difficult to exactly compare the above-mentioned studies, because they took different approaches, data, co-morbidities or economic perspectives into account. Some studies also included the costs for overweight instead only the costs for obesity (Finkelstein 2003), which might cause different outcomes. Nevertheless, the several studies give insight in the estimated costs attributable to obesity in the United States and show that obesity is associated with considerable health care costs. In a overview study, based on several articles, Finkelstein et al. concluded that the annual obesity-attributable medical costs in the United State are between 5-7% of annual health care costs. This number is updated until 2003 (Finkelstein et al. 2005, Finkelstein et al. 2009). In addition, the above findings correspond with the literature study that Meier has done to the costs of obesity. This study concluded that between 5-6% of the annual health care costs in the United States are attributable to obesity (Meier 2009).

The costs of obesity in Europe and the Netherlands are expected to be lower than in the United States, because the prevalence of overweight and obesity is lower in European countries. A Dutch report about the costs of several illnesses, estimated that the total health care costs of obesity in 2003 were 1.15 billion Euro. This was 2% of the total health care costs of that year. This percentage is considerable lower than in the United States.

Many studies about the costs of obesity focus on the annual costs, but there are also studies that focus on the lifetime costs. There is a substantial difference between these types of costs. Annual medical costs are often higher than costs of people with normal weight, due to costs of comorbidities. Figure five presents the extra annual health care costs of obesity (green line) and smoking (red line), in comparison with normal-weight non-smoker people. This figure supports the notion that obese people have annually higher health care costs than people with a normal weight (van Baal et al.(1) 2006:21).

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<sup>4</sup> diabetes type 2, hypertension, cardiovascular disease, gallbladder disease and breast and colon cancer

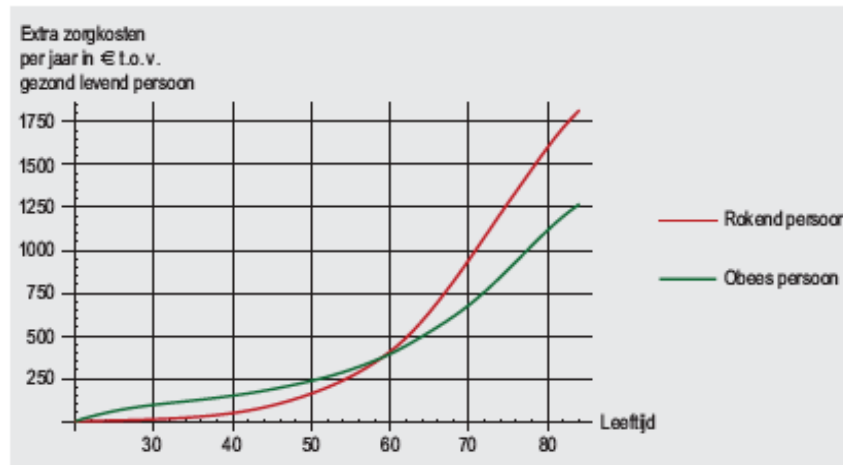


Figure 5: Extra health care costs per person per year caused by smoking and obesity.  
Source: van Baal et al. 2006 (1).

On the other hand, the lifetime costs of obesity are lower than normal weight people, because obese people have lower life expectancy and highest costs are made in the last ten years of life. A Dutch report estimated the expected lifetime health care costs of a 20 years old with normal weight on 379,000 euro and of a obese 20 years old on 319,000 euros (van Baal et al. (1) 2006). Another study calculated the lifetime costs of obesity on 250,000 euro and for normal weight people 281,000 euro (van Baal et al. 2008). Although there is a difference between the height of costs, both examples show that obese people have lower lifetime costs than people with normal weight.

In the future, the costs and the prevalence of obesity will increase. Estimations that are made about the costs of obesity, show that the costs will double every decade and will be between 15.8-17.6% of the total US health care costs in 2030. This percentage is based on the estimation that 86.3% of the American adults have overweight in 2030 (Wang et al. 2008). Since the prevalence of obesity is lower in the Netherlands, the costs will probably increase, but less than in the United States.

### 2.2.3 Costs of Smoking

Even as the studies about the costs of obesity, there are many studies done about the costs of smoking. Before European studies are discussed, some examples from the United States are addressed. Costs that are attributable to smoking are associated with costs of smoking related diseases, like lung cancer or respiratory diseases.

A literature review about the medical costs of smoking in the United States showed that at least 6-8% of annual personal health costs are attributable to treatment of diseases caused by smoking (Warner 1998). Furthermore, another review concluded that the annual costs of smoking are 6-14% of personal health care costs (Max 2001). In line with these results is the study of Sloan (2004). He examined that costs attributable to smoking range

from 3.1% - 12.6% of total annual health care costs. Meier examined the medical costs attributable to smoking and concluded, based on several studies, that 3-14% of the total health care costs in the United States are attributable to smoking (Meier 2009).

Barendregt et al. (1997) have examined the annual costs of smoking in the Netherlands. They concluded that the annual health care costs of smokers are higher than those of non-smokers (Barendregt et al. 1997 & Hayashida et al. 2010). The previous mentioned Dutch report (van Baal et al. (1) 2006) examined, besides obesity, also the health care costs of smoking. In 2003 the costs of smoking were two billion euro. This was 3.7% of the health care costs in 2003. Figure five presents also the extra health care costs of smoking in comparison with healthy people (red line). It shows that smokers have annually higher costs than normal-weight non-smokers (van Baal et al. (1) 2006:21), which are caused by treatments for lung cancer, cardiovascular diseases or other comorbidities.

Even as the lifetime costs of obesity are lifetime costs also lower for smokers than for non-smokers, respectively 220,000 Euros and 281,000 Euros (van Baal et al. 2008). This is confirmed by another study: the lifetime health care costs of a non-smoking 20 years-old are estimated on 379,000 Euros and of a 20 year old smoker 272,000 Euros (van Baal et al. (1) 2006). In sum, despite the higher annual costs of smokers, their lifetime costs are lower than non-smokers. However, lower lifetime costs for smokers are not necessarily the case in every study. Rasmussen et al. (2005) found that the annual and lifetime costs for smokers are higher than non-smokers. Differences in studies can be explained by the use of discount rates and the choice for the type of costs that are taken into account. Rasmussen et al. did not take costs for rehabilitation and nursing homes into account, which causes the highest costs on high age (Meier 2009).

In the future the costs of smoking might decrease, due decrease of the decreasing prevalence of smoking. However, the effects of smoking are still visible after smoking cessation and this still will cause costs. Future expectations show that people will become healthier and live longer than nowadays. Therefore more costs will be made in the future (Barendregt 1997).

### **2.3 Conclusion**

This paragraph will answer the research questions of this chapter. First, *What is the prevalence of smoking and obesity and how can this be expected to develop in the future?* The prevalence of smoking is 27% among 15 years-olds and older in 2010 in the Netherlands. The prevalence of obesity was 11.5% among adults in 2008-2009. These percentages will develop differently. Expected is that the prevalence of obesity will increase and smoking will further decrease. Even though the prevalence rates will differ in the future,



both groups have a lower estimated life expectancy than a non-smoking normal-weight group, between six and ten years.

The second question that has been addressed is: *'Which proportion of total health care costs is smoking- and obesity-related?'* In 2003 3.7% of the health care costs in the Netherlands were attributable to smoking related costs and 2% of the costs were attributable to obesity. The costs of obesity are in proportion to the prevalence of obesity higher than the costs of smoking in proportion to the prevalence of smoking. The prevalence of smoking is two times higher than obesity (27% vs. 11.5%), but the costs of smoking are not (3.7% vs. 2%). These lower costs might be explained by the lower life expectancy of smokers, see table.

	Difference in life expectancy in comparison with a normal-weight non-smoker	
	Male	Female
20 years-old smoker	7.7	6.3
20 years-old obese	4.7	4.4

Table 1: overview of difference in life expectancy smokers/obese

In sum, the prevalence of obesity is increased and will increase in the future. This will probably cause a growth of health care costs attributable to obesity, which might result in problems in the financing of health care. This will be discussed further in this thesis. Unlike obesity, the prevalence of smoking has been decreased the past years. However, the costs attributable to smoking counts for a larger part of the health care costs than those of obesity.

### **3. Theoretical Framework**

This chapter examines the concept of solidarity and will answer the following research question: *What is solidarity and what is the relationship between solidarity and lifestyle related diseases?* In order to make the concept of solidarity clear, several perspectives on solidarity will be discussed in the first paragraph and a definition of solidarity, in the scope of this thesis, will be given. In the second paragraph motives for mandatory solidarity will be discussed. The link between solidarity in health care and lifestyle related diseases will be examined in the third paragraph. This chapter ends with a conclusion.

#### **3.1 Concept of solidarity**

Finding a comprehensive definition of the term solidarity is not effortless, because solidarity is a complex concept with an abstract character and is multi interpretable (Maarse & Paulus 2003:588). Solidarity is a commonly used notion, but still difficult to define precisely. Every author emphasizes a different aspect of this concept. This paragraph will first present several definitions of solidarity. Moreover, four perspectives on solidarity will be described and clarified in the relation with lifestyle related diseases.

Solidarity is defined by Wilde as: 'the feeling of reciprocal sympathy and responsibility among members of a group which promotes mutual support' (2007:171). This first definition is generally orientated, contrary to the next definitions. Hoedemaekers and Dekkers formulate the principle of solidarity more specific for health care: 'The principle of solidarity implies a commitment to provide priority to health care services to the most disadvantaged in society' (2003:330). Even as Maarse & Paulus (2003:589): 'Solidarity is understood to be a redistributive arrangement in health insurance'. Aspects from the previous definitions are combined by Houtepen & Ter Meulen (1). They refer to solidarity as an attitude towards weaker groups in society and a commitment to a fair distribution of health care service (2000:356). Olivier & Mossialos (2004) use the term equal access to refer to solidarity and define solidarity as: 'people ought to have equal access to a reasonable minimum range and standard of health care, irrespective of their ability to pay for health care'. A distinction can be made between voluntary and enforced solidarity (Houtepen & Ter Meulen (2) 2000:329-330). Voluntary solidarity is understood as reciprocal support and help within communities. Whereas enforced solidarity is known as a contribution made by everyone to an insurance system to guarantee equal access to health care. The latter definition is close related to Paolucci's view on mandatory solidarity (2007). He uses the terms affordability and cross-subsidies in a similar same way as enforced solidarity: everyone contributes to affordable health care services for everyone with cross-subsidies (Paolucci 2007:27).

The aforementioned definitions are quite similar. Corresponding terms are; (re)distribution of health care services, commitment of a society, responsibility and equal access. This points out that solidarity is a broad concept with many definitions. Subtle differences between definitions can be explained by the use of different perspectives on the concept of solidarity. In the next section four different perspectives will be addressed in order to provide a coherent view on the concept of solidarity.

### *3.1.1 Liberal perspective*

In a true liberal society the right to personal freedom and private property is important and can not be interfered. The liberal perspective is therefore individually orientated and assumes that individuals make their own choices. In health care this means that every individual pays for his own medical needs and is responsible for his own health. (Houtepen & Ter Meulen (1) 2000:335, Hoedemaekers & Dekkers 2003: 326). The term justice is often associated with the normative aspects of solidarity (Houtepen & Ter Meulen (1) 2000:356). However, in the liberal perspective justice is focused on the redistribution of goods, regardless ones need and is not necessarily about normative questions or a fair distribution (Houtepen & Ter Meulen (2) 2000:357). Habermas expresses the difference between justice and solidarity in this perspective as follows: "Justice concerns the equal liberties of irreplaceable and autonomous individuals, whereas solidarity concerns the wellbeing of the members who are connected in an intersubjectively shared life-form" (Habermas 1986). For example; meeting the medical needs of sick and disabled people is not justice but seen as charity (Buyx 2008 & Hoedemaekers & Dekkers 2003: 326). Solidarity in this perspective is expressed by Houtepen & Ter Meulen (2000:357) as follows: "Solidarity is a matter of individuals performing reciprocal duties whilst respecting reciprocal rights". There is no intrinsic motivation, but solidarity is a 'duty'.

