

WHY DO MEMBERS OF THE PUBLIC VALUE  
QUALITY OF LIFE GAINS DIFFERENTLY WHEN  
STATED FROM PERSONAL, SOCIAL AND SOCIALLY-  
INCLUSIVE-PERSONAL PERSPECTIVES: A THINK  
ALLOUD STUDY

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## Summary

*Background:* Healthcare priority setting has become inevitable. Two important objectives in healthcare priority setting are efficiency and equity. Those objectives can be implemented implicitly or explicitly. The Netherlands has explicitly incorporated equity-weight, related to the disease severity, into their decision-making framework. This is done by evaluating the outcome of cost-effectiveness studies (ICER) to a flexible, equity-adjusted monetary threshold. The flexible threshold is based on studies into the societal willingness to pay. The willingness to pay can be measured from different perspectives, but little is known about the thoughts and ideas that people have while performing a willingness to pay study. Therefore, the objectives of this study are to understand why there are differences in the willingness to pay for health gains when different perspectives are applied and the willingness to pay is influenced by considerations that are not directly related to health gains.

*Methods:* A think-aloud study was performed in a sample of fourteen purposively selected members of the public in the NL. Interviews were conducted online, using a think aloud protocol, while the participants were making contingent valuation tasks. The interviews were transcribed verbatim and analyzed via thematic content analysis.

*Results:* The thematic framework led to six main themes that provide insight into the thoughts and beliefs of participants while they are determining their WTP, from three different perspectives. The first indicated theme is related to the understanding and performing the CV-task. The results indicate that the participants had some difficulties with the CV-tasks. The second theme related to the characteristics of the patients in the CV-tasks. The participants mentioned the influence of the age of the patients, the number of patients and the relationship to the patients. Third, the characteristics of the disease severity were mentioned. The participants expressed the thoughts about the quality-of-life score and how they imagined what it must be like to live with that score. The fourth theme related to the characteristics of the treatment in the CV-tasks, where they thought about the valuation of health. The fifth theme related to the moral considerations of the participants. Participants valued the solidarity in the society as important. The last theme related to the influencing factors, associated with the ability to pay, the value of health, the opportunity costs and the ideas about the Dutch healthcare system.

*Conclusion:* The results indicate that members of the public have several thoughts and ideas that they take into account when determining their willingness to pay. This can indicate that the perspective applied in willingness to pay studies can lead to different results. Further research is recommended to gain more insight into the differences between the perspectives. Policy makers can then make a decision on which perspective they want to use, related to the policy context.

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# 1. Introduction

Worldwide, the healthcare sector is a large and expanding sector within national economies (OECD Statistics, 2020). In many countries, the growth rate of healthcare spending is growing faster than the gross domestic product (GDP) (Folland et al., 2017). On the demand side, the increase can be explained by the aging populations (who tend to live longer with more chronic diseases), and the increased welfare which causes higher expectations of health and healthcare (Brouwer et al., 2019). On the supply side, more new and expensive health technologies become available (Brouwer et al., 2019). The growth rate of the healthcare expenditures jeopardizes the sustainability of publicly financed healthcare systems (Reckers-Droog, 2021). The limited healthcare resources put pressure on the available budget, which makes healthcare priority setting unavoidable (Reckers-Droog et al., 2019). It is widely recognized that for an optimal resource allocation, it is necessary to explicitly address priority setting (Reckers-Droog, 2021).

When it comes to healthcare priority setting, publicly financed healthcare systems have two important objectives (Reckers-Droog et al., 2018). The first objective is to allocate the available resources in an efficient matter for the society, and to generate as much (health) value as possible from the given healthcare budget. The second objective is to distribute health and healthcare fairly and to allocate the available resources in an equitable manner (Reckers-Droog et al., 2018). It is important that the decisions regarding the optimal allocation of the resources should contribute to meeting the efficiency and equity objective. However, little is known about which equity considerations should be included and how to incorporate them into the decision-making framework (Reckers-Droog, 2021).

Incorporation of equity considerations into the decision-making framework can be done implicitly or explicitly. Most countries (France, Germany, Australia) have done this implicitly, where they for example accept a higher incremental cost-effectiveness ratio (ICER) when a new health technology helps severe ill patients (Reckers-Droog, 2021). However, this does not facilitate a consistent and transparent decision-making framework. It can even be stated that making choices implicitly, is not ethical defensible. It will not be transparent for which patient groups the decisions would have consequences, and if those consequences are acceptable. Therefore, there has been an increase in the number of countries implementing the equity consideration in an explicit manner (Chalkidou et al., 2016). The Netherlands is one of the countries that explicitly incorporated equity considerations into the decision framework. (Zorginstituut Nederland, 2015). They incorporated equity considerations, associated with the disease severity to a variable monetary threshold against which a health technology is evaluated.

## 1.1. Priority setting in the Netherlands

The Netherlands has a publicly financed healthcare system, with a collectively insured package of healthcare. Every adult citizen in the Netherlands is obligated to pay a monthly health insurance premium. This system is based on mutual solidarity (Zorginstituut Nederland, 2015). In order to determine which (new) health technologies will be included in the collective insured package, policy makers use a framework for their decisions (Zorginstituut Nederland, 2015).

The Ministry has the responsibility to make the final decision for reimbursement of the health technology, which is advised by the care institute of the Netherlands (ZIN). The ZIN uses economic evaluations to inform decision makers on how to efficiently allocate the resources (Zorginstituut Nederland, 2015). In economic evaluations, the costs and benefits of the new health technologies are compared with the costs and benefits of the current standard of care (Zorginstituut., 2015). Benefits are often expressed in terms of quality-adjusted-life-years (QALY's), where one QALY represents one year in full health (Zorginstituut Nederland., 2015). The costs are expressed in euros. The outcome of the economic evaluations (ICER) of a new health technology, is evaluated against a monetary threshold to assess whether reimbursing a new health technology can be considered value for money.

The ZIN allows higher costs per QALY when there is a higher burden of disease (Zorginstituut Nederland, 2015). This means that one QALY gain is allowed to have higher costs if it helps a patient group with a higher burden of disease. The ICER is evaluated against a flexible, equity-adjusted monetary threshold associated with the patients' disease severity (operationalized as the proportional shortfall level) (Zorginstituut Nederland, 2018). These thresholds are based on the results of willingness to pay (WTP) studies in the society (see Section 1.2) (Bobinac et al., 2010; 2012; 2013). The monetary threshold in the Netherlands varies between EUR 20,000 and EUR 80,000 per gained QALY (Zorginstituut Nederland, 2015). The monetary thresholds per gained QALY are intended to be revised every five to ten years (Zorginstituut Nederland., 2015).

## 1.2. Societal willingness to pay

The societal willingness to pay often is obtained via preference-eliciting methods, like contingent-valuation tasks (CV-tasks) or discrete-choice experiments (DCE's) (Brazier et al., 2007; Bobinac et al., 2010; Reckers-Droog et al., 2018). The preference-eliciting methods ask participants to state their preference between two or more alternatives (Brazier et al., 2007). WTP studies can ask participants to determine their willingness to pay from different perspectives. They can be asked to state their WTP for health gains in themselves, for a group of patients with strangers or a group of patients to which

they or their family and friends could belong to. It should be noted that in societal WTP studies, the personal WTP is aggregated to the societal WTP. The personal WTP is higher than when measuring the WTP for others. These perspectives have been previously investigated. For example, a study by Van Gils et al. (2013) found that the applied perspective in willingness to pay studies has an influence on the outcome. This is supported by the report on Solidarity Preferences in Healthcare (Kloosterman, 2015), which found that, in The Netherlands, the WTP for a QALY is estimated at EUR 53,000 per QALY gained in 'other people,' and EUR 83,000 per QALY gained in 'themselves or close ones' (Kloosterman, 2015). The observed differences in willingness to pay suggest that the societal WTP for a QALY may be dependent on the applied perspective for eliciting the preferences of adult members of the general public (Blomquist et al., 2011; Bobinac et al. 2010; 2012; 2013).