The position of the individuals and the assumption that they make their own choices are important values in this perspective. Living a lifestyle that causes a disease can therefore be seen as own choice and responsibility. In the Netherlands the government has a substantial role in health care (for example ensuring access and financing) (Buyx 2008:872). Thus, a pure liberal health care system, where people have to arrange their own health care and are responsible for their behavior, is not possible (ibid.).

### *3.1.2 Egalitarian perspective*

The core notion in the egalitarian perspective is based on the equality between humans and the possibilities to become as much equal to others as possible (Hoedemaekers & Dekkers 2003:328). Within this perspective there are different thoughts about the concept of equality. Strong egalitarians advocate an absolute equal health status for everyone, whereas others

are more moderate and argue for equal rights and liberty for every individual (ibid.). Many options on this scale are possible, but an absolute equal health status is impossible and unlikely to achieve. In this perspective the community has an important role in trying to reduce the differences in health status. However, they should only take responsibility for inequalities in health caused by factors beyond the control of the individuals. Inequalities in health as a result of freely chosen behavior do not have the focus of the community, because individuals are responsible for own choices in this perspective (Roemer 1993:147 & Buyx 2008:872). For example; a physically disabled person (e.g. broken leg) should be rewarded with the opportunity to receive extra health care and people with obesity due to bad eating habit not. The term justice in this perspective can be explained by using Rawl's theory of justice. He emphasizes the idea that inequalities in health are acceptable as long as the situation of the worst off is improved (Olsen 1997). The choices that individuals and the community make, should be made behind the 'veil of ignorance'. This implies that when individuals are not aware of their own situation, and can not take their own interest into account, they make objective decisions. Justice is in this perspective more associated with solidarity/normative question and positive distribution of health care to the worst off, than in the liberal perspective.

Assuming that lifestyle related diseases are caused by own behavior, and are not attributable to factors beyond the control of the individual, this perspective argues that the community do not have to put effort in diminishing the health inequalities. This is the responsibility of the individual.

### *3.1.3 Utilitarian perspective*

The utilitarian perspective focuses on the concept and the maximization of utility. Utility can be defined in different ways; pleasure, satisfaction, happiness or good health in the case of health care. (Hoedemaekers & Dekkers 2003:328). The role of the individual is, contrary to the previous two perspectives, inferior in this perspective. The maximization of the sum of individual utility (every person is one utility unit) is more important (Hoedemaekers & Dekkers 2003:328 & Olsen 1997:627). Also the meaning of justice in this perspective differs with the previous ones. Justice in health care is obtained when the aggregate utility is maximized, so when 'good health' is maximized. In the distribution of health care services, cost-effectiveness plays an important role. Health care services that are expensive, not very effective or intended for a small group (less utility for the population) are therefore often not prioritized, because the population as a whole will not benefit (Hoedemaekers & Dekkers 2003:328). A health care service is prioritized when it is proven cost-effective and has a high health gain/utility (ibid.). No difference is made for the relative utility gain per person, only to the utility gain of a whole group.

This could imply that regardless the nature of the treatment, for a lifestyle dependent or independent disease, priority is set to cost-effective services with a high utility gain in redistribution of health care. The concept of need and own responsibility plays a minor role in this perspective. When in the future a relative large group of people suffer from a lifestyle related diseases, what are the consequences for people with lifestyle independent diseases? In a strong utilitarian society this group got less priority, because fewer utility is reached when health care services are provided.

#### *3.1.4 Communitarian perspective*

The community obvious has a central position in the communitarian perspective. The common good plays a greater role than the preferences of individuals (Buyx 2008:871). The community determines about the distribution of health care services. This can therefore be seen as a social decision which is based on common values and not on a individual decision (Hoedemaekers & Dekkers 2003:329 & Houtepen & Ter Meulen (2) 2000:359). These common values, also seen as priorities, are established by the community and thus can differ between communities (Hoedemaekers & Dekkers 2003:329). Redistributing health care services will be done in favor of the community. This finds expression in the preference for interventions or medicines that improve the overall quality of the community, for example preventive care (Buyx 2008:871).

The interest of the community in this perspective will influence the decisions about priority setting (Hoedemaekers & Dekkers 2003:329). People with lifestyle related diseases and rare disease are not likely to be prioritized in the distribution of health care services, because it not necessarily has to be in favor of the community. Only when a large part of the community has lifestyle related disease, which might occur in the future.

#### *3.1.5 Differences and similarities in definitions and perspectives*

Differences in definitions of solidarity can be partly explained by using different perspectives. For example, the definition of Hoedemaekers & Dekkers and Houtepen & Ter Meulen would seem to fit the egalitarian perspective, because they use terms as: involvement of 'weaker groups' and 'disadvantaged'. With this definition the provision of health care is focused on weaker groups in de society to improve their health. The definition of Maarse & Paulus only mentions the redistribution of health care services and therefore might fit the liberal perspective.

Although different perspectives on solidarity can cause slightly different definitions of solidarity, they do not have to exclude each other and there are certain elements of overlap. For example, the community plays quite a substantial role in both the egalitarian and communitarian perspective. In the egalitarian perspective this is shown in making decisions

that aim to reduce non-avoidable health care differences. In the communitarian perspective the community decides about the meaning of solidarity and prioritizing in the distribution of health care services. There is also overlap between the liberal and egalitarian perspective. In both perspectives is the position of the individual related to individual responsibility in decision making. There are also elements of overlap between the liberal and utilitarian perspective. Both perspectives attach less value to the fairness or need in the redistribution of health care services than the other two perspectives. Liberals care for a 'just' distribution and utilitarians for a maximization of the utility.

A combination of perspectives is applicable to solidarity in the Netherlands. The individual is responsible for making own choices in health (e.g.: doctor visit or lifestyle), this fits the liberal perspective. Nevertheless, the government takes the role of 'community'. The government enforces access to health care by laws, financial incentives for low income groups (van de Ven & Schut 2008) and determines the preconditions for distribution of health care. In the Netherlands we have equal access to the basic health insurance, everyone has the same possibilities, this fits the egalitarian perspective. Also the utilitarian perspective is applicable, because treatments are tested on cost-effectiveness before they are reimbursed. Chapter four will discuss solidarity in the Dutch Health care system more extensive than this one.

### *3.1.6 Definition of solidarity*

A definition of solidarity will be given for clarity and in the scope of this thesis. The definition that will be used further in this thesis is the definition of Wilde: "Solidarity is the feeling of reciprocal sympathy and responsibility among members of a group which promotes mutual support". This definition of Wilde expresses a feeling among members in a society. This 'feeling of reciprocal sympathy and responsibility' could be measured by examining the willingness to pay of individuals for others. The willingness to pay might differ for lifestyle related diseases. The next paragraphs will examine which factors can influence this willingness to pay.

### **3.2 Motives for mandatory solidarity contribution**

This paragraph describes how solidarity can be obtained by implementing subsidies to make individual health insurance, and therefore access to health care services, affordable for everyone. With a system of cross-subsidies individuals, from low-risk and high-income groups, contribute implicitly to the financing of health care for high-risk and low-income individuals. To achieve affordable access to health care, the government has different arguments to implement mandatory cross-subsidies (Paolucci 2007:29-30). Even though

there are people who are willing to contribute voluntarily to a system of cross-subsidies, mandatory cross-subsidies are still necessary to assure these contributions (ibid.).

The first argument to set mandatory cross-subsidies are externalities. Externalities are caused by the preferences of people in the consumption of health care (Paolucci 2007:30). These preferences can be altruistic or egoistic. Altruistic preferences imply that a person is concerned with the total wellbeing<sup>5</sup> or health status<sup>6</sup> of someone else. In brief, the utility function of person B depends on the utility of A, and therefore person B wants to contribute to health care consumption for person A. People do not want to deny other people effective care. This willingness to contribute to health care for others (altruistic preferences) is influenced by four factors and can differ per treatment.

First, the cost-effectiveness ratio of a health care service (1). A low ratio means most efficient health improvements. This can have a large positive influence on the utility of people with altruistic preferences, because the effect of their contribution is the largest (Paolucci 2007:33). Also the health status of the other person (A) influence the utility of person B (2). People with altruistic preferences have a higher increase of utility when the health status of the other person is low, because then there is more utility to 'gain' (Paolucci 2007:34). Third, the expected costs of the treatment (3) influence the utility. The higher the price of a treatment, the greater the utility to contribute to cross-subsidies. Unaffordable care will be made accessible by cross-subsidies (Paolucci 2007:35). The consumers' individual responsibility in getting a disease (4) can also influence the utility of people with altruistic preferences. There is lower level of utility (and support for cross-subsidies) when someone has a large responsibility in getting a disease. However, it is difficult to establish a relationship between behavior and consumption of health care (Paolucci 2007:36). In sum, externalities are a reason for a mandatory solidarity contribution, because with a mandatory cross-subsidy everyone has access to health care and no free-rider behavior is possible.

Egoistic preferences indicate that people are willing to contribute, when the health status of others (person A) contributes to the utility of person B. For example, in case of a communicable disease: the utility of person B depends of the consumption/vaccination of person A (Paolucci 2007:36).

The second argument for mandatory cross-subsidy is the financial risk of becoming a high-risk. People do not know whether they will become ill or develop a chronic disease with high medical costs in the future. Health insurance prevents people from extremely high medical costs, but insurers can differentiate the price of the premium to the risk category when people want to renew their contract. This can result in a very high insurance premium.

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<sup>5</sup> Altruistic preferences Type 1: The utility function of B is a direct function of the utility of A.

<sup>6</sup> Altruistic preferences Type 2: The utility function of B is a direct function of the health status of A.

In a system with mandatory cross-subsidies also high-risk and low-income groups can be insured against long-term health risks and can have access to health care despite the price (Paolucci 2007:39).

The final argument concerning mandatory cross-subsidies is the moral hazard effect. A system of cross-subsidies induces incentives for moral hazard. People consume more health care services, because they experience a lower price due to the existence of insurance. There is a trade-off between a health care system with equal access and moral hazard or unequal access and no moral hazard. (Paolucci 2007:40). The choice for mandatory cross-subsidies confirms the preference for financial access instead of the existence of moral hazard without cross-subsidies.

The altruistic preferences mentioned by Paolucci can be linked to the definition of solidarity as discussed in the first paragraph. Altruistic preferences can be seen as a 'feeling of reciprocal sympathy and responsibility' to others. These feelings can be influenced by four factors, under which individual responsibility. Individual responsibility in getting in a disease can influence the willingness to contribute to mandatory cross-subsidies, and therefore the willingness to pay for others. For example: altruistic preferences might be limited for a person who smokes or practice dangerous sports. The next paragraph will specify role of own responsibility in (the consumption) of health care.

### **3.3 Solidarity and lifestyle related diseases**

This paragraph will examine the link between two key issues of this thesis; solidarity in health care and lifestyle related diseases. Perspectives to view solidarity are discussed earlier. Every perspective addresses the role of the individual differently. For example: The liberal perspective assumes that individuals make their own choices and have responsibility for their own health (Houtepen & Ter Meulen 2000:35). On the other hand, in the communitarian perspective is common good more important than the preferences of the individual (Buyx 2008:871). The second paragraph describes that feelings of solidarity can be influenced by own responsibility in health behavior.

Both paragraphs address the role of individual responsibility in health care. This role becomes interesting when it will be discussed in the light of lifestyle related diseases. Lifestyle related diseases are associated with choices made in lifestyle. For example: the choice for smoking can cause lung cancer and the choice for having an unhealthy diet might lead to obesity. These choices are closely related with the level of individual responsibility in health behavior. The solidarity in a society towards people with a lifestyle related disease can be influenced by this level of responsibility in making choices. In this way 'irresponsible' choices, like: smoking, drinking alcohol and eating unhealthy, can lead to a lower sense of solidarity towards these individuals. To what extent can individual responsibility be related to



individual health choices; is every individual responsible for their own health or to stay healthy? In the next section of this paragraph the role of individual responsibility in health care will be explained and discussed.

### *3.3.1 Individual responsibility in health care*

The level of individual responsibility in choices regarding lifestyle and health care is a ethical discussion where many factors are involved with. There is a lot of debate about this topic in the literature (Buyx 2008, Wikler 2002, Cappelen & Norheim 2005). The underlying question in this discussion is whether individuals should experience the consequences of their choices (in lifestyle). Reasons to incorporate individual responsibility in the distribution of health care differ from each other, because different assumptions are made about the role of the individual. Although individual responsibility is a widely discussed topic these days, holding individuals accountable for their choices in health care remains controversial (Harris 1995 & Cappelen & Norheim 2005). Several arguments in favor and against including individual responsibility in health care will be presented.