### 1.3. Objective and research question

The Netherlands explicitly incorporated equity considerations, associated with the disease severity, into the decision-making framework when determining the monetary threshold for reimbursement of health technologies. The flexible, equity-adjusted, monetary threshold is based on the results of WTP studies. However, what if individuals in WTP studies already take the disease severity into account? It could be that equity considerations are implemented in the willingness to pay measures from the societal perspective. The question is whether this is desirable, when the goal is to explicitly implement those considerations into the framework. It is important to know what you are measuring when using different perspective, to make a well-informed decision which perspective fits with the stated policy goal.

Even though evidence indicates that the applied perspective in societal willingness to pay studies influences the outcome, little is known about where these differences come from. Studies that are currently used to inform decision-makers used quantitative studies (Bobinac et al. 2010; 2012; 2013). However, a limitation of this current approach is that there is lack of insight into what individuals base their choices on in the eliciting-tasks. Insight into the thoughts and ideas behind the WTP, per each perspective, can provide insight into what perspective is should be used for a specific policy context. Therefore, this thesis aims to obtain insight into why there are differences in the willingness to pay for health gains when different perspectives are applied and how the willingness to pay is influenced by considerations that are not directly related to health gains. To meet this aim, two research questions are formulated:

1. *Why do members of the public have a different willingness to pay for health gains when stated from personal, social, and socially inclusive personal perspectives?*
2. *How do thoughts and beliefs that are not directly related to the health gains (e.g., related to the disease severity) of those in need of treatment influence the willingness to pay members of the public?*

#### 1.4. Outline

To answer the research questions of this thesis, first the relevant theory will be discussed in the theoretical framework. Second, the data and empirical strategy will be explained. Third, the results of the collected data will be presented. Fourth, the conclusion will of the research will be provided, together with a discussion on strengths and limitations of the research.



## 2. Theoretical Framework

### 2.1. Perspectives in WTP studies

As mentioned in the section above, the preferences for health gains of individuals' can be elicited in terms of willingness to pay (WTP). When willingness to pay studies are conducted, the researcher can ask the participants to adopt different perspectives from which they need to state their preferences from. Dolan et al. (2003) provided a framework consisting of six perspectives that public members can be asked to adopt when stating their preferences for resource allocation in healthcare. These perspectives are: 1) *the personal perspective*, where members of the public are, for example, asked to value health gains for themselves, 2) *the social perspective*, where they are, for example, asked to value health gains for others, and 3) *the socially inclusive personal perspective*, where individuals are, for example, asked to value health gains for others and themselves (Dolan et al., 2003). In addition, the participants can be asked to state their preferences from a different point of time. They can be asked to state their preferences when they may need healthcare in the future (ex-ante) or the participants can be asked about their preferences when healthcare is needed now (ex-post). The ex-ante context included uncertainty about needing healthcare or not. This gives a total of six different perspectives. All the perspectives can be used to meet the same goal; obtaining insight into the preferences of members of the general public that can inform reimbursement decisions in publicly financed healthcare systems. What perspective is most appropriate for eliciting societal preferences may depend on the study objective and the policy context in which the results may be applied (Dolan et al., 2003). In practice, all perspectives are used to answer the same question; what is the willingness to pay per QALY in a publicly financed healthcare system.

This study will only apply the three perspective in the ex-post context, where the participants will be in need of treatment right now, knowing with certainty they or the others will become ill. This decision was made because this is in accordance with the Dutch healthcare system. If you become ill, you will visit a doctor and maybe get treatment or medicines. After receiving healthcare, you are being asked to pay your deductible of EUR 385, -. This means that you will only need to pay if you are using healthcare, which you only use if you become ill.

#### 2.1.1. Personal perspective

The personal perspective is the most often used perspective in willingness to pay studies (Dolan et al., 2003). This can be explained by the traditional welfare economic perspective, believing that individuals are the best judges of their own welfare (Dolan et al., 2003; Bobinac et al., 2012). The economic theory

believes that the sum of the individuals' willingness to pay are consistent to the societal willingness to pay. The efficiency consideration was therefore mostly based on the results of studying about the self-interest of individuals. Although self-interest exists, this should not mean that this should be the basis for social welfare. It is questionable whether these results represent the most relevant information for societal decision making. Especially in the context of a collectively insured package of healthcare (Bobinac et al., 2012). The personal perspective asks the public to think and complete the preference-elicitation task with (solely) his preferences in mind (Dolan et al., 2003). For example, the participants will be asked to value health gains as if they are being sick and in need treatment.

### 2.1.2. Social perspective

This perspective focuses on making choices for other people, which allows the participant to think about the welfare or utility of other people and the distribution amongst them. For example, the participants will be asked to value health gain for a sick group of patients that require treatment. Excluding self-interest in this perspective can provide a good insight into preferences for societal interest from an economic view. This perspective considers that social welfare is different from the sum of individual welfare. It is reasonable to use this perspective for countries with a tax-based system, where the individuals are asked about their willingness to pay for others receiving treatment (Dolan et al., 2003).

### 2.1.3. Socially inclusive personal perspective

Economist recommend the use of the socially inclusive personal (SIP) perspective rather than the use of the social perspective, since this excludes self-interest. This perspective states that social preferences are more than the sum of personal preferences. It is a combination of the personal and social perspective. It combines self-interest with societal preferences. Individuals are motivated by personal interest and utility, where the collective utility inspires citizens. This is in accordance with Rousseau (1998), stating that people can act from the perspective of an individual and of being a citizen. The individual will be asked to keep their self-interest in mind and the interest of the other individuals. This perspective is considered best use in social insurance systems, since there is a double role of being an insurance agent and a social institution that facilitates redistribution of healthcare (Dolan et al., 2003). This perspective elicits preferences related to the efficiency and equity objectives.

## 2.2. Societal preferences

Currently, most studies have applied the personal perspective to measure the societal willingness to pay for one QALY gained (Blomquist et al., 2012; Bobinac et al. 2010; Bobinac et al., 2013). But there has been a debate whether the use of the individual's perspective is still relevant. For example, Bobinac et al. (2010) used the personal perspective in their study, assuming the individual's health valuation relevant for societal decision-making. Afterward, they found that equity considerations appear to play a role in societal decisions. People attach weights to health gains, but such preferences are most likely not reflected in individual valuations of their health gains. This result raises the issue of the usefulness of individual valuations for societal decision-making in resource allocation.

The study done by Bobinac (2012) elicited people's preferences from both the personal perspective and the socially inclusive personal perspective. Their results show that the willingness to pay from the social perspective is systematically lower than from the socially inclusive perspective. Bobinac (2012) believes that the socially inclusive personal perspective may be the most relevant when estimating the societal willingness to pay in collectively funded healthcare systems like the Netherlands. They argue that the personal perspective misses out on important notions on equity and solidarity, where the social perspective ignores the self-interest (Bobinac, 2012). According to Bobinac (2012), applying the personal perspective is only relevant when the participant directly pays the total costs of the treatment, i.e., via private insurance and where healthcare is seen as an individual rather than public good. However, in a public financed healthcare system the personal perspective may be less relevant, because equity and solidarity play an essential role (Bobinac., 2013). Furthermore, the study of Bobinac et al. (2013) and the study of Reckers-Droog (2021) both applied the socially inclusive perspective. They stated that the SIP perspective is the most relevant in the context of collectively funded healthcare system, like the Netherlands.

## 3. Data and empirical strategy

### 3.1. Sample and data collection

In order to answer the research questions formulated in the introduction section, semi-structured interviews were conducted online while using a think-aloud protocol in a purposive sample of the general adult population in the Netherlands. To obtain a diverse yet balanced sample, the participants were sampled by age (18+), sex, education level, and having children (yes or no). The diversity of the sample is essential to obtain a wide variety of preferences and different points of view behind the reasoning of those preferences. Furthermore, the minimum age of participants is set at 18 years, as this is the age where health insurance becomes mandatory. Therefore, starting from the age of 18, become premium payers and can be confronted with a deductible when using healthcare.