There are three main arguments to include individual responsibility in the distribution, financing and rationing of health care. The first argument is, what Cappelen & Norheim called, the backwards looking responsibility argument, which claims that the individual should be held responsible for choices made in the past. For example: individuals are free to choose if they want to smoke. The consequences might be that they develop a need for lung cancer treatment, but they are still accountable for their choice to smoke (Cappelen & Norheim 2005:476). Egalitarians might agree with this argument. From their point of view everything that is not caused by externalities should be taken into account as a rationing criteria, also individual responsibility (Buyx 2008). However, it is difficult to draw a line between individual responsibility and externalities (Wikler 2002). Moreover, there is also a forward looking argument. This is related to choices that individuals will made in the future. With the use of incentives, e.g. taxes and laws, the choices and behavior of the individuals might be influenced. Even as the previous argument, individuals are still responsible for their choices (Cappelen & Norheim 2005:477). The final argument implies that holding people responsible for their choices in health will be financial attractive. Especially in times where rationing health care receives a lot of attention. By letting individuals with lifestyle related diseases contribute to their own health care costs, money will be available to give priority to other patient groups (Harris 1995).

However, the aforementioned arguments have some drawbacks and there are also arguments against a greater role of individual responsibility in health care. Freedom of health behavior is the first argument. According to the liberal point of view, freedom of choice and behavior are important values, also in health care, thus individual responsibility should not be

taken into account (Buyx 2008). Also human rights lawyers will agree with this argument, based on equal rights and individual freedom (Cappelen & Norheim 2005). The second argument is a normative argument and is related to the principle of fairness. Even when individual responsibility is taken into account, not many doctors deny necessary care to a person with a stroke (due to heavy smoking). When bedside rationing will be applied, doctors will be transformed into judges. It is questionable whether this is desirable (Cappelen & Norheim 2005). The aspect of fairness is also visible in different consequences of the same choice. The same choice can have different health outcomes, hence people can not held responsible for the consequences of their choice (ibid.). The final argument, more practical but often used, refers to the difficulty of a causal relationship between behavior and lifestyle related diseases of health care (Paolucci 2007:36). What kind of behavior leads to diseases where individuals are responsible for? Although smokers often get lung cancers and people with bad diet obesity, there could be more factors involved for example genetics or other conditions (Cappelen 2005:477-478, Galobardes 2003 & Buyx 2008:873).

It is not in the purpose of this thesis to answer the question whether individual responsibility in health care should be taken into account. The abovementioned arguments try to address the difficulties around this theme. Many authors tend to preach against incorporating individual responsibility in health care. With increased attention for lifestyle related diseases, this discussion is hard to ignore. What are the consequences for solidarity in the Dutch health care when individual responsibility will receive more attention?

### **3.4 Conclusion**

This paragraph answers the following research question: *What is solidarity and what is the relationship between solidarity and lifestyle related diseases?* There is no unambiguous definition of solidarity. Many perspectives and definitions emphasize different aspects of solidarity. In this thesis the definition of Wilde will be used: 'Solidarity is the feeling of reciprocal sympathy and responsibility among members of a group which promotes mutual support'. Solidarity can be arranged by mandatory cross-subsidies. The definition of solidarity is relevant in the relationship between solidarity and lifestyle related diseases, because feelings of reciprocal sympathy and responsibility might be different for lifestyle related diseases than for lifestyle independent diseases. These feelings of solidarity can be influenced by how people think about the level of individual responsibility in health care. Lifestyle related diseases are associated with more individual responsibility than lifestyle independent diseases and therefore the level of solidarity can be different for lifestyle related diseases. To which extent are people still willing to pay for people with lifestyle dependent and independent diseases? Or should individuals take their responsibility and pay for themselves? Chapter six examines to which extent people are willing to pay for each other.

## **4. Solidarity in the Dutch health care**

The concept of solidarity and the relationship with lifestyle related diseases has been made clear in the previous chapter. This chapter will answer the following research question: *How is solidarity arranged in the Dutch health care system?* First, the history and development of the Dutch health care system are briefly discussed. The second paragraph will focus on how solidarity is arranged in the Dutch health care. The research question will be answered in the conclusion.

### **4.1 History of the Dutch Health care System**

The origin of solidarity in the Dutch health care system is based on political and religious associations (Houtepen & Ter Meulen(2) 2000). Churches, workers unions and other voluntary organizations took care of the poor and people in need. This social structure of 'pillarisation' dominated the Dutch society during the beginning of the 20<sup>th</sup> century. Every pillar of the society had their own provisions for the poor and sick. When the public sector expanded in the 20<sup>th</sup> century, together with economic growth, voluntary organizations became dependent on public funding and became a part of the social system. This can be seen as the start of the welfare state, where the government was responsible for provision of public services by health care providers (ibid & Pierson & Castles 2007).

During the 20<sup>th</sup> century the government had a substantial role in health care. In the period 1940-1970 the main focus of the government was promotion of public health, a certain level of quality and universal access. Between 1960-1980 the expenditures on health care grew rapidly, so a period of supply and price regulation followed to guarantee equal access to health care services (Schut & van de Ven 2003). To contain the rising expenditures, health care reform plans were made to increase the efficiency and response to the needs of patients (Schut & van de Ven 2005). The introduction of managed competition is, instead of supply-side regulation, a main feature of the reform. A major change was the implementation of the health insurance act in 2006.

In this system of managed competition three actors play a considerable role; the provider, the insurer and the patient/consumer (Boot & Knapen 2005:201-211). After a period of strong involvement, the government has now the position of coordinator (van de Ven & Schut 2008:772). Figure six presents the relationships between the actors in health care. Three markets can be distinguished: insurance, purchasing and provision market. With the introduction of managed competition a more liberal perspective on health care is introduced, because the market can partially act like a normal market where supply and demand are regulated by the market. However, the government still regulates the market by designing

legislations and regulations to safeguard the objectives of quality, accessibility and affordability (Westert et al. 2010:207-208).

**Figure 5.2.1: Schematic representation of the subsidiary markets in the health market**

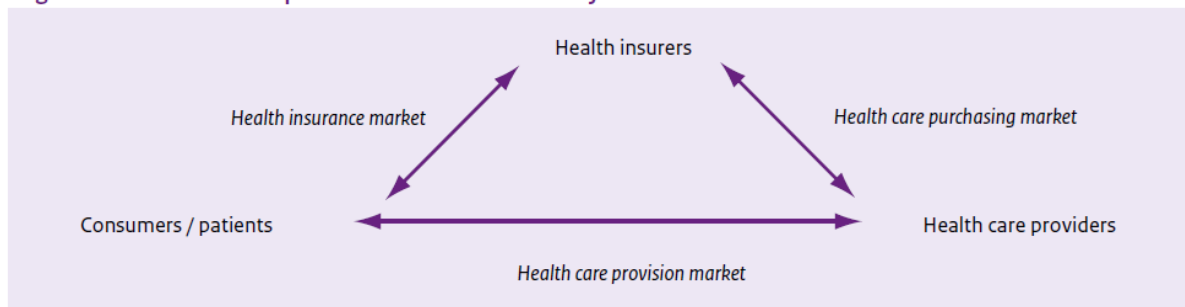


Figure 6: Dutch Health Care Performance Report 2010. Source: Westert et al. 2010:207.

## 4.2 Solidarity in Dutch Health Care

Solidarity in health care is reflected in the organization of a health care system (Arts & Gelisen 2001). In the Dutch system of managed competition, solidarity in the financing of health care is expressed in equal access to health care services despite someone's risk or income (Jeurissen 2005:9). This is also defined as risk- and income solidarity. Risk solidarity implies that the contribution of a person to the health care system is not related with their risk-profile (Maarse & Paulus 2003). So people with a low risk-profile contribute for the people with a high risk-profile (Jeurissen 2005). Income solidarity means that people with a higher income contribute more to the financing of health care than people with a low income (ibid.). Both dimensions of solidarity have a redistributive element, because it redistributes the costs and income of an individual across all members of a group (Maarse & Paulus 2003). This element of redistribution is also known as cross-subsidies: the low-risk and high-income individuals pay for the high-risk and low-income individuals (Paolucci 2007:29). Mandatory cross-subsidies, as described in chapter three, are used to obtain solidarity in the Dutch health care system. The next section will discuss how equal access is established, how income and risk solidarity (cross-subsidies) are arranged and the role of the basic health insurance in the Netherlands.

### 4.2.1 Equal Access

Equal access to health care services can be guaranteed by several policies. Since the health care reform in 2006 every Dutch citizen is obligated to purchase a basic health insurance (art. 2:1 ZVW) (1). However, as a consequence of a competitive insurance market, insurers tend to adjust the premiums to the risk and select the good risks. As a result, bad risks have to pay a risk-adjusted premium, which may get extremely high. (2) Insurers therefore have to accept every person for this mandatory insurance (art. 3:1 ZVW) and there is a community-rate premium (art 17:2 ZVW) (3), so everyone can have access to health care services

despite his or her risk (van de Ven & Schut 2008:773). Exceptions in acceptance only can be made with the supplementary insurance (Westert et al. 2010). Even though the insurers have the obligation to accept everyone for the basic health insurance, they still have an incentive to select low risks (Schut & Rutten 2009). A strategy that is preferred to reduce this incentive is risk equalization (4) (van de Ven 2011:147-148, Paolucci et al. 2006). The risk equalization fund compensates the insurer for the risk-profile of the enrollees, by providing subsidies to the insurer (ibid.). In this way the affordability of health insurance will be ensured, because premiums will not be adjusted to the risk (Armstrong et al. 2010). Income solidarity is guaranteed by an income related contribution to the risk equalization fund (art. 41 ZVW) (5). In addition, people under a certain income level will receive an income related subsidy from the government (6) (van de Ven & Schut 2008).

#### *4.2.2 Basic Health Insurance Package*

Besides equal access to health care services, is solidarity also incorporated in the composition of the basic health insurance package (ter Meulen & van der Made 2000:253). The content of this insurance is determined by the government and every insurer offers the same basic package with a community rate premium. Since health care services are scarce, they should be rationed. The Dunning funnel is used, during the development of the basic health insurance, as a rationing tool to assess what is reimbursed and what not (Commissie Keuzen in de Zorg 1991 & Brouwer 2009). The funnel is named after the chairman of the committee 'Keuzen in de zorg' (choices in health care) in the 1990s. This committee was responsible for an advise about making choices in health care and by whom (Commissie Keuzen in de zorg 1991).

All the health care services have to pass several sieves before they will be reimbursed, services that stay behind are not included. The Dunning Funnel is presented in figure seven. The first sieve/criterion is necessary care, which contains the services that are necessary for people to participate in the society. This is also called the community-based approach (Commissie Keuzen in de Zorg 1991:21). Necessary services also have to be effective, this is the second criterion/sieve. The third sieve/criterion is efficiency. Necessary and effective care has to be delivered in a efficient way (ibid.). The final sieve/criterion is individual responsibility. When a health care service passed the previous three sieves, the government decides which costs of services are for individual responsibility. These criteria have similarities with the four factors that influence the altruistic preferences of individuals, mentioned in the previous chapter. Cost-effectiveness and individual responsibility influence the willingness to contribute to cross-subsidies. This is quite the same with the Dunning Funnel for the government; what is the government willing to reimburse on which basis? The health care services that passed all the four sieves are part of the basic health insurance

package. A broad package of health care services, where every citizen has access to is also part of solidarity in the Netherlands .