As mentioned in the introduction section, willingness to pay can be measured via contingent valuation tasks and discrete choice experiments (Brazier et al., 2007; Bobinac et al., 2010; Reckers-Droog, 2021). The contingent valuation method is the most often used method for determining public's willingness to pay. Therefore, this study will also use contingent-valuation tasks, which directly asked the participants about their valuation of the quality-of-life gains in terms of willingness to pay per month. Contingent valuation tasks often use purposively designed questionnaires that can be used for a representative sample of the general public, which will also be used in this study. The participants were asked to perform six contingent valuation tasks. Two where the personal perspective was applied, two tasks with the social perspective, and two with the socially inclusive personal perspective. While making the tasks, the participants were asked to think aloud, by verbalizing their thoughts when stating their preferences.

### 3.2. Study design

Via contingent-valuation exercises, the participants are asked about their willingness to pay for the quality-of-life gains for different patient groups, with a difference in disease severity, from three perspectives. The willingness to pay is measured as an extra payment per month via the deductible. This follows the publicly financed healthcare sector in the Netherlands, where the citizens need to pay their obligated deductible, of minimal EUR 385, -, when using healthcare that is not covered from the basic health insurance.

### 3.2.1. Think-Aloud protocol

The Think-Aloud protocol is used to obtain insight into the considerations that underlie the participant's preferences (Olsen et al., 1984). It is one of the most effective methods to understand the differences between individuals' choices while performing contingent valuation tasks. The participants are asked to think aloud while they performed six contingent valuation tasks. The ideal sample contains participants who would not need any coaching while performing the tasks. However, not all participants can verbalize their thoughts without any practice automatically. Therefore, the introduction of the CV-tasks contained a warm-up exercise to get the participants some experience with thinking out loud.

When using the Think Aloud method, the researcher should prevent leading the participants to provide the needed answer (Cooper, 1999; Davis & Bistodeau, 1993, Olson et al., 1984). The influence of the researcher must be as small as possible. Thus, the choice was made to let the participants open the questionnaire themselves online, while sharing their computer screen with the researcher. The screen sharing allowed the participants to complete the tasks individually, while the researcher could overhear the thoughts and noises (like sighs) when being in the background. It was told to the participants to try to act like they were alone in the room. Besides the audio recording, the researcher made small notes in a notebook to remind several moments to come back later in the in-depth questions.

### 3.3. Questionnaire

The participants were asked to fill out an online questionnaire, which was sent to them in the beginning of the interviews. The questionnaire was developed in Qualtrics. Before conducting the primary interviews in May 2021, two pilot interviews were conducted online in April to examine the comprehensiveness of the questionnaire, the clarity, and the feasibility of the contingent valuation tasks in a small convenience sample (n=2). The results of the pilot study did lead to some changes in the questionnaire. Therefore, the results of the pilot study were not used in the main study.

The first adjustment that was made based on the results of the pilot study was the payment vehicle in the CV-tasks. In the pilot study, the choice was made to ask the participants about their willingness to pay as an increase in their health insurance premium. This idea was based on the health insurance system in the Netherlands, where the citizens pay a premium to their insurer every month. However, based on the results of the pilot interviews, the decision was made to change the payment vehicle in the contingent valuation tasks from an increase in health insurance premium to an extra payment per month via the deductible (06-05-2021). This is due the fact that the pilot studies made

clear that the participants had a difficult time deciding what the entire population would need to pay. Furthermore, the health insurers set the price of the premiums for all the citizens. It is not in accordance with the practice to immediately increase the health insurance premium of one individual. The decision to ask the participants about their willingness to pay as an extra payment of the deductible per month is based on the fact that every citizen has his own deductible, which only needs to be paid when healthcare is used by the citizens him- or herself. Below the change when the social and socially inclusive personal perspective were applied:

*Before: To pay for this treatment, the health insurance premium of all residents in the Netherlands, aged 18 years and older, is used every month for one year. This also applies for people who are not affected by the disease themselves. This means that this treatment is not reimbursed from the basic health insurance package but need to be paid for by yourself. Without this payment, patients will not be treated.*

*After: To be able to pay for this treatment, the 100 patients' deductible is drawn every month for one year. This means that this treatment is not covered by the basic health insurance package but must be paid for by the patients themselves. Without this payment, the patients will not be treated.*

Finally, the structure of sentences and the spelling was improved, and improvements in the outlay of the entire questionnaire. For example, the Health Economics, Policy, and Law institute logo was added at the top of the questionnaire.

After the first three interviews, another addition was made in the survey. First, the maximum amount the participants could fill in what they were willing to pay for the health gains was set at €32 - per month. This amount was based on the deductible of €385 - per year (meaning €32 - per month). However, three participants stated that the amount they were willing to pay extra per month was much more than 32 - euros after the first three interviews. This is why there was an adjustment made; if the participants filled in that the amount, they were certainly willing to pay €32 - per month; the second question was an open question where the participants could fill in the amount, they were certainly not willing to pay per month. The participants mentioned that they were aware of the fact that paying more than EUR 32, - euros per month meant that they were willing to pay more than the obligated deductible per year.

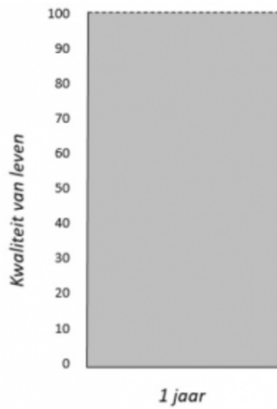
To make sure that the explanation of the quality-of-life concept was clear, the participants were asked about the clarity of the explanation. This could be rated on a seven-point scale (1= very unclear and 7= very clear). In both pilot studies, the participants found the explanation very clear. Therefore, it was concluded that the questions and explanation of the concepts (Quality of Life, increase and decrease) were clear and understandable.

The interviews for the main study were conducted in three weeks in May 2021. All interviews were conducted online to reduce risks for the participants and interviewer relating to the COVID-19 pandemic. The choice to conduct all the interviews via Zoom also ensured that all the interviews were conducted the same way and the data would be comparable. The interviews were audio-recorded and subsequently transcribed verbatim. The participants needed to give their consent for using the obtained data. They were informed that their participation was voluntary and that they could stop at any moment, in which case their data would not be used. However, none of the participants decided to stop the interview.

### 3.3.1. Structure of the questionnaire

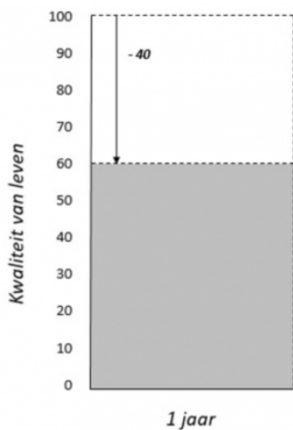
To ensure that all interviews were conducted the same way, the interview guidelines from Ericsson & Simon (1998) were used (Appendix 1). The guidelines give a clear overview of the structure that needed to be the same in every interview. The definitive questionnaire consisted of six sections.

The questionnaire started with an introduction where the objective and procedure of the study were explained. The participants were told that the budget for health care is limited and therefore policymakers need to make choices about which treatment could be reimbursement from the basic health insurance package. The policymakers use information about the society's preferences when making these choices, in order to allocate the resources in an optimal way for society. Then, the participant was asked to fill out some questions about their characteristics (sex, age, education level, children yes/no, household size, and income). Next, the participant was asked to fill out their healthcare premium and deductible (the amount they pay per month, additional insurance, and the deductible increase). Next, it was explained that the questionnaire would ask them about the amount of money they're where willing to pay for several treatments. The participants were told that they would receive information about the patient's quality-of-life score. The concept about quality-of-life was supported with figures. The first figure showed how the quality of life of 100 points looks like for one year.



**Fig. 3.1.** 1 year with a quality-of-life of 100

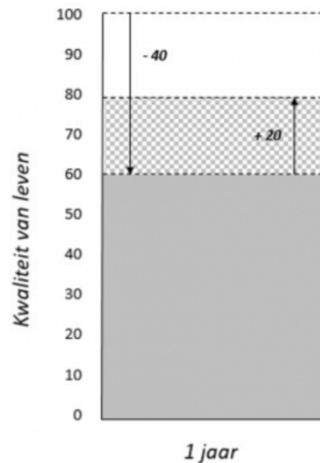
If the participants understood the explanation and the figure, it was told to the participants that the quality-of-life of patients could decrease due to illness. The illness could cause the patients having trouble with walking, doing groceries, showering, daily activities or experiencing pain. The participants needed to image that the quality of life of the patients would, for one year, decrease from 100 points to 60 points. This means that the quality of life decreases with 40 points. The figure below shows how this decrease looks like.



**Fig. 3.2.** decrease in quality-of-life of 40 points

In addition, a treatment could help decrease the health issues of the patient group. Receiving the treatment leads to an increase in quality-of-life points from 60 to 80 points. The figure below shows a decrease in quality-of-life points of 40 points and an increase in quality-of-life points of 20 by the treatment.





**Fig. 3.3.** increase in quality-of-life points with 20 points

Subsequently, the participants were asked to complete a standard think-aloud exercise to familiarize themselves with "thinking aloud". They were asked to count the windows in their homes and, while doing so, verbalizing everything that they imagined and loudly speak out their thoughts; "I start downstairs in the hall, where we have one window in the front door, then I walk into the living room where there are two large windows behind the couch" (Willis., 1994). All the information that was provided to the participants before they started the CV-tasks was provided to them verbally by the researcher, while they also had the opportunity to read the information in the questionnaire. This was done to make sure that the participants would not read things differently and to not let them read too much information before they needed to complete six CV-tasks. When everything was clear, the participants started with performing the six CV-tasks. In the contingent valuation tasks, health gains were defined as quality-of-life gains.

As mentioned before, three different perspectives (personal, social, socially inclusive personal) were applied in the CV-tasks. Each perspective was applied in two tasks, where the only difference between those two tasks was the disease severity. In the first task, the "patients" (participants themselves in the personal perspective and a group of 100 persons in the social and socially inclusive personal perspective) got ill. Due to the disease the quality of life decreased from 100 points to 20 points, on a scale of 0 to 100. Treatment was available that could increase the quality-of-life from 20 to 40 points. In the second task, the "patients" quality-of-life score decreased due to disease from 100 to 70 points. When receiving treatment, their quality-of-life score could increase from 70 to 90 points. In all the tasks, the gain in the quality-of-life score could increase by 20 points when receiving treatment. In the social and socially inclusive perspective, the participants needed to state their preferences for 100 patients, having the same age as the participants. The patients would become ill

on that day. The disease would last for one year and the quality-of-life score would go back to 100 points after that year (with or without treatment). The contingent valuation task with the personal perspective applied is showed below:

*Imagine that until today your quality of life has always been 100 points on the scale of 0 (dead) to 100 (total health). Without an illness, you would live until the age of 80 years with a quality of life of 100 points on the scale from 0 (dead) to 100 (total health).*

*Due to an illness, your quality of life drops from 100 to 20 points on the scale. This decrease is for one year, starting from today. After this year, the disease disappears, and your quality-of-life score will be 100 points again. There is a treatment available. With the treatment, your quality of life during the year, will be 20 points higher than without the treatment. So, the quality of life increases from 20 to 40 points.*

*In order to be able to pay for this treatment, the deductible of your health insurance will be used, which you can pay every month for one year. This means that the basic health insurance package does not cover this treatment but that you have to pay for it yourself. Without this payment, you will not be treated.*

*Please read the row of amounts below, from left to right, and choose the highest amount that you would be willing to pay extra per month as your deductible, for the treatment that increases your quality of life from 20 to 40 points on the scale from 0 (dead) to 100 (completely healthy)?*

*When answering this question, please consider the net monthly income of your household and the compulsory deductible of EUR 385 per year.*



**Fig. 3.4.** euros per month

**\*next page\***

*You have indicated that you are certainly willing to pay more than EUR 32, - per month to receive treatment. Please fill in the amount that you are definitely not prepared to pay monthly for the treatment:*

*“.....”*

*You have indicated above the amounts you are definitely prepared and not prepared to pay for treatment. Within this range, how much would you be maximumly be willing to pay each month, for one year, as a payment of your deductible for the treatment that would increase your quality of life during that year from 20 to 40 points on the scale from 0 (dead) to 100 (completely healthy)?*

*“.....”*

If the participants chose to have a willingness to pay of EUR 0 - per month, they would not go to the next CV-tasks. A multiple-choice question appeared which asked the participants about the most important reasons of why they were not willingness to pay anything for the treatment. These choices were; 1) not able to pay more than 0, - euro per month, 2) the treatment is not worth more than 0, - euro to me, 3) the treatment is worth more than 0, - euro per month, but I would rather spend my money on something else, 4) I believe that these costs should be covered by the basic health insurance premium, 5) the value of money cannot be expressed in monetary terms or 6) another reason. When choosing option number 6, a new question appeared where the participants could fill in their reason themselves.

After the participants had completed the six contingent-valuation tasks, some in-depth questions were asked to the participants. The first question that was how they had experienced making the contingent-valuation tasks. Based on their answers, more question was asked about what or why they had difficulties, or not, with performing the tasks. Second, the participants were asked if there was something else in their mind which they had not spoken out loud yet, but which they found important to mention. Then, the participants were asked if their decision would change if some characteristics of the patient group would change. Would their choices change if the patient group of 100 patients would not have the same age as the participants, but where 50 years older/younger, and why would their choice change or not. Also, the participants where asked if their choices would change if the size of the patient group would not be 100 patients but 1000 patients. Last, the participants were asked if there were some other factors left that influenced their choices, which are not yet mentioned.

After each group three or four participants, the order of the perspectives was changed in the questionnaire. This was done to reduce the possible influence of an order effect. In total, there were three different rounds of participants with the same order of perspectives.

**Table 3.5.** Scenario characteristics

<b>Scenario characteristics</b>	<b>Increase in Quality-of-life points</b>	<b>Perspective</b>	<b>Number of patients</b>	<b>Including</b>
<b>Scenario 1</b>	20-40	Personal	1	Patient him- or herself
<b>Scenario 2</b>	70-90	Personal	1	Patient him- or herself
<b>Scenario 3</b>	20-40	Social	100	All strangers the participants did not know
<b>Scenario 4</b>	70-90	Social	100	All strangers the participants did not know
<b>Scenario 5</b>	20-40	Socially Inclusive Personal	100	Could include strangers, family, friends and participants him- herself
<b>Scenario 6</b>	70-90	Socially Inclusive Personal	100	Could include strangers, family, friends and participants him- herself

### 3.4. Data analysis

The information obtained from the Think Aloud interviews was analyzed. First, the transcripts of the interviews were subjected to thematic content analysis, based on the following steps that are common for this type of research; 1) transcription of the recorded interview, 2) familiarization with the whole interview by understanding the data, 3) coding and labeling the data, 4) developing an analytical framework, by grouping labels into categories and overarching themes which will then be defined and 5) summarize the data by each type (Gale et al., 2013).

Since the thesis aims to gain insight into the reasoning behind the participant's preferences, the decision was made to only transcript the interview part where the participants completed the CV-tasks. After the transcription, the documents were uploaded into Atlas.ti to facilitate the analysis. All the transcripts were analyzed again to understand all the data and get familiar with the interviews. This led to the development of some first ideas and recurrent themes. Then, the interviews were read again and parts of the transcripts were coded and labeled.

An overview of all the created codes was downloaded from Atlas.ti. With the use of this overview, all the codes were uploaded into an excel file. Forming categories out of the quotes was done by combining, examining and clustering the codes into bigger patterns. These bigger patterns were then used to create the different categories. Each category represents a concept that belongs to an overall theme. Creating the categories was a process of constructing, finding and identifying patterns. The research questions were used as a guide to find the patterns and to decide what is relevant. The development of the different categories was supported by the relevant quotes that were coded. Every category had at least six relevant quotes, one per each scenario. Meaning that the category contained two quotes for the personal perspective, one for quality-of-life gain from 20 to 40 points and one for the gain from 70 to 90 points. All the categories were then organized by the overlapping theme, which was defined at the end. It is important to check if the theme captured the meaning of the coded data. The theme's needed to tell a coherent and relevant story about the obtained data, as well as providing answers to the research questions. The last step was summarizing the obtained data. The results were summarized by each theme, which was build up on the created categories. The obtained data was carefully described into an output that could answer the research question. Summarizing the data was done in an analytical way, in order to make connections to the literature and using the quotes to explain the described results (Gale et al., 2013; Willig & Stainton-Rogers, 2017).