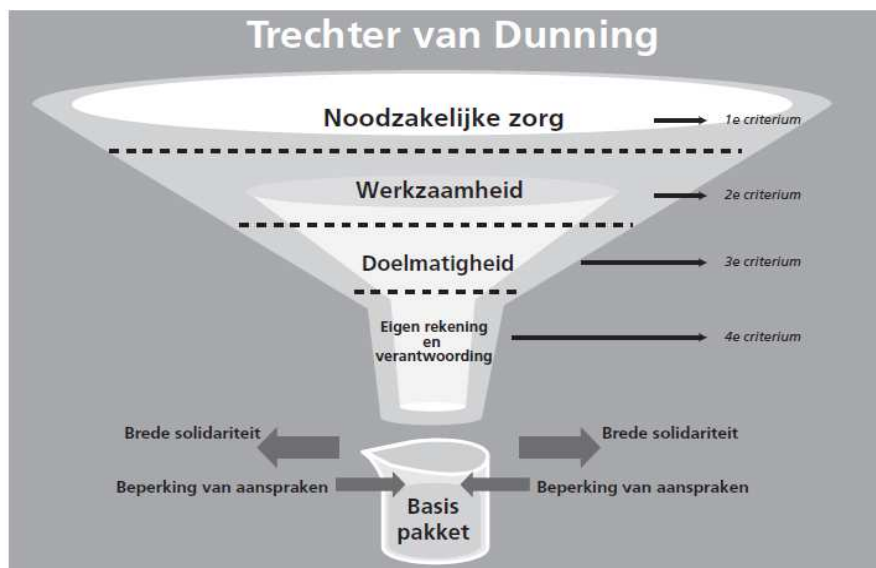


Figure 7: Dunning Funnel. Source: Brouwer 2009:12.

Anno 2011 the Health Care Insurance Board (CVZ) is responsible for advise about the content of the basis health insurance. The board has four principles, which bear resemblance to the Dunning funnel. The four principles are necessity, effectively, cost-effectiveness and the extra criterion they use; practicability. Individual responsibility from the dunning funnel will fall under necessity (Brouwer 2009:12).

#### 4.3 Conclusion

This paragraph formulates an answer on the following research question: *How is solidarity arranged in the Dutch Health care system?* Solidarity in the Dutch health system is arranged by equal access to health care services through a mandatory basic health insurance, where the insurer accepts every Dutch citizen. As a results of this insurance the enrollee has access to a broad range of health care services, which are determined by the use of several criteria. Nowadays, the Health Insurance Board (CVZ) advises the minister of health in the composition of the package instead of the use of the Dunning funnel.

Solidarity is, besides equal access to a broad package of services, also guaranteed in the financing of the Dutch health care system. Everyone can have affordable access, because there are mandatory cross-subsides from the low-risk and high-income groups to the high-risk and low-income groups (income dependent contribution and community rate premium). Also the government contributes to affordable access by compensating the insurers for their loses with the risk-equalization fund.

## 5. Methods

This chapter describes the methods that are applied in this thesis. The main objective is to measure the level of solidarity for lifestyle dependent and independent diseases. In the theoretical framework solidarity is defined as: “the feeling of reciprocal sympathy and responsibility among members of a group” (Wilde 2007). To measure these feelings of reciprocal sympathy a willingness to pay method, used by van der Star and van den Berg, is applied. They have used this method to examine the preferences of the respondents regarding individual responsibility in health care. In this way ‘feelings of reciprocal sympathy and responsibility’ and thus, solidarity can be measured. The first paragraph discusses the concept of willingness to pay, the study of van der Star & van den Berg and the questionnaire that will be used. The data collection will be discussed in the second paragraph and the final paragraph will describe the bias and limitations.

### 5.1 Research method

#### *5.1.1 Contingent Valuation Method*

The contingent valuation method (CVM) is used to measure the willingness to pay. The purpose of this, survey based type of study, is to find out how individuals value specific health care programs and what they are maximum willing to pay for it (Drummond et al. 2005). In this way the preferences of the respondents can be measured (Diener et al. 1998, Klose 1999, Smith 2003). Originally, contingent valuation studies are used to measure the consumers’ preferences in the field of marketing. More recently, this method is also used in the field of health care (Smith 2000). With a contingent valuation study the stated preferences, the attitude of consumers, are measured by constructing a hypothetical market (Smith 2003:610). This method can not measure the revealed preferences, the actual behavior of the consumer in the market (Diener et al 1998:314). Five basic forms of a contingent valuation can be distinguished: open-ended, bidding game, payment card, discrete-choice experiment and discrete-choice with follow-up (Klose 1998 & Smith 2000).

#### *5.1.2 Study of van der Star & van den Berg*

The study of van der Star & van den Berg (2011) is used as example, because it is closely related to the topic of this thesis. At this moment there are no other articles which have measured the WTP for lifestyle dependent and independent diseases. The reliability of their study will be increased when the methods are reproduced in a different setting and population and produce the same results (Creswell 2003:158). This can have major consequences for the solidarity in the Netherlands, which will be discussed in chapter seven.

Van der Star & van den Berg have measured the willingness to pay for inclusion of a treatment in the basic health insurance for a hypothetical disease dependent and independent from lifestyle. The concept willingness to pay (WTP) is chosen, because in the Netherlands people are used to pay a yearly amount of money for the basic health insurance (van der Star & van den Berg 2011). They also examined the influence of peoples' personal situation in expressing these preferences. Although this second topic is very interesting and relevant, it could not be examined. The main reason is that background information of the respondents is unknown, in order to guarantee the anonymity of the study. Besides, it is too broad for the scope of this thesis. Their study resulted in a significant outcome of mean willingness to pay, for inclusion of a treatment for a disease that was unrelated to behavior, of 42.30 Euros. The mean willingness to pay for inclusion of a treatment for lifestyle related disease was 11.29 Euros. In sum, the mean WTP for diseases unrelated to behavior is 3.74 times higher than for disease related to behavior.

### *5.1.3 WTP applied in this thesis*

Corresponding to the above mentioned study, the mean WTP for lifestyle dependent (smoking and overweight) and lifestyle independent related diseases will be examined in this thesis. In this way the potential influence of obesity- and smoking-related diseases on the solidarity in the Dutch health care can be assessed. The  $H_0$  hypothesis reads as follows: the mean WTP for lifestyle dependent and independent diseases is the same. The  $H_1$  hypothesis states that the mean WTP for lifestyle independent diseases is higher than the WTP for lifestyle dependent diseases. This is expected based on the outcomes of the study of van der Star & van den Berg. In line with their study the ex ante societal perspective will be used. This means that the questions concern a treatment that is not included in the basic benefit package (ex ante) and for others (societal) (ibid.).

Within the use of a CVM, the payment card method is applied. The respondents could choose from a range of values (nine answering categories) to value the hypothetical situation. This guides the respondents in answering the questions and they can directly compare their WTP (van der Star & van den Berg 2011:2, Smith 2000:199). In addition, this method leads to more valid WTP values and to fewer zero values than open ended questions (Donaldson et al. 1997:82). Discrete choice method sometimes seems to have more advantages than the payment card method, such as a higher response rate through reduced amount of questions (Smith 2000). In this study a short questionnaire is used to increase the response. Even though a short questionnaire is used the response rate still is influenced. The response rate differs per question, this is probably caused by the length of the questions: more people filled in the first question than the last ones. Nevertheless, there are still more respondents than expected (299 vs. 250).



### 5.1.4 Questionnaire

The questionnaire of van der Star & van den Berg is used, to reproduce their methods. However, some parts have been changed for several reasons. First, the questions that are related to personal situation of the respondents are removed (question 1-3, 6, 9-14<sup>7</sup>). This is been done to guarantee the anonymity. Anonymity in surveys is difficult to guarantee, because the researcher can identify respondents by their characteristics (Waddell 1993). Since the respondents are in my social network, it might be possible that respondents are recognized. When a survey is not anonymous, people might give other answers (socially desired).

Second, the (three) WTP questions are slightly changed. The important elements of these questions, the hypothetical situation and the definite - 'what are you willing to pay'-question stayed the same, so that the stated preference is measured. The payment scale is changed, because there was overlap between the categories. Also the title of the first WTP question is changed from 'Illness not caused by own fault' in to 'illness not caused by lifestyle'. Using the term own fault in this context might imply that the diseases in the next questions are only caused by own fault. The term lifestyle is more objective and broader than 'own fault'.

Third, the introduction of the questionnaire has been changed, because otherwise respondents might get prejudged. The text is shorter than the original questionnaire and less information is given about the content of the questions. Overall, the word order has been changed in several questions, to make the questionnaire clearer than the original and to make the questionnaire applicable for this thesis.<sup>8</sup>

## 5.2 Data

### 5.2.2 Data Collection

Problems that are faced with data collection are non-response rates, time and financial limitations. The target to receive 200 – 250 completed questionnaires is succeeded. This is achieved by spreading the digital questionnaire to friends, family and colleagues. Many friends and family-members forwarded the questionnaire to their friends and family. Also social media like Facebook and LinkedIn are used. The questionnaire only could be filled in online, which contributes to anonymity among the respondents. The difficulty of internet questionnaires is that the non-response is hard to measure, because visitors of the website are not traceable. To reduce the non-response rate I have sent a reminder by email and posted a reminder on Facebook and LinkedIn.

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<sup>7</sup> The removed questions were about smoking habits, overweight, and income, see appendix

<sup>8</sup> Both questionnaires can be found in the appendix of this thesis.

### *5.2.2 Sample*

To obtain reliable and valid data, the size of the sample has to be large and diverse enough (Swanborn 2006). In the most ideal situation the sample is a perfect reflection of the Dutch society. Unfortunately this is not possible due to time and financial limitations. Therefore, data collection took place in my social network, which mainly consists of young people in the age of 18-25 (students) and family. The sample is enlarged with people from other age categories, because the questionnaire is forwarded by many people. A drawback of this study is that the background details are unknown. For example income, education and exact age, of the respondents. These questions are removed from the questionnaire, because they do not guarantee the anonymity. Besides, the questions are removed because they are not necessary to answer the research question in this thesis. Although this sample might not be representative for the Dutch population, the outcome is anonymous and might be relevant for further research in the area of own responsibility and solidarity in health care.

### *5.2.3 Data Analysis*

The data is analyzed with the use of SPSS statistics. The next chapter describes the descriptive statistics and the statistical analysis. A T-test will be performed to test if the differences between the mean WTP values are significant.

## **5.3 Bias & Limitations**

### *5.3.1 Limitations of the payment card*

Every research method has limitations, which can cause bias. Often it is stated that contingent valuations are too hypothetical, because of the constructed market. This so called hypothetical bias can be diminished by constructing a realistic and believable contingent market (Smith 2003). In this study the health insurance market is used, which is a common and realistic market for the respondents. The main type of bias with the payment card method is range bias. With range bias the respondents adjust their choice to the scale or categories where they can choose from. Which can result in a choice for a higher category than they intended to do (Bateman & Jones 2003). This narrows the distribution around the mean (Smith 2000:200, Whyne 2004: 184). The WTP will be higher when the number of categories increases (Whyne 2004:184). To avoid range bias, every question in the sample has the same range of categories (van der Star & van den Berg 2011:309). On the other hand, with the use of a payment card, starting bias is avoided. This occurs when people have to bid. Every question that follows is influenced by the first bid. The payment card guides the respondents in their answers.

### 5.3.2 *Validity & Reliability*

Validity and reliability are important features of a well-performed study. A study is valid when the methods measure what they intend to measure and that the drawn conclusions are trustful (Golafshani 2003:599). Validity can be divided into internal and external validity. Internal validity represents the causality of a study and can be guaranteed by having enough measure results (Swanborn 2006). When the internal validity is guaranteed it is possible to draw correct causal conclusions from the obtained data (Creswell 2003:171). In this study no potential causal relationship is examined, only the difference in WTP. Nevertheless, enough measure results are available (N=257). External validity qualifies the level of generalization of the study: to what extent represent the results the population? (Creswell 2003:171). As described before, the respondents in this sample are not randomly chosen and background information is not available. The external validity of this study can therefore been seen as low. However, the outcome of this study might not be representative, it is still a good indicator of the difference in WTP for treatments for others in the Netherlands.

Also construct validity can be distinguished; are you measuring what you intended to measure? When performing a survey, the respondents should have a good understanding of the survey-questions. Otherwise, the variables are not properly measured and the results will not reflect reality (Swanborn 2006). To obtain construct validity, the questionnaire is been criticized by five potential respondents before the questionnaire is being held. Some small changes are made after receiving the feedback. A study is reliable when the used methods are consistent in use over time (Creswell 2003:158). By standardizing the process other researchers can repeat the study (Swanborn 2006). This study is reliable because it has been done before and the same methods will be applied in this study.