## 4. Results

A total of fourteen adult members of the general public in the Netherlands participated in this study. Table 4.1. presents their demographic and background characteristics. Of the sample, the mean age was 43 (SD=21), and the sample was balanced concerning sex and having children (yes/no). The participants were relatively highly educated, and the majority assessed their households' ability to make ends meets as (relatively) easy every month. An overview of the mean (SD) and percentages of total minimum, maximum, and mean statistics about the characteristics can be found in Appendix 2. The mean (SD=4,2) interview time of the interviews was 52 minutes, with a minimum of 46 minutes and a maximum of 61 minutes.

**Table 4.1.** Participant characteristics

<i>ID</i>	<i>Age</i>	<i>Sex</i>	<i>Education level<sup>a</sup></i>	<i>Children</i>	<i>Household size<sup>b</sup></i>	<i>Ability of the household to making end meets<sup>c</sup></i>
1	25	Woman	High	No	2	Relatively Easy
2	22	Woman	Medium	No	4	Easily
3	21	Man	Medium	No	2	Easily
4	77	Man	High	Yes	2	Relatively Easy
5	79	Woman	Low	Yes	2	Easily
6	25	Woman	High	No	2	Relatively Easy
7	69	Man	High	Yes	2	Easily
8	59	Woman	Medium	Yes	2	Easily
9	58	Man	High	Yes	2	Easily
10	26	Man	High	No	2	Easily
11	24	Man	Medium	No	1	Some difficulty
12	41	Woman	Medium	Yes	3	Easily
13	52	Woman	High	Yes	4	Some difficulty
14	28	Man	High	No	2	Relatively Easy

<sup>a</sup> Education level (completed education): Low= lower vocational and primary school; Medium= middle vocational and secondary school; High= higher vocational and academic education.

<sup>b</sup> Household size is including the participant.

<sup>c</sup> Participants were asked about their willingness to pay about making end meets (1= a lot of difficulty, 2= with some difficulty, 3= relatively easy and 4= easy).

## 4.1. Thematic framework

Table 4.2 presents an overview and description of the nineteen categories that were identified and clustered into six main themes. The thematic framework was created, by grouping labels into categories from which overarching themes were defined. When the categories and themes were clear, all the data was summarized by each type. The six main themes are: 1) understanding and performing of the CV-tasks, 2) characteristics of the patients in the CV-tasks, 3) characteristics of the disease severity in the CV-tasks, 4) characteristics of the treatment in the CV-tasks, 5) moral considerations, and 6) influencing factors. The themes and categories will be described in more detail in the following sections, with support of quotes from the participants that were obtained in the interviews.

**Table 4.2.** Thematic Framework

Codes	Theme	Category	Description
<b>A</b>	<b>Understanding and performing the CV tasks</b>	<b>Reading, understanding and performing of the the CV-tasks and thoughts that come forward while the participants were making the CV-tasks</b>	
1		Difficulties with expressing health in monetary terms	Participants mentioned that they had some trouble with expressing the value of health in monetary terms and determining who should get treatment and who not.
2		Difficulties determining the WTP	The participants stated that they found it difficult to determine their WTP. They continuously made a trade-off between the amount they would be willing to pay for themselves and for others, which then could contain family and friends or strangers.
3		Indicators for automatic responding	The participants expressed thoughts while performing the CV-tasks regarding their understanding of the CV-tasks. Participants read the CV-tasks out loud. They noticed that all the CV tasks all six look like each other. They mentioned that they recognized the pattern in the differences between the CV-tasks, which could lead to not entirely reading the next tasks.
<b>B</b>	<b>Characteristics of the patients in the CV-tasks</b>	<b>Conceptions about the characteristics of the patient groups, including the number of patients, the age, and the relationship between the patient group and the participants.</b>	
1		Conceptions about the number of patients in need of treatment	Participants were different in their willingness to pay if the patient group would not consist of 100 patients but 1000. Some wanted to pay more to help more, while some participants even wanted to pay more for a smaller group since they believed the bigger group would get more donations.
2		Conceptions about the age of the patients	Participants had different perceptions about the influence of the age of the patient group on their willingness to pay. Some participants attached more value to a quality-of-life increase for younger patients, while others attached more value to getting treatment for older patients. Participants mentioned being more reluctant to give up life years for the 25-year-old than for the 75-years old. They wanted the 25-year-old to get the most out of life and have as many life experiences as possible before they die.
3		The patients being family/ friends	The participants mentioned that they would be prepared to pay more for the patients group that could include their family or friends. Other participants did not make any difference in their preferences when the patient group did not include their family or friends compared to the patient group that could include family/ friends.
4		Not knowing the patients	Participants were having trouble not knowing about the characteristics and traits of the patients living with the quality-of-life score. They construct a general image of the patient group. The participants compared payment for the group of strangers to making a donation to charity. They thought of the amount of money they would normally be prepared to pay to charity.

<b>C</b>		<b>Characteristics of the disease severity in the CV-tasks</b>		<b>Conceptions about the quality-of-life score in the CV-tasks. The participants tried to imagine what it must be to live in the quality-of-life points and used their experience with illness.</b>
1			Imagining (someone else) to live with the decrease in quality of life	Participants had different interpretations and imaginations of how it must be to live with the quality-of-life scores in the CV-tasks. They had the imagined the quality-of-life score of 20 points as being close to death and having a lot of difficulties in their daily life.
2			Experience with being ill	Participants stated that their willingness to pay was influenced by their experience of themselves or close one dealing with illness. This experience made that the participants were willing to pay the same amount for young and old patients. Since they had experienced their own parents and grandparents have a low quality-of-life, which they would want to increase if possible.
<b>D</b>		<b>Characteristics of the treatment in the CV-tasks</b>		
		<b>Conceptions about the treatment in the CV-tasks. The participants considered their valuation of the quality-of-life scores, the need of treatment in the quality-of-life scores and took the end point after treatment into consideration</b>		
1			Value of quality of life	Even though the increase in quality-of-life points with treatment was 20 points in all the scenarios, most respondents attached more value to providing treatment for the gain in quality-of-life points from 20-40 than 70-90. Some participants valued the increase in quality-of-life points from 20-40 the same as from 70-90.
2			Need of treatment	Participants mentioned that the increase of 20 quality-of-life points was not worth a lot. They believed that in some cases there was no need for getting the treatment, because this would not make a huge difference in the quality-of-life. In addition, it was believed that the increase in quality-of-life points from 20-40 was worth the same as the increase from 70-90 points.
3			End point after treatment	Whether or not the patients would receive the treatment, it was given with certainty that their quality-of-life would go back to 100 points after one year. All participants took the one year of being ill into their preferences.
<b>E</b>		<b>Moral considerations</b>		
		<b>Personal standards and values were taken into account, as well as the participant's view on solidarity and what they idea of normal health</b>		
1			Egoistic versus altruistic preferences	Participants noted that their willingness to pay varied between the patient groups (themselves, family, and unknown people). They mentioned (struggling with) feeling selfish while sticking to their preference.
2			Solidarity towards other individuals	Participants made a trade-off when determining their willingness to pay if with the hope/faith in humanity that other people would also be willing to help them if they would become ill.
3			Normal and acceptable health	Participants had different notions about what level of health they found acceptable for themselves and the other patients. They also had different notions about the extent to which deviations from this norm were considered acceptable for themselves and the other patients



F	Influencing Factors	All kinds of factors influenced the WTP of the participants, like the ability to pay, opportunity costs, conceptions about the healthcare system.	
1		Ability to pay	Participants considered their financial situation. They considered if they were able to pay a certain amount of money every month. Participants also considered the amount of money they have saved on the bank or investments that are made.
2		Opportunity costs	The participants considered spending less money on other things for one year to improve their health. The participants mentioned that, given the certainty of recovery after 1 year, they would be prepared to spend money on receiving treatment instead of spending it on other things.
3		Value of health	Participants stated that money should not play a role in improving health. When an effective treatment is available, everybody should have the same chance at receiving it. The participants also expressed their opinion about the value of life, in which they shared the idea that life should be priceless.
4		Current health insurance system in the Netherlands	The participants mentioned their thoughts about the health insurance system in the Netherlands. All adult members of the public are obligated to pay their health insurance premium to the insurers every month. The participants mentioned that they believed that health insurers earned enough money from which they could take care of their insured's. They should take their responsibility to help society.

#### 4.1.1 Theme 1: Understanding and performing the CV-task

The first theme that was identified in the thematic framework is related to the reading, understanding and performing of the CV-tasks by the participants. The participants shared their thought while they were performing the CV-tasks and were also asked in the in-depth questions how they had experienced making the CV-tasks. It was mentioned that the participants had some difficulties with expressing the value of health in monetary terms.

*"It's hard to name an amount anyway when it comes to health. About how you can live and in what way you can live, that is hard to think about anyway. So, I do find it hard to put an amount on that, what it would be worth."*

*(Participant 11)*

Furthermore, the participants found it difficult to determine their willingness to pay. They mentioned that they never had to think about the subject before. They found it challenging to think about what they are willing to pay for people they do know and people they do not know, and if it would make any difference.

*"So, I am going to think about how much money I am are willing to pay for yourself and [for] other people. You need to determine your own boundaries and divide the costs of treatment amongst each other. That is a little bit hard." (Participant 13)*

A few participants expressed the thought, while performing the CV-tasks, that the tasks all looked the same, but that they figured out what was changing between the CV-tasks. These statements can be an indicator for automatic responding and could also influence the actual understanding of the CV-tasks.

*"Huh, I have already read this in the previous question." (Participant 5)*

*"I notice what is going on in the questions." (Participant 10)*

*"I understand what you are doing here." (Participant 11)*

This theme described the influence of the ability of the participants to understand the contingent valuation tasks, showing that they were having some difficulties with the subject. The participants mentioned that they never had to think about the subject of valuation of quality-of-life gains before. Therefore, they found it sometimes hard to determine their willingness to pay. Last, some participants expressed thought to could be an indicator for automatic responding, because they noticed that the disease severity and perspective were the only factors that changed between the scenarios. It should be noted that the expressed thought of having difficulties with making the CV-tasks could have influenced the willingness to pay of the participants.

#### 4.1.2. Theme 2: Characteristics of the patients in the CV-tasks

The participants shared thoughts that were related to the different characteristics of the patients in the CV-tasks. When the social and socially inclusive perspectives were applied, the patient group was kept constant at a group size of 100 patients. After fulfilling the CV-tasks, the participants were asked if their preference would be different, if the CV-tasks would contain a patient group of 1000 patients instead of 100. It was mentioned that the number of patients would influence their willingness to pay. Most of the participants would be willing to pay a higher amount per month if the patient group would include more patients, because the help would contribute to a bigger pain relief for the entire society.

*"Yes, that would make a difference, because the group is larger. Look, we are with 18 million people in the Netherlands. When it would consist half of the population, I believe that we should pay more for a bigger group. How more people suffering from the disease, how much more willingness to pay there should be. So, that would be from influence on my preferences." (Participant 1)*

*"So, when you can help more people, you are contributing to pain relief in the society and better health. You are able to help more people." (Participant 8)*

Besides the size of the patient group, the participants were also asked about the influence of the age of the patients on their willingness to pay. In the follow-up questions, the participants were asked if the age of the patient group had influenced their willingness to pay. Moreover, if so, what would their willingness to pay be if the 100 patients were not at the same age as the participants but 50 years older or younger (depending on the participant's age). In general, the participants had a higher preference for treating younger patients over older patients, because with helping younger patients there was more health to gain. In general, it was assumed that the younger people had more life-years in front of them, which lead to a higher willingness to pay than for patients with fewer life years left.

*"Because they have a longer life in front of them. [...] So, in the relation to being young, you can assume that younger people, on average, life longer, so there is more health gain." (Participant 5)*

*"Because with younger people with the same disease you will have a bigger health gain with younger people. When you are 95 years old and you are being saved from your disease, maybe a year later you will die the next year of another illness. And with someone of 20 years old, you will gain 65 years. So, I have a slight preference for younger people. I think that if we really need to make that decision, younger people will go first." (Participant 7)*

In addition, the participants thought about the consequences for the future when you would become ill at a young age. The experience of having a disease at a young ago, was believed to be more serious and worse than when older people would become sick. The younger participants expressed the feeling of finding it very shocking to think about someone having their age, being ill and having a quality-of-life of 20 points. The participants mentioned that they found it terrible to see young people getting very ill of the COVID-19 virus, leading to a higher willingness to pay for younger patients.

*"The younger you get sick, you [will] keep that [for the rest of] your life. I think that is more serious than when older people get sick. That will play a role, I think. I would be more concerned about that than [for] older people." (Participant 4)*

*"Yes, I am quite willing to pay extra, especially since they are younger people of 21-years. If you then have a quality of life of 20 [points], you are almost on your deathbed. Personally, I would be very shocked by that. Of course, you see the same thing now with corona in young people, who are hit hard. That is terrible. I am willing to pay extra for that." (Participant 3)*

There was one outlier. This participant had considered the age of the patients, but she stated that she would be prepared to pay more for older people. Her choice was based on the idea that older people

have a lower resistance, leading to a higher willingness to pay to help getting their quality-of-life increased. In addition, she believed that people her age (22 years) would recover more quickly with less consequences for the future.

*“Yes, I would be willing to pay more for older people. At first you would think not, because they are old and don’t have a lot of time left. But on the other side, those people are very vulnerable with a lower resistance, so I would pay extra to make sure their quality of life would increase. People my age would recover easily and would have less consequences. I mean, if you are 22 years old and become very sick, you can better cope with that than when you are 75 and having a worse health”.*  
(Participant 2)

The third category that belongs to this theme is the influence of the patient group being family, friends, or acquaintances of the participants. It was mentioned that when the patient group could contain persons they would know, the emotional part would influence their willingness to pay. This was supported by the idea that helping patients you know, meant that you would see that the treatment would make them feel better. In general, the participants had a higher willingness to pay for the patient group of 100 persons when their family or friends could belong to the group, than for the patient group of 100 persons who they certainly would not know.

*“I do give emotional value to it that it could be family or friends and so you see that you are helping them with it. That reduces the barrier to paying something for it.”* (Participant 8)

*“I’m willing to do something for that but of course not as much as for my own quality of life. It feels selfish to say such a thing, but they are not in my family circle, no friends or acquaintances. So, I don’t know those people at all, I don’t know who would get that treatment.”* (Participant 4)

On the contrary, a few participants did not make any difference in their willingness to pay between the 100 patients they could know and the 100 patients they would not know. They had the belief and idea that it is essential to help someone if you have the ability, and not knowing the patients should not play a role.

*“No there is no difference from the previous question when it was about strangers. I think if you can help someone with it, you should help. I have faith in humanity that it would happen the other way around too.”* (Participant 6)

The last category is related to the expressed difficulties that the participants did not know the patients. They found it hard not having more information about what kind of people they needed to make the choice for. Besides the age of the patient, no other information regarding their characteristics and traits were provided. Stating their preferences would be more straightforward if they would have more background information about the patient group.

*"I think this is quite a difficult question. Because I think it is important to know what kind of disease it is. Is it something that you think, how awful [that] they have to go through this? Would I like to help them? Or is it something that causes people to have a high risk of disease because of a [their] lifestyle? Then I am like, yes, sorry, I am very sorry, but you could have paid more attention to it yourself. That is the background I miss." (Participant 8)*

*"I do not know what kind of people they are, are the hardworking people? How come they are sick? Is it because of smoking or yes, how do they live? Yes, it is sad that they get sick, but I will stick to that." (Participant 6)*

Furthermore, the payment for a group of patients they did not know was compared to monthly payment for charity. The participants believed that larger charities would receive more donations. Which led to the idea that a larger patient group with the same disease would get more attention from the general public, leading to more donations from the society. As a consequence, the willingness to pay from one participant would decrease if they needed to determine their willingness to pay for a larger patient group.