## 6. Results

This chapter describes the results of the empirical research. The following research question will be answered: *To what extent is there a difference in willingness to pay for other people with lifestyle related and non-lifestyle related diseases?* The first paragraph will provide descriptive statistics and a graphical overview of the willingness to pay (WTP). In the second paragraph the results of the statistical analysis will be given. The research question will be answered in the third paragraph.

### 6.1 Descriptive statistics

This paragraph presents the descriptive statistics of the research sample. 300 respondents filled in the questionnaire, of which 43 not totally complete their questionnaire. This caused missing values in the dataset and these questionnaires are therefore not used. The result is a net sample of 257 respondents (N=257). As described earlier, no background information is know about the respondents, in order to guarantee the anonymity. All information about the respondents is provided in table two. The table illustrates that 40.9% of the respondents is younger than 25 years and 59.1% is 25 years old or older. The first group was expected to be larger than the second, because the questionnaire is spread in my social network (mostly students under 25). On the other hand, many friends older than 25 years and family members have sent the questionnaire to colleagues and other friends, which probably caused the higher percentage in this group. Further, this table shows that more women (61.9%) filled in the questionnaire than men (38.1%). The next paragraph examines the influence of gender on their willingness to pay.

		Frequency (N=257)	Percentage (%)
<u>Age</u>	Younger than 25 years (older than 18)	105	40.9
	25 years or older	152	59.1
<u>Sex</u>	Man	98	38.1
	Women	159	61.9

Table 2: Descriptive Statistics of the research sample

Figure eight gives a graphical overview of the willingness to pay for lifestyle independent and overweight- and smoking-related diseases. The X-axis presents the nine answering categories and the Y-axis represents the percentage of respondents that choose a certain answer category. The figure illustrates that there are differences between the three WTP-questions. The “WTP lifestyle independent” bar is more equally distributed over the answer categories than the other two. Moreover, there is quite a large difference in the distribution of

“WTP lifestyle independent” and “WTP smoking” in the first (15.2% vs. 68.1%) and last answer category (2.3% vs. 0.4%).<sup>9</sup> The figure demonstrates also a difference between in distribution of WTP overweight and smoking. In every category, the WTP for overweight has a equal or higher frequency than WTP for smoking, except the ‘0 euro’ category. Further, it can be seen in this figure that respondents are willing to pay more for a lifestyle independent disease than for a smoking- or overweight-related disease, since the WTP independent chart is higher in the last categories than the other two (smoking & overweight). The next paragraph will examine the means and calculates whether these differences are significant.

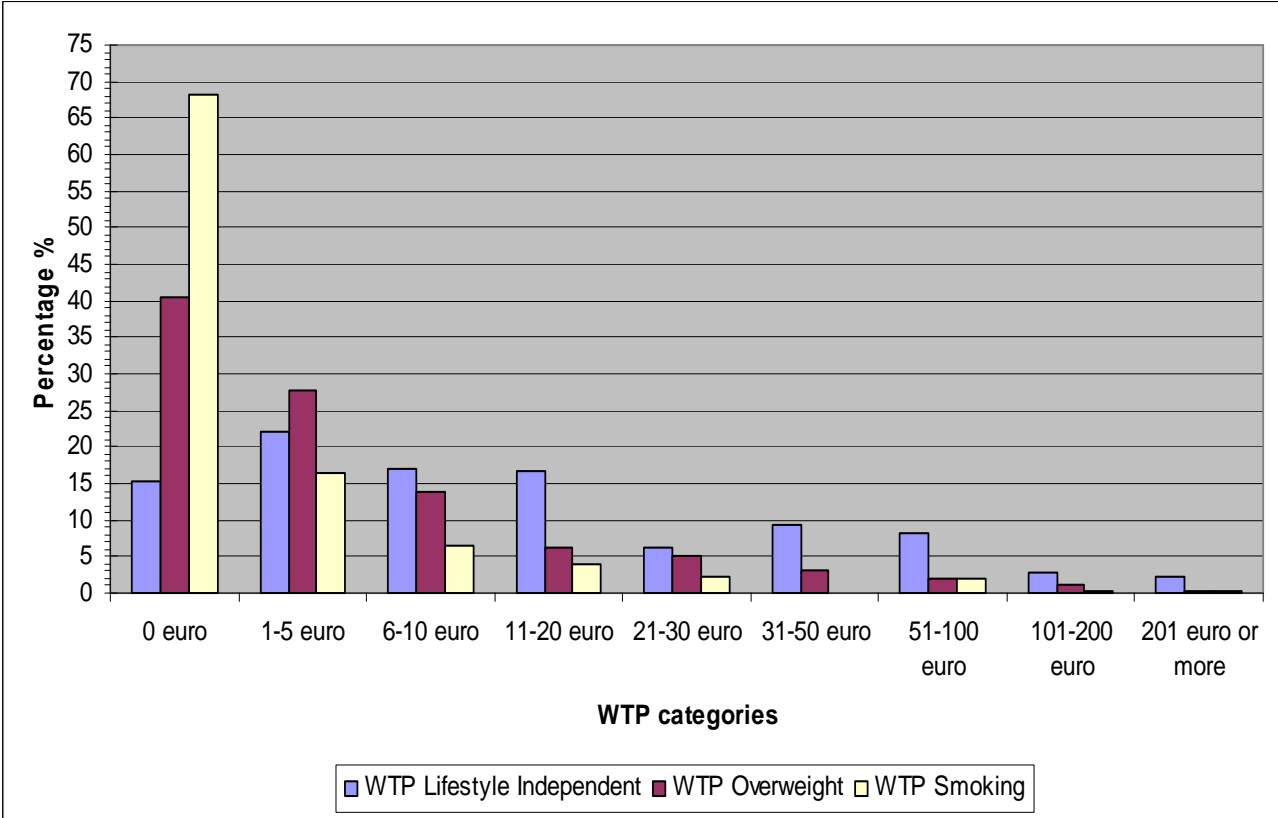


Figure 8: % of the willingness to pay for lifestyle independent and overweight- and smoking-related diseases

### 6.2 Statistical Analysis

Figure eight has given an overview of the WTP of the respondents. To compare whether the differences in answers on the three WTP-questions are significant, it is necessary to calculate the mean WTP. To calculate the mean, the variables of the three WTP questions (WTPdependent, WTPsmoking and WTPoverweight) are recoded from an ordinal into a scale variable. The means are calculated by using the centers of the answering categories.<sup>10</sup> For the last answer category it is difficult to define a category centre, because it is unknown which amount the respondent had in mind. Therefore, 201 is used as center. The

<sup>9</sup> The frequency table can be found in appendix B.  
<sup>10</sup> Answering categories: 0, 1-5, 6-10, 11-20, 21-30, 31-50, 51-100, 101-200 and 201 or more

consequence of taking 201 as category centre is that the mean WTP will be an underestimation of the real mean. This underestimation is larger for WTP independent (2.3%) than for the other WTP (0.4%).<sup>9</sup> To illustrate the influence of this last category on the mean, the mean WTP also will be calculated with 400 as category centre.

### 6.2.1 Mean WTP

The mean WTP is calculated after recoding the variables. The results are summarized in table three. This table provides the mean willingness to pay in Euros for a lifestyle independent and a smoking- and overweight related disease. The mean WTP for a lifestyle independent disease is €24,96. The WTP for a disease as a consequence of smoking is €5,05 and for a disease related to overweight €9,47. Also can be seen in this table that the variables WTP for smoking and overweight are put together, as one variable “lifestyle dependent”. This is done in order to compare the WTP for dependent and independent lifestyle related diseases and to test the hypothesis<sup>11</sup>. The mean WTP for lifestyle dependent disease is €7,26. It can be concluded that there is a substantial difference in WTP between lifestyle independent and dependent diseases, the respondents are willing to pay 3.4 more for a lifestyle independent than for a lifestyle dependent disease.

Further, this table shows the ‘mean WTP 400’. This represents the mean WTP when the ninth category is recoded into 400 instead of 201 as category centre. The influence of this category on the mean becomes visible in the different percentage of increase. The influence is larger for WTP independent (increase of 18.6%) than WTP for smoking (15.4%) and overweight (8.2%), because more respondents choose the ninth answering category with this question. This difference will increase when the amount of the ninth answering category will be increased. The bold mean WTP will be used further in this thesis.

Variables	Mean WTP in euros (N=257)	Mean WTP 400 in euros (N=257)	Increase in %	Mean WTP men in euros (N=98)	Mean WTP women in euros (N=159)
Mean WTP lifestyle independent	<b>24.96</b>	29.61	18.6	23.65	25.76
Mean WTP for smoking	<b>5.05</b>	5.83	15.4	5.87	4.55
Mean WTP for overweight	<b>9.47</b>	10.25	8.2	10.48	8.85
Mean WTP for lifestyle dependent (smoking+overweight)	<b>7.26</b>	8.04	10.7	8.18	6.70

Table 3: Mean WTP in Euros

<sup>11</sup> See appendix C for hypothesis

### 6.2.2 Difference between mean WTP

A Paired-Sample T-test is performed to test whether the differences in mean WTP are significant, because the samples are related (Kirkwood & Sterne 2003:85). This test compares the differences between two means and calculates a new variable 'paired differences' (de Vocht 2011:160 &). An one sided test is performed because based on earlier research (see chapter five) is expected that the WTP for independent health problems is higher than for dependent health problems (a positive difference). This leads to the following hypothesis:

H<sub>0</sub>: The mean of the difference between WTP for lifestyle independent and dependent health problems is 0:  $\mu_{\text{paired differences}} = 0$ .

H<sub>1</sub>: The mean of the differences between WTP for lifestyle independent and dependent health and problems is larger than 0:  $\mu_{\text{paired difference}} \geq 0$ .

Table four presents the results of the T-test. The mean of the differences between independent and dependent is 17.70, which differs significantly from 0, because the p-value is 0.000. This is strong evidence against the null hypothesis, the p-value is smaller than the significance level (0.0025), so H<sub>0</sub> will be rejected.

	Mean	Std. Deviation	Std. Error Mean	T-value	P-value
Differences between WTP independent + WTP dependent	17.70	32.96	2.06	8.608	.000

Table 4: Paired Sample T-test

### 6.2.3 Difference between gender

As can be seen in table three there is a difference between the mean WTP for lifestyle independent and dependent diseases for men and women. To test whether this difference is significant, an independent samples t-test is applied, because the samples (men/women) are independent and the sample is >30 (de Vocht 2011:164). First, it is necessary to test whether the variances of the two samples are equal<sup>11</sup>. When these variances differ, the t-test will present slightly different p-values. The significance levels of the variances of WTP independent and dependent, are respectively 0.931 and 0.078. Both levels are larger than 0.05. This means that there is no significant difference between the variances of both samples and they are assumed equal.

		Levene's Test for Equality of Variances	
		F	Sig.
Mean WTP independent	Equal variances assumed	.007	<b>.931</b>
	Equal variances not assumed	-	-
Mean WTP dependent	Equal variances assumed	3.133	<b>.078</b>
	Equal variances not assumed	-	-

Table 5: Levene's Test for Equality in Variance between samples: men and women

Table six presents the outcomes of the T-test for men and women. The p-value is 0.687 for the differences in mean WTP independent for men and women. And 0.574 for the difference in mean WTP dependent for men and women. Both values are larger than  $\alpha=0.05$ . This means that the differences in the mean WTP for lifestyle independent and dependent diseases for men and women are not significant and that  $H_0$  will not be rejected.

		Mean Difference	Std. Error Difference	T-value	P-value
Mean WTP independent men/women	Equal variances assumed	-2.111	5.235	-.403	<b>.687</b>
Mean WTP dependent men/women	Equal variances assumed	1.479	2.629	.563	<b>.574</b>

Table 6: T-test for equality of mean WTP between men and women

### 6.3 Conclusion

This paragraph answers the following research question: *To what extent is there a difference in willingness to pay for other people with lifestyle related and non-lifestyle related diseases?* The performed statistical analysis showed that the difference between the mean WTP for lifestyle independent and dependent related diseases is €17.70, which is significant. The mean WTP for a lifestyle independent disease is €24.96 and for lifestyle dependent disease €7.26. Both means are an underestimation of the mean, but this influence is larger for the WTP for lifestyle independent diseases than for dependent diseases. Therefore, the difference between these means is also an underestimation of the mean in the population.



## **7. Implications and possibilities for future financing**

The previous chapter showed that the respondents were willing to pay significantly more for a treatment for a lifestyle independent disease than for a smoking- and overweight related disease. Willingness to pay is used to measure the level of solidarity. This chapter will explore the implications of this difference in solidarity and outlines several options for future financing in the Dutch health care system. The following research question will be examined: *What are the potential implications and options for future health care financing in the Netherlands?* Before this question will be answered in the conclusion, the implications are expressed in the first paragraph and several options are addressed in the second paragraph.

### **7.1 Implications for future financing**

The results from the previous chapter imply that, in the sample, there is a different level of solidarity between lifestyle independent and dependent diseases. The results presented in this thesis are similar to the results of the study of van der Star & van den Berg (2011), which confirms the relevance of this topic. A significant difference in willingness to pay and the increase of health care costs can have major consequence for the solidarity in the Netherlands. When people are not willing to pay for each other, a consequence that might occur is that people become responsible for their own lifestyle related health care costs. In the future differences in solidarity might increase and cause a differentiated level of solidarity with groups that have different lifestyles. For example, solidarity with elderly people and no solidarity with people with a lifestyle related disease.

Thus, a different level of willingness to pay can have consequences for the financing of health care. In the future there might be a government who advocates the increase of individual responsibility in health care: paying for your own health care costs. Besides the political climate, also governmental cuts backs can put pressure on expenditures in health care. As a consequence of cut backs, more attention can be given to individual (financial) responsibility in health care. Several options to hold people responsible for their costs will be discussed in the next section.

### **7.2 Options for future health care financing**

This paragraph describes several options for future financing of the Dutch health care. A different level of solidarity, as a result of a difference in willingness to pay, can be expressed in several ways. The options described below might occur in the future, but at this point the majority of these options are not possible within the Dutch legal framework.

### *7.2.1. Composition basic health insurance*

A different level of solidarity can be expressed in the composition of the basic health insurance. The basis health insurance is a mandatory insurance for every Dutch citizen, as described in chapter four. The composition can be changed by the government every year (Brouwer 2009), certain health services that are related to lifestyle can be removed from the package. As a result, individuals have to pay these services themselves. The Dutch government decided that since January 1<sup>st</sup> 2012, support for smoking cessation will be removed from the insurance package (Rijksoverheid 2011). Also the exercise course (Beweegkuur) will be removed from the basic health insurance package. This program is a lifestyle intervention for obese or people with overweight to help them adjust their lifestyle and lose weight (Beweegkuur 2011). These examples might imply that individual responsibility in lifestyle might become a more important criterion for the government to in- or exclude services than it is now. However, this policy is also a consequence of governmental cut backs and will save the government 64 million Euros per year (for smoking cessation). Despite the cut backs, this change in the composition of the package still implies that other services have a higher priority to stay in the basic health insurance than smoking cessation and diet support. In the future it might be possible that other lifestyle related health care services are also removed from the basic health insurance.

The advantage of this possibility is that the government has the flexibility to decide every year what will be reimbursed and what not. Besides, the society is not responsible for a part of the costs attributable to lifestyle related diseases. On the other hand, there might be no consistency in the decision-making process of the government, since changes are possible every year or when the formation of the government changes.

### *7.2.2. Lifestyle - adjusted premiums*

A different level of solidarity can also be expressed in lifestyle-adjusted premiums (Commissie Keuzen in de zorg 1991). The premium of the basic health insurance can be adjusted to the lifestyle and the risk on a lifestyle related disease of the insured. People with a certain lifestyle, e.g. smoking or overweight, should pay a higher premium for the basic health insurance than people who do not smoke and have a normal weight. Thus, other people do not have to pay for a bad lifestyle of others. Lifestyle adjusted premiums might also be an incentive to get a healthier, people might be extrinsic motivated to change their lifestyle. The study of Statistics Netherlands where the introduction refers to, concluded that over half of the Dutch population think that smokers should pay a higher premium for their health insurance (CBS 2011). This might imply that this option might be supported by the Dutch inhabitants.

On the other hand, currently there is a community rate premium for the basic health insurance in the Dutch health care system for everyone to guarantee equal access (Ven & Schut 2008:773). For that reason legislation should be adjusted before this option can be established. In addition, as described in chapter three, it is difficult to measure a causal relationship between lifestyle and a disease. Lifestyle related diseases can also be caused by other factors than lifestyle. Besides the problem of causality, there are no valid instruments to measure the level of 'bad lifestyle', so it will be difficult for the insurer to adjust the premium to lifestyle.

### 7.2.3. Tax

A third option to express a different level of solidarity between lifestyle dependent and lifestyle independent diseases are taxes. Taxes are used by the government to discourage the use of certain products, like cigarettes or alcohol (Commissie Keuzen in de Zorg 1991). In the Netherlands taxes are collected by the Ministry of Finance and are no part of the budget for health care (van Baal et al. 2007: 143). In this option the taxes are aimed on lifestyle and especially earmarked for health care.

The first tax-option is an increase of the cigarette tax. These extra revenues will flow into the risk equalization fund (REF) and can be used to reimburse insurers for the costs of smoking related diseases, like lung cancer. Epidemiological data (prevalence and costs) as provided in chapter two, can be used to calculate the total amount of reimbursement. An advantage of this option is that there is a level of solidarity within the group of smokers, because they are indirectly paying for each others health care costs. This option is quite easy to realize, because tax on cigarettes already exists. Even though the causal relationship between, for example lung cancer and smoking is quite clear, there is no 100% certainty. The possibility exists that the insurer is reimbursed with 'earmarked REF-money' for costs that are not caused by smoking. But the insured is probably a smoker anyhow, so the 'smoking lifestyle' is still charged.

The second tax-option is implementing a 'fat tax'. With a fat tax, unhealthy food and/or components of food (fat or sugar) become more expensive than healthy products. Individuals who want to live an unhealthy lifestyle by buying these products have to pay a, so called, fat tax. This option is widely discussed, but not much implemented yet. Only some states in the US have different tax levels on food (Chouinard et al. 2007, Strnad 2005, Leicester & Windmeijer 2004). Many countries have a Valued Added Tax (VAT) on food, but not specified for certain products. The money can flow, even as the cigarette tax, into the risk equalization fund. However, the causality between overweight and high blood pressure or diabetes is more difficult to establish than with smoking, because other factors might also be

involved. Therefore, equalization from the REF is difficult to achieve. The money from the tax on food can also be used for preventive health care programs.

The fat tax can result in a decrease of the prevalence of obesity (Leicester & Windmeijer 2004:1). A difficulty is that only overconsumption of fat food should be taxed and not the necessary intake of fat (Leicester & Windmeijer 2004: 8). Furthermore, the demand for fat food is inelastic. That implies that a tax of ten percent would reduce the demand for fat food with only one percent (Chouinard et al. 2007). Taxes on products with an inelastic demand might not be the most effective option. In addition, several studies concluded that a fat tax is regressive; elderly and poor people consume more goods with fat than people with a middle or high income groups (Leicester & Windmeijer 2004:12 & Chouinard et al. 2007:21). This side-effect can be seen as undesirable by the society.

#### *7.2.4. Selection in treatment*

Selection of patients to receive treatment is a fourth option. The different level of solidarity is expressed by prioritizing patients with a lifestyle independent diseases over patients with a lifestyle dependent disease. People with a lifestyle related disease are placed lower on the waiting list. Prioritizing patients can be done by giving weights to certain lifestyle diseases. This option also faces the problem of causality: the relation between lifestyle and health problems is not always clear. Besides, this option has practical problems. First, the weights that are given to certain treatments have to be developed. Second, an extensive screening should take place before people can be put on the waiting list, so that a weight can be given to the disease. This all may cost extra time and money and it is questionable if the investment will obtain the desirable results.

#### *7.2.5. Rewarding healthy behavior*

The final option is to reward healthy behavior with the use of a bonus-system. This option simultaneously promotes and rewards individual responsibility in lifestyle. The insurer or government can hand out bonuses to people who actively take part in health supporting activities (Schmidt 2008:208). For example, visit a gym or get diet advice. The advantage of a bonus system is the positive starting point. It rewards healthy behavior instead of 'punishment' of unhealthy behavior, like the previous options. Besides, it will reduce annual health care costs when people are healthier. On the other hand, chapter two showed that normal-weight non-smokers have higher lifetime costs than smokers and people with overweight, so this effect is ambiguous.

A side effect of this option is that the incentive of selection will be increased. When the insurer is responsible for handing out the bonuses, the risks of people become visible and therefore selection is attractive. Furthermore, it is difficult to define which health

supporting activities should be included and whether these activities indeed increase health. Membership of a gym does not mean actual visit of the gym.

### **7.3 Conclusion**

In this paragraph the following question is answered: *What are the potential implications and options for future health care financing in the Netherlands?* Implications of a different level of solidarity, with groups that have different lifestyles, are that people are not willing to pay for each other and people with lifestyle related diseases get responsible for their own health care costs. This can be expressed in several options for future financing, which are outlined in this chapter: composition of the basic health insurance, lifestyle adjusted premiums, taxes, selection in treatment and rewarding healthy behavior. A choice for one of these options is a political decision and depends on the political climate and support. At this moment a difference in solidarity can only be expressed with the first option, but maybe legislation will be adjusted to make the other options possible in the future. All these options are associated with an increase of individual responsibility in health care for costs and behavior.

## Conclusion

The conclusion will answer the main research question of this thesis: *Do obesity- and smoking-related diseases and costs have a negative influence on the solidarity in health care? If so, to what extent and what are the potential implications and options for future health care financing?*

Lifestyle related diseases got increased public attention over the last years. There is a growth in the prevalence of obesity and a decrease in the prevalence of smoking. However, the consequences of both lifestyles contribute to the health care costs. These lifestyle related diseases can influence feelings of solidarity in health care. Solidarity is defined as 'the feeling of reciprocal sympathy and responsibility among members of a group which promotes mutual support'. The feelings solidarity can be influenced by the level of individual responsibility in health behavior, which plays a role in lifestyle (related diseases). The influence of lifestyle related diseases, as a consequence of smoking and obesity, on these feelings of reciprocal sympathy are measured with a willingness to pay method.

Respondents were asked what they were willing to pay for inclusion of a treatment on top of the yearly costs for the basic health insurance for others. The results show that respondents are willing to pay €24.96 for a lifestyle independent disease and €7.26 for a lifestyle dependent disease. This connotes that they are willing to pay 3.4 times more for lifestyle independent treatment than for lifestyle dependent treatment. This significant difference in willingness to pay indicates a different level of solidarity with different lifestyles (normal-weight non-smoking vs. overweight and smoking). Since feelings of solidarity are influenced by the level of individual responsibility, it seems that the sample tends towards more individual responsibility in health care regarding lifestyle diseases. This difference can have consequences for the financing of health care, because people are not willing to contribute to lifestyle related health care costs of others. There are several options for future financing, which incorporate individual responsibility in health care: composition of the basic health insurance, lifestyle adjusted premiums, taxes, selection in treatment and rewarding healthy behavior. In the Netherlands solidarity is arranged by cross-subsidies and access to a broad insurance package. At this moment a difference in solidarity can only be expressed by composition of basic health insurance. The other options are difficult to incorporate, because of the problem of causality and the willingness of the politics to make changes in health policy. The question whether an increase of individual responsibility is desirable in health care, depends on the used perspective. For example, liberals are more likely to incorporate individual responsibility than egalitarians.

In sum, obesity- and smoking-related diseases and costs have a negative influence on the solidarity in health care. Respondents are significantly willing to pay 3.4 times more

for a lifestyle independent disease than for a lifestyle dependent disease. A potential implication is a difference in the level of solidarity for groups with different lifestyles. There seems to be a preference to more individual responsibility in health care, which can be included in future or current (composition basic health insurance) financing. However, holding individuals accountable for their choices in health care remains controversial.