*"When I think of a charity, the more popular the charity is, the less I am willing to pay for it. Because they already receive so much money from so many different people. So, if this was about 1.000 people, there are more people involved, so also more willing to contribute, then I would be less willing to pay for it because there is already more money coming in." (Participant 12)*

*"So, you're actually going to donate to a cause that helps people that you don't know where it's going to end up. Then you're going to make a trade-off, [of] what you normally give to a charity. What do you think is a realistic amount you want to pay monthly to help? For example, I give 5, - euros per month to the WWF to help animals. I could do much more, but in the end, I don't know where the amount goes." (Participant 11)*

This second theme showed that the participants focused on the characteristics of the patient group in need of treatment, when determining their willingness to pay for quality-of-life gains. They considered the influence of the size of the patient group as well as the age of the patients. Some participants had

a higher willingness to pay for younger patients, because they had more years to live. Where other were willing to pay more for helping older patients. Overall, participants thought about the consequence of one year living with a lower quality of life for the future, which was believed to have a more negative impact at a younger age. Furthermore, when their family or friends could belong to the patient group, the participants had a higher willingness to pay than for the patient group that only included strangers. This shows the influence of the applied perspective on the participant's willingness to pay. Finally, the participants found it hard to determine their willingness to pay without having a lot of information about the characteristics of the traits of the patients.

#### 4.1.3. Theme 3: Characteristics of the disease severity in the CV-tasks

The CV-tasks provided the participants with the quality-of-life score of the patients on a scale from 0 (dead) to 100 (total health). No further information was mentioned about the disease or feelings of the patients. The participants tried to image the consequences of the quality-of-life points for the patients' health. They had the imagined the quality-of-life score of 20 points as being close to death and having a lot of difficulties in their daily life. The increase to 40 points, with treatment, was believed to be much better to live with. The quality-of-life score of 70 points was evaluated as acceptable to live with for one year.

*"I am thinking about a quality of life of 20 points [as] being very close to death/ vegetative state. When you can increase your quality of life to 40 points, you will feel less than normal, but it will be better to live with. You can survive that for one year. A quality of life of 20 points looks like you cannot do anything." (Participant 3)*

*"Personally, I think that when your quality of life decreases to 70, that is kind of okay, especially when it is only for one year. It is not structural for a life time; you can live well. I am not sure if I would be willing to pay a lot of money to make that a little bit better." (Participant 4)*

However, not all the participants had the same imagination of the quality-of-life points. Most participants imagined a quality of life of 70 points as still good and acceptable to live with for one year. In contrary, one participant also imagined a quality-of-life of 70 points as pretty serious, leading to a higher willingness to pay for the increase from 70 to 90 points than the other participants were willing to pay for the same increase. Nevertheless, the possible quality-of-life gain from 20 to 40 points was seen as very important too.

*"I do not know what everybody sees as a quality of life of 70 points. I think that is already pretty serious. At 90 points, I think you have a slight defect or a chronic disease that needs to be treated where you don't deteriorate. And going backwards 10%*

*is okay. I think 90 is very much better than 70. But the previous one was 20 to 40. That will go from enormously lousy to just lousy. I think that's important too.” (Participant 7)*

Two participants had the experience of close ones (parents and grandparents) becoming ill, leading them to value an increase in quality-of-life points for older patients just as crucial as for younger patients. In their opinion, seeing older people having a low quality-of-life, would be worth receiving treatment the same as for younger people. Their willingness to pay would not be influenced by the age of the patients in need of treatment.

*“We are currently experiencing’s this with my mother and how this is for people of 90 years [old]. In my opinion, that is just as important as for younger people. Although you know they will live shorter, I will not let that influence my willingness to pay for the health gains. That should not be from influence. (Participant 9)*

*“[Not having a preference for younger people] Is because I personally experience this with my grandmother. She was in so much pain that her quality of life was so low, you could barely call that human to keep people alive in that [health] state. If there would be a possibility to increase that with treatment, it will totally be worth it. I do not care whether they are 24 of 74 years old. Those older people also deserve to enjoy their last years of life in a peaceful way.” (Participant 11)*

This theme illustrated the thought and ideas of the participant about the disease severity as a quality-of-life score in the CV-tasks. The participants tried to image what I must be like to live with the given quality-of-life scores. Their thought and ideas about the scores differed. The different interpretations resulted in differences in willingness to pay. Were some participants mentioned to believe a score of 70 points is not really good and should be worth receiving treatment, other believed that 70 points was totally fine to live with. Furthermore, they used their own experience with illness and tried to imagine what it must be like living with the given quality-of-life scores. The two participants that experienced their family members being ill, had a higher willingness to pay to increase the quality of life of the patients.

#### 4.1.4: Theme 4: Characteristics about the treatment in the CV-tasks

The fourth theme is associated with characteristics regarding the treatment in the CV-tasks. Even though the quality-of-life gain was kept constant in all six scenarios' (increase of 20 points), most participants attached more value to treat the patient group for which the quality-of-life points could increase from 20 to 40 points than increase from 70 to 90 points. A quality-of-life score of 20 points was interpreted as really bad, close to 0 (death), where the quality of life of 70 was seen as overall

good to live with for one year. This interpretation caused the participants to have a higher willingness to pay for the increase in a quality-of-life from 20 points to 40. They attached more value to treat patients with lower quality-of-life points.

*"Yes, that is because the difference in terms of points is really big. If a quality of life of 0 is dead, then 20 is really low and very sick. Yes 70 points is just fine, fine score for a year. One year you're a little lousier, but for one year that's fine. It's never fun, of course, but 70 is fine." (Participant 5)*

*"I think it is more important that the quality of life rises from 20 to 40, which is almost 50, I think that is more important than from 70 to 90." (Participant 1)*

Only two participants stated that the treatment for the increase from 20 to 40 points was not different from the increase from 70 to 90 points.

*"I see no difference between 20-40 or 70-90." (Participant 9)*

*No, my willingness to pay remains the same, [I] find it all the same." (Participant 6)*

In addition, participants had different perceptions about when treatment was needed. They believed that in some cases there was no need for getting the treatment, because this would not make a huge difference in the quality-of-life. Participants were not willing to pay a certain amount for receiving the treatment themselves or the patient group, because they did not attach enough value to the increase in quality-of-life of 20 points.

*"You are now at 20 points and you will go to 40 points, that is not a huge difference. At [a score of] 40 you still won't be worth a lot." (Participant 4)*

*"So now with treatment, I can increase in quality of life [points] from 70 to 90. Yes, I think that is not a big difference. For that year of illness, I don't really see the added value of that. I'm not willing to pay much for this." (Participant 4)*

Another factor that influenced the participant's willingness to pay was that the disease in the CV-tasks would disappear after one year. Thus, it was guaranteed that the quality-of-life score would return to



100 points after one year, whether the patients did receive the treatment or not. The guarantee of returning to a quality-of-life score of 100 points after one year led to a higher willingness to pay for receiving treatment for that one year with a decrease in quality-of-life points.

*"You can be sure that after that year it's over. I'm willing to put a good portion of my money into that, though." (Participant 7)*

*"If it's for a year sure, not lifetime." (Participant 13)*

This fourth theme provided insight into the thoughts and beliefs of the participants about the treatment in the CV-tasks. Most of the participants attached more value to treatment for the quality-of-life gain from 20 to 40 points than from 70 to 90 points. They mentioned that they had a higher willingness to pay to receive treatment when the quality-of-life score was 20 points. However, there were a few participants who mentioned that the increase from 20 to 40 points was worth as much as the increase from 70 to 90 points. They tried to image what it must be like to live in the quality-of-life score as mentioned in the CV-tasks. Also, some participants did not attach any value to the increase of 20 points. They believed that there was no need for treatment, because the increase was not much. The end point after treatment was mentioned by the participants. The willingness to pay was higher, because the participants had the certainty that they and the other patients would have a quality-of-life score of 100 points after one year.