## **Discussion**

This chapter will discuss the methods, results and findings of this thesis. Also suggestions for further research will be given. Chapter two concluded that the lifetime costs of smoking and obesity are lower than those of normal-weight non-smoking people. Therefore it could be expected that, besides individual responsibility, this also might influence feelings of solidarity. This is not the case, since the costs and mean WTP (€5.05) for smoking are both the lowest. An explanation could be that the respondents in the sample do not have the knowledge about the (difference between) annual and lifetime costs of smoking and obesity.

In this thesis the focus is merely on the relation between lifestyle related diseases and individual responsibility. However, as mentioned in chapter two, lifestyle (and with that lifestyle related diseases) might be influenced by more factors than only individual responsibility. For example, social economic status or genetics. A recent news item illustrates this: people with overweight often live in the poor districts of a city, moving to a better district has a positive influence on the bodyweight (Pers 2011). A Swiss study concluded that smoking, obesity, high blood pressure and physical inactivity are more prevalent among people with a low socioeconomic status (Galobardes 2003). Thus, individual responsibility does not necessarily have to be the only explanation for someone's lifestyle. Though, individual responsibility always will be associated with lifestyle related disease. The influence of other factors than individual responsibility are not perfectly clear and are debatable and therefore not taken into account in this thesis (and questionnaire). When this point of view is taken into account, the financial options discussed in chapter seven might become questionable. Since every option is associated with an increase of individual responsibility for health care costs. Is it still reasonable to address individual responsibility when lifestyle diseases are caused by more factors than only individual responsibility? The difference in financial accessibility to health care services might cause inequities in health, which is found to be undesirable by society and politics.

Furthermore, the political feasibility of the financial options are debatable, regardless the fact that lifestyle (related diseases) might be influenced by more factors than individual responsibility. Will there be enough support in politics to make these (potential) changes in the future? Even though it seems a 'simple change of legislation', for example premium differentiation, the decision making process is slow in the Netherlands. It took twenty years to

make the new health insurance act, so changes would probably take a while. Decision-making also depends whether the necessity of the problem (consequences for health care financing) is seen by politicians.

## **Results**

The results of this thesis are similar to the results of van der Star and van den Berg: the respondents are willing to pay 3.7 (Star & Berg) and 3.4 (thesis) times more for a lifestyle independent diseases than for a lifestyle dependent disease. There is no comparable literature available besides this study. Van der Star and van den Berg refer to studies that examined the role of individual responsibility, but on different topics. The first study examined individual responsibility in rail safety (Covey 2010), which is difficult to compare to health care. The other study examined the weight that people give to the role of individual responsibility in the existence of health inequalities. This depends on the extent to which individuals can be held responsible for the inequalities. They concluded that people gave less weight to individuals who took health risks than people who cared for their health (Dolan & Tsuchiya 2009:217). The latter study supports the findings of this thesis, because lifestyle diseases also can lead to inequalities in health.

Furthermore, in the results not much attention is given to the mean WTP of smoking and overweight, because they are combined in a the variable: 'lifestyle dependent'. There is a substantial difference between these WTP, which disappears when they are combined. The WTP for smoking is €5.05 and overweight €9.47. Since not enough information is known about the respondents, it is difficult to explain these differences. A possible explanation could be that the causal relationship between smoking and diseases is more clear under the respondents than the relationship between overweight and diseases. Accordingly, the respondents attribute more individual responsibility to smoking than to overweight.

## **Methods**

With some small adjustments the methods of van der Star and van den Berg are reproduced. These methods are assumed to be valid, because this study has a different sample and settings and still similar outcomes.

However, these small adjustments in the questionnaire might also have led to some weaknesses. First, limited information about the respondents is known, because questions related to background information are removed. Therefore, the composition of the sample is not known and the relationship between background information (lifestyle, income, education) and WTP could not be examined. Second, the last answering-category (201 or more) is not really a category, through which it was not possible to define a category centre to calculate the mean. The influence of this category on the mean is already expressed in



chapter six: the used means are an underestimation of the mean. This underestimation might be an explanation for the difference in absolute values<sup>12</sup> of the mean WTP between the studies, because it is not known how van der Star and van den Berg defined this category centre. However, the difference in absolute value might also be caused by the composition of the sample. It is possible that, especially the higher educated respondents, made a calculation before they filled in their answer. The treatment costs 1000 Euro and 120.000 people suffer from the disease.  $120.000 \times 1000 =$  total costs: 120.000.000 Euro. Based on 12 million premium-payers, everyone have to pay 10 euro to cover the total costs. Another explanation is that the mean WTP is influenced by the number of students that filled in the questionnaire. As can be derived from table seven, the group 'younger than 25' has a lower mean WTP than the '25 years olds or older' group. The 'younger than 25' group mainly consist of students, which often have a small budget and thus might have a lower willingness to pay than the other group.

	Younger than 25 years (N=105)	25 years or older (N=152)
Mean WTP independent (in Euros)	20.76	27.86
Mean WTP dependent (in Euros)	5.56	8.44

Table 7: Mean WTP per age-group

Third, the construct validity might have been influenced. For some respondents it was not clear whether the amount in the questionnaire had to be paid once or every year. The questionnaire might not measured what it intended to measure: a one time extra payment. Respondents are probably willing to pay less when they have to pay this amount every year instead of once, so the mean could be even more underestimated.

Further, the sample is not representative for the Dutch population (external validity). Only people in my social network are approached, which merely consist of higher educated adults than the average Dutch population. This problem is partly prevented, because many people have sent the questionnaire to their friends, colleagues and relatives to create a larger and better composited sample. Besides, the exact composition of the sample is not known due to a lack of background information. As a result, the data can not be generalized to the Dutch population.

Every method has different forms of bias, as described earlier, range bias often occurred with payment card methods. The influence of range bias is diminished, because every question has the same answer-categories. The relative differences between the answers, which is the most important part of the study, are therefore not influenced. Also

<sup>12</sup> €42.39 vs. €24.96 for lifestyle independent and €11.29 vs. €7.26 for lifestyle dependent.

hypothetical bias occurs with WTP-studies. Although the constructed market is realistic, people would probably act differently in a real situation. When people are confronted with a person who gets a stroke as a result of smoking, they probably want to help and might think different over the amount that they are willing to pay.

### **Suggestions for further research**

Two suggestions for further research will be given in this section. First, further research about factors that contribute to a lifestyle related disease can be done. As mentioned before, other factors besides individual responsibility might be involved in lifestyle related diseases. Many research is already been done, but no uniformity is found yet.

The second suggestion is to examine the relation between characteristics of the respondents and their answers. This thesis, due to the problem of anonymity, only identified the difference in the mean willingness to pay for lifestyle dependent and independent diseases. Do characteristics of a respondent, for example income, smoking or overweight, influence the answers? If they do, to what extent? Van der Star and van den Berg examined the influence of peoples' personal situation in expressing their preferences. They found that smokers were significantly willing to pay more for smoking related diseases than non-smokers. This might imply that smokers relate their WTP to their personal situation. On the other hand, a bachelor thesis about this topic concluded that the characteristics of the respondents have minor influence on the level of solidarity (Hooijmaijers 2008). However, this bachelor thesis did not examined the WTP of the respondents. These discrepancies indicate that more research about this topic needs to be done. In addition, the difference in WTP might also be explained by examining the answer-motivation of the respondents. This motivation depends on the characteristics of the respondent, but might also depend on their norms and values or prior knowledge about lifestyle related diseases.

This thesis only examined the WTP for smoking and overweight. A final suggestion for further research is to measure the mean willingness to pay for other lifestyle related diseases, like sexual transmitted diseases or the consequences of alcohol use.

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## Appendix

### A. Tabel Chapter 2

	Mannen	Vrouwen	Totaal mannen en vrouwen
<a href="#">Longkanker</a>	5.858	2.585	8.443
<a href="#">COPD</a>	2.966	1.885	4.850
<a href="#">Coronaire hartziekten</a>	1.710	549	2.260
<a href="#">Beroerte (CVA)</a>	684	541	1.225
<a href="#">Hartfalen</a>	435	204	638
<a href="#">Slokdarmkanker</a>	913	262	1.175
Strottenhoofdkanker	130	32	162
Mondholtekanker	374	118	492
Totaal	13.069	6.176	19.246

Number of deaths in 2009 (20 years and older) due to one of the eight mentioned diseases as a consequence of smoking (Source: RIVM)

### B. Tabel Chapter 6

Category	WTP Independent		WTP overweight		WTP smoking	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
0 euro	39	<b>15.2</b>	104	40.5	175	<b>68.1</b>
1-5 euro	57	22.2	71	27.6	42	16.3
6-10 euro	44	17.1	36	14.0	17	6.6
11-20 euro	43	16.7	16	6.2	10	3.9
21-30 euro	16	6.2	13	5.1	6	2.3
31-50 euro	24	9.3	8	3.1	0	0
51-100 euro	21	8.2	5	1.9	5	1.9
101-200 euro	7	2.7	3	1.2	1	0.4
201 euro or more	6	<b>2.3</b>	1	<b>0.4</b>	1	<b>0.4</b>
Total (N=)	257	100	257	100	257	100

Frequencies in answering categories

### C. Hypotheses

*The hypothesis that have been tested with the Paired Samples Test:*

H<sub>0</sub>: The mean of the difference between WTP for lifestyle independent and dependent health problems is 0:  $\mu_{\text{paired differences}} = 0$ .

H<sub>1</sub>: The mean of the differences between WTP for lifestyle independent and dependent health and problems is larger than 0:  $\mu_{\text{paired difference}} \geq 0$ .

*The hypothesis that have been tested with the Levene's Test for Equality of Variances:*

H<sub>0</sub>: The variances are equal in both samples:  $\sigma_{\text{men}}^2 = \sigma_{\text{women}}^2$

H<sub>1</sub>: The variances are not equal in both samples:  $\sigma_{\text{men}}^2 \neq \sigma_{\text{women}}^2$

*The hypothesis that have been tested with the Independent Samples T-test:*

H<sub>0</sub>: The differences between the mean WTP for lifestyle independent/dependent is equal for men and women:  $\mu_{\text{men}} = \mu_{\text{women}}$

H<sub>1</sub>: The differences between the mean WTP lifestyle independent/dependent is not equal for men and women:  $\mu_{\text{men}} \neq \mu_{\text{women}}$

## D. Original Questionnaire



Geachte meneer/mevrouw.

In Nederland is veel discussie over de basispremie van de zorgverzekering. Mede om deze reden doe ik in samenwerking met de *Vrije Universiteit van Amsterdam* onderzoek naar dit onderwerp en daarbij hebben wij uw hulp hard nodig!

Iedereen is in Nederland verplicht om elk jaar de basispremie van ongeveer 1090 euro te betalen. Nu willen wij graag uw mening weten over de rol van eigen verantwoordelijk en ziekte. Er zijn mensen die ziek worden door hun eigen schuld, bijvoorbeeld door een ongezonde leefstijl, en er zijn mensen die ziek worden terwijl ze hier helemaal niets aan kunnen doen, bijvoorbeeld mensen die geboren worden met een bepaalde ziekte. Vindt u dat er verschil mag worden gemaakt in basispremie tussen deze twee groepen?

Wij hopen dat de resultaten van dit onderzoek worden gebruikt om de organisatie van de gezondheidszorg in Nederland beter aan te laten sluiten bij uw mening.

Op de volgende bladzijde begint de vragenlijst. Lees de vragen goed door, probeer uzelf zo goed mogelijk in te leven in de situatie en denk goed na over uw antwoorden. De vragenlijst zal ongeveer 10 minuten van uw tijd vragen.

U kunt de vragenlijst in de bijgevoegde envelop zo spoedig mogelijk terugsturen en uiterlijk voor ..... augustus. Een postzegel plakken is niet nodig. De resultaten van dit onderzoek worden anoniem behandeld.

**Wij willen u hartelijk bedanken voor uw medewerking!**

**Groetjes Sanne van der Star.**

**Begin VRAGENLIJST:**  
**Nederlandse gezondheid en ervaren gezondheid**

1. Bent u tevreden over hoe de Nederlandse gezondheidszorg geregeld is?

- Ja
- Nee

2. Wat is uw houding ten opzichte van rechtvaardigheid in de gezondheidszorg?

- Iedereen moet evenveel zorgpremie betalen, onafhankelijk van de zorg die zij/hij nodig heeft
- Iemand die meer zorg gebruikt, moet meer zorgpremie betalen

3.	Slecht	Matig	Goed	Zeer goed	Uitstekend
<u>Hoe zou u over het algemeen uw gezondheid noemen? (omcirkel 1 antwoord)</u>	1	2	3	4	5

**Ziek zonder eigen schuld**

De volgende vragen gaan over hypothetische situaties. Deze situaties hoeven niet overeen te komen met uw eigen situatie. Om een goed beeld te krijgen, vragen wij u zich zo goed mogelijk in de volgende situaties in te leven. Vraagt u zich bij alle situaties goed af wat u belangrijk vindt, waarvoor u meer wilt betalen en hoeveel meer. Zonder uw extra betaling zullen de volgende situaties niet vanuit het basispakket vergoed worden. Wel kan iedere patiënt ervoor kiezen om de behandeling zelf te betalen. De behandeling kost de patiënt dan 1000 euro.

3. Stelt u voor: Er zijn 120.000 mensen in Nederland die door een aangeboren ziekte een matige gezondheid ervaren. Deze ziekte had bij deze mensen nooit voorkomen kunnen worden. Uzelf heeft deze aangeboren ziekte *niet*. Er is in Nederland een behandeling waardoor de gezondheid van deze 120.000 mensen veranderd van een matige in een uitstekende gezondheid. Door deze behandeling zullen deze mensen gemiddeld nog 20 jaar leven in uitstekende gezondheid. Zonder behandeling zullen ze nog gemiddeld 15 jaar leven in matige gezondheid.

De behandeling is niet opgenomen in het basispakket van uw zorgverzekering. Hoeveel zou u eenmalig maximaal extra willen betalen, bovenop de jaarlijkse premie van 1090 euro, zodat deze behandeling opgenomen kan worden in het basispakket? (omcirkel 1 antwoord)

<u>0</u> euro	<u>0-5</u> euro	<u>5-10</u> euro	<u>10-20</u> euro	<u>20-30</u> euro	<u>30-50</u> euro	<u>50-100</u> euro	<u>100-200</u> euro	<u>200 euro of meer</u>
1.	2	3	4	5	6	7	8	9

### Ziek door veel roken

Bij de volgende situaties geldt weer het volgende: Zonder uw extra betaling zullen de volgende behandelingen niet vanuit het basispakket vergoed worden, maar wel is er dan weer voor iedere patiënt de keuze de behandeling zelf te betalen. De behandeling kost de patiënt dan 1000 euro.

4. Stelt u voor: In Nederland zijn 120.000 mensen die door een ziekte, opgelopen *enkel en alleen* door het vele roken, zich matig gezond voelen. Deze ziekte hadden deze mensen nooit gekregen als zij niet gerookt hadden. Uzelf heeft deze ziekte *niet*. Er is nu een behandeling waardoor de gezondheid van deze 120.000 mensen verandert van een matige in een uitstekende gezondheid. Door deze behandeling zullen deze mensen nog gemiddeld 20 jaar leven in uitstekende gezondheid. Zonder behandeling zullen ze nog gemiddeld 15 jaar leven in matige gezondheid

De behandeling is niet opgenomen in het basispakket van uw zorgverzekering. Hoeveel zou u eenmalig maximaal extra willen betalen, bovenop de jaarlijkse basispremie van 1090 euro, zodat deze behandeling opgenomen kan worden in het basispakket? (omcirkel 1 antwoord)

<u>0</u> euro	<u>0-5</u> euro	<u>5-10</u> euro	<u>10-20</u> euro	<u>20-30</u> euro	<u>30-50</u> euro	<u>50-100</u> euro	<u>100-200</u> euro	<u>200 euro of meer</u>
1.	2	3	4	5	6	7	8	9

### Ziek door overgewicht

Bij de volgende situaties geldt weer het volgende: Zonder uw extra betaling zullen de volgende situaties niet vanuit het basispakket vergoed worden, maar wel is er weer voor iedere patiënt de keuze om zelf 1000 euro te betalen voor de behandeling.

5. Stelt u voor: In Nederland zijn 120.000 mensen die door een ziekte, opgelopen enkel en alleen door overgewicht, zich matig gezond voelen. Deze ziekte hadden deze mensen nooit gekregen als zij een normaal gewicht hadden. Uzelf heeft deze ziekte niet. Er is nu een behandeling waardoor de gezondheid van deze 120.000 mensen veranderd van een matige in een uitstekende gezondheid. Door deze behandeling zullen deze mensen nog gemiddeld 20 jaar leven in uitstekende gezondheid. Zonder behandeling zullen ze nog gemiddeld 15 jaar leven in matige gezondheid

De behandeling is niet opgenomen in het basispakket van uw zorgverzekering. Hoeveel zou u eenmalig maximaal extra willen betalen, bovenop de jaarlijkse basispremie van 1090 euro, zodat deze behandeling opgenomen kan worden in het basispakket? (omcirkel 1 antwoord)

<u>0</u> euro	<u>0-5</u> euro	<u>5-10</u> euro	<u>10-20</u> euro	<u>20-30</u> euro	<u>30-50</u> euro	<u>50-100</u> euro	<u>100-200</u> euro	<u>200 euro of meer</u>
1.	2	3	4	5	6	7	8	9

**Algemene vragen:**

6. De bovenstaande vragen gingen over verschillende onderwerpen. Ga bij uzelf eens na wat het belangrijkste argument is dat u hebt gebruikt bij de keuzes van uw antwoorden?

Ik/mijn gezin heeft baat bij mijn keuzes

Veel vrienden, familie en dierbaren hebben baat bij mijn keuzes

Veel Nederlanders hebben baat bij mijn keuzes

Mijn keuzes zorgen ervoor dat de gezondheid van mensen bevorderd wordt

Mijn keuzes bevorderen gelijke toegang tot zorg

7. Wat is uw geslacht?

Man

Vrouw

8. Wat is uw leeftijd?

..... Jaar

9. Heeft u kinderen?

Ja

Nee

10. Wat is uw hoogst behaalde diploma?

Mavo/Vmbo

Havo

VWO

Mbo-diploma

HBO-diploma

WO-diploma

Ander diploma

11. Tot welke inkomensgroep behoort u?

Ik verdien een gemiddeld inkomen

Ik verdien een boven gemiddeld inkomen

Ik verdien een erg hoog inkomen

12. Heeft u een chronisch/aangeboren aandoening?

Ja

Nee

8. Rookt u?

Ja

Nee

9. Denkt u dat uzelf overgewicht heeft?

Ja

Nee

**Dit is het einde van de vragenlijst! Nogmaals dank voor uw medewerking!**



## **E. Questionnaire used in this thesis**

Geachte meneer/mevrouw,

Voor mijn afstudeerscriptie doe ik onderzoek naar de rol van eigen verantwoordelijkheid met betrekking tot ziekte in de gezondheidszorg. Ik ben zeer benieuwd naar uw mening aangaande dit onderwerp en ik hoop dat u deze enquête wilt invullen (mits u 18 jaar of ouder bent). De enquête start op de volgende pagina en zal ongeveer 5 minuten van uw tijd in beslag nemen. Uw antwoorden worden gegarandeerd anoniem behandeld en zullen op geen enkele mogelijkheid naar u te herleiden zijn.

Ik hoop dat de resultaten van dit onderzoek bijdragen aan de beleidsvorming in de gezondheidszorg aangaande dit onderwerp.

Alvast hartelijk dank voor uw medewerking!

Met vriendelijke groet,

Roos van Bommel

*Student Health Economics Policy & Law – Erasmus Universiteit Rotterdam*

**Informatie:**

De volgende vragen gaan over drie verschillende denkbeeldige situaties waarin gevraagd wordt hoeveel u extra zou willen betalen bovenop de premie van uw huidige basisverzekering. Er zijn behandelingen beschikbaar voor drie aandoeningen/ziekten met verschillende oorzaken. Deze situaties kunnen verschillen van uw persoonlijke situatie. Ik wil u vragen zich zo goed mogelijk in te leven in de geschetste situatie, zodat er een goed beeld verkregen kan worden.

Ter informatie: elke persoon in Nederland van 18 jaar en ouder is verplicht om elk jaar de premie voor de basisverzekering te betalen. Dit bedrag ligt op ongeveer 1200 euro.

**Algemene vragen:**

1. Wat is uw geslacht?

Man

Vrouw

2. Wat is uw leeftijd?

Jonger dan 25 jaar

25 jaar of ouder

### Ziek onafhankelijk van levensstijl

Stelt u voor: Er zijn 120.000 mensen in Nederland die door een aangeboren ziekte een matige gezondheid ervaren. Deze ziekte had bij deze mensen nooit voorkomen kunnen worden. Uzelf heeft deze aangeboren ziekte *niet*.

Er is in Nederland een behandeling waardoor de gezondheid van deze 120.000 mensen verandert van een matige in een uitstekende gezondheid. Als gevolg van deze behandeling zal deze groep gemiddeld nog 20 jaar leven in uitstekende gezondheid. Zonder behandeling zullen ze nog gemiddeld 15 jaar leven in matige gezondheid. De behandeling is *niet opgenomen* in het basispakket van uw zorgverzekering. Zonder uw extra betaling zal de behandeling niet vanuit het basispakket vergoed worden. Wel kan iedere patiënt ervoor kiezen om de behandeling zelf te betalen. De behandeling kost de patiënt dan 1000 euro.

Hoeveel zou u **eenmalig maximaal extra willen betalen**, bovenop de jaarlijkse basispremie van 1200 euro, zodat deze behandeling opgenomen kan worden in het basispakket? Vink 1 antwoord aan.

0 euro	1-5 euro	6-10 euro	11-20 euro	21-30 euro	31-50 euro	51-100 euro	101-200 euro	201 euro of meer
1.	2	3	4	5	6	7	8	9

### Ziek door veel roken

Stelt u voor: In Nederland zijn 120.000 mensen die door een ziekte, opgelopen *enkel en alleen* door het *veel roken*, zich matig gezond voelen. Deze ziekte hadden deze mensen nooit gekregen als zij niet gerookt hadden. Uzelf heeft deze ziekte *niet*.

Er is in Nederland een behandeling waardoor de gezondheid van deze 120.000 mensen verandert van een matige in een uitstekende gezondheid. Als gevolg van deze behandeling zal deze groep gemiddeld nog 20 jaar leven in uitstekende gezondheid. Zonder behandeling zullen ze nog gemiddeld 15 jaar leven in matige gezondheid. De behandeling is *niet opgenomen* in het basispakket van uw zorgverzekering. Zonder uw extra betaling zal de behandeling niet vanuit het basispakket vergoed worden. Wel kan iedere patiënt ervoor kiezen om de behandeling zelf te betalen. De behandeling kost de patiënt dan 1000 euro.

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0 euro	1-5 euro	6-10 euro	11-20 euro	21-30 euro	31-50 euro	51-100 euro	101-200 euro	201 euro of meer
1.	2	3	4	5	6	7	8	9

### Ziek door overgewicht

Stelt u voor: In Nederland zijn 120.000 mensen die door een ziekte, opgelopen *enkel en alleen* door *overgewicht*, zich matig gezond voelen. Deze ziekte hadden deze mensen nooit gekregen als zij een normaal gewicht hadden. Uzelf heeft deze ziekte niet.

Er is in Nederland een behandeling waardoor de gezondheid van deze 120.000 mensen verandert van een matige in een uitstekende gezondheid. Als gevolg van deze behandeling zal deze groep gemiddeld nog 20 jaar leven in uitstekende gezondheid. Zonder behandeling zullen ze nog gemiddeld 15 jaar leven in matige gezondheid. De behandeling is *niet opgenomen* in het basispakket van uw zorgverzekering. Zonder uw extra betaling zal de behandeling niet vanuit het basispakket vergoed worden. Wel kan iedere patiënt ervoor kiezen om de behandeling zelf te betalen. De behandeling kost de patiënt dan 1000 euro.

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0 euro	1-5 euro	6-10 euro	11-20 euro	21-30 euro	31-50 euro	51-100 euro	101-200 euro	201 euro of meer
1.	2	3	4	5	6	7	8	9

***Hartelijk dank voor het invullen van deze vragenlijst!***