#### 4.1.5. Theme 5: Moral considerations

The fifth theme concerns the participants' moral considerations and their ideas and perceptions about solidarity in the society. When stating their preferences, the participants noted that their willingness to pay varied between the different patient groups. The participants realized that their willingness to pay for receiving treatment themselves was much higher than for providing treatment to others. In general, the participants had a preference for paying for the patients if they could be their family and friends than for strangers in need of treatment. These differences made the participants feel selfish about their preferences. They valued their quality of life and that of their family above the quality of life of unknown persons, making them believe that choice is selfish. They were aware of egoistic preferences versus altruistic preferences.

"I find my own quality of life more important than that of other people. That may sound selfish, but I think that I want to let more [when paying a lot of money per month for treatment] for myself than for another person". (Participant 4)

"Well, when it concerns myself or family, I am willing to pay a higher amount. Maybe very selfish". (Participant 12)

These feelings also come forward when the participants were willing to pay a certain amount, but the maximum willingness to pay for others was based on the fact that the payment per month should not harm their own life. The participants wanted to contribute to help other receiving treatment, but this payment should not have consequences for their financial life.

"I am willing to pay something, because it is very bad and I hope that if it was me that other would also want to help me. But, yeah, it should be at the expense of my own income. But while I am filling in this amount, I do feel selfish. (Participant 10)

The other category that came forward is the solidarity of the participants towards other people. They made a trade-off in their decision, that if they were the ones other people need to choose, those people would do the same for them. So, the participants want to treat others how they want to be treated themselves.

*"I believe that you should help someone when you can. I have faith in humanity that they would make the same decision the other way around."* (Participant 5)

*"I am willing to pay something, because I think that it is really bad and hope that if this was me, other people would also want to help me."* (Participant 7)

Participants also determined their willingness to pay on a quality-of-life score they found acceptable and believed should be the minimum for everybody. They were willing to pay for receiving treatment, because they mentioned that the quality-of-life score should at least be at 80 points.

*"I think [getting treatment] is important, because a quality-of-life score of 20 points is very low. You want to achieve a score of 100. I believe that everybody should have at least a quality-of-life score of 80 points."* (Participant 13)

This theme indicated that the participants were aware of the choices, in which they would be prepared to pay more for getting treatment themselves than compared to others. Participants sometimes found their willingness to pay a selfish choice but stick to their choice. They also considered the solidarity principle, their willingness to pay was influenced by the idea and belief that other people would have

done the same for them as well. In addition, the participants had an idea about the minimum quality-of-life score they believed everybody should be at.

#### 4.1.6: Theme 6: Influencing factors

The sixth theme that was identified is related to influencing factors. Participants took their financial situation into account when determining their willingness to pay. They considered if they were able to pay a certain amount of money every month. Participants made their decision based on the amount that would not significantly impact their daily lives.

*"If I had to pay this amount per month, I wouldn't have to think about it. Then the choice would be to do it right away!" (Participant 6)*

Participants also considered the amount of money they have been saving on the bank or investments that they have made. They used this information to determine their ability to pay.

*"Yes, my income, what do I have in savings or investments. So, I thought about that." (Participant 5)*

Additionally, the participants thought about the amount of money they could miss every month, which allows them to be still able to pay their fixed expenses every month. They did imagine that having a quality-of-life score of 20 points would mean they cannot do anything, which meant they would not be able to spend any money.

*"I am now thinking. What I can save in a month and still live luxuriously, what I can then pay for doubling my quality of life. As long as I can pay my fixed expenses and live fine. You can't spend your money because your quality of life is 20 so you can't do anything." (Participant 1)*

The other financial factor that influenced the participant's willingness to pay are the opportunity costs. There was a trade-off between the amount of money they would be willing to pay extra per month for receiving treatment and the other things that they could spend that amount on.

*"I think in addition, your income. Well for me, I can save it. I can spend it on other things but I'm willing to pay for this on health. I think if my income was lower, this would be more difficult." (Participant 10)*

When stating their preferences participants were aware of the fact that they were talking about the importance of health and their ideas about the value of life. Ethical considerations regarding the vulnerability of life were mentioned. The participants believed that life should be priceless, which led to a trade-off between their ability to pay and their idea that treatment should be available, despite all costs.

*“Yes, my life is worth a lot more, but the question is whether I can free up the money. Life is priceless. Especially your health and being able to function. (Participant 6)*

The last thoughts and ideas that were mentioned by the participant were related to the current health insurance system in the Netherlands. They mentioned that their willingness to pay for other persons is related to the fact that all adult citizens pay a monthly health insurance premium. The participants believed that the money of the insurance is also used to help other patients. Therefore, if we would all contribute, a small amount of money per month could already help. Helping a group of patients in need of care should be something the entire population together as a collective would need to do, just like we all pay your health insurance premium.

*“Okay, I do want to contribute to it, that's why you all have insurance, to cover all the costs. But, of course, it's also spread over a lot of insured people. Just because you have something doesn't mean that it goes off your deductible and the other person doesn't have to pay anything. [...] Anyhow, I'm not prepared to pay as much as I was for the previous questions, for myself.” (Participant 8)*

*“I'm still left with the thought of raising it in collective, just as with your premium.” (Participant 9)*

There was one participant who had a willingness to pay of EUR 0, - per month for the patient group of 100 unknown persons. She had the opinion that helping the patient group of 100 persons should be covered by the health insurers. Whenever a treatment could improve a person's quality of life, this should be taken care off by the Dutch government. She found her own health insurance premium per month high, compared to the healthcare she used. The health insurers should use their profits to help others receiving treatment when in need.

*“Uh well actually I think these costs do need to be reimbursed from basic health insurance. [..]. If life can be improved by a receiving a certain treatment, I think that from the government this can be reimbursed. I actually pay quite a lot [of premium] as a young person. I think the health insurers really have a lot of money left over from which they could pay for something like this. The insurers have to pay for this from the basic health insurance to improve people's quality of life. That's kind of a societal thing.” (Participant 4)*

This last theme that was indicated related to the influencing factors. The participants mentioned that they considered their own financial situation when determining their willingness to pay. They made the trade-off whether to spend their money on healthcare and receiving treatment, or spending this on something else. Since the decrease in the quality-of-life points was for one year, the participants were prepared to pay more. The participants mentioned their thoughts about the health insurance system in the Netherlands. All adult members of the public are obligated to pay their health insurance premium to the insurers every month. The participants mentioned that they believed that health insurers earned enough money from which they could take care of their insured's. They should take their responsibility to help society.

## 5. Discussion

The objectives of this study were to gain insight into the reasoning behind the differences in willingness to pay for quality-of-life gains when stated from the personal, social, and socially inclusive personal perspectives and to describe how thoughts and beliefs that are not directly related to the health gains of those in need of treatment influence the willingness to pay of members of the public.

### 5.1. Main findings

This study used the Think Aloud method to gain insight into the participant's thoughts and ideas while they were performing contingent valuation tasks. The results of the framework analysis led to the identification of nineteen categories, clustered into six main themes. The first theme illustrated that participants experienced some difficulties with performing, understanding and reading the CV-tasks. The participants spoke aloud that they found it difficult to express health in monetary terms and therefore determining their willingness to pay for the quality-of-life gains. All fourteen participants did not have any experience with willingness to pay studies, which made it sometimes a little difficult for them to think about this subject. These results show that the participants willingness to pay can be influenced by the understanding of the CV-tasks.

The second theme is related to the characteristics of the patients in the CV-tasks. The results indicate that the participants had different thoughts and ideas about the influence of the size of the patient group on their willingness to pay. Overall, the participants had a higher willingness to pay for a larger patient group, because participants believed that providing treatment to a larger group of patients would contribute to more pain relief and better societal health. Besides the size of the patient group, the participants also mentioned the age of the patients. Their ideas resulted in a higher willingness to pay to help younger patients, because they just started with building a future. The consequences of getting ill at a young age for the rest of your life were also mentioned by the participant while determining their willingness to pay. Interestingly, this theme showed that the willingness to pay differed between the applied perspectives. The participants mentioned to have a higher willingness to pay for 100 patients that could include family, friends, or acquaintances (socially inclusive personal perspective) than for the patient group of 100 patients that included 100 patients the participants did not know (social perspective). This preference was supported by the emotional aspect that was expressed while making choices for the patient group where family or friends could belong to. Lastly, the payment per month to help 100 strangers getting treatment was compared to

donations to charity. The willingness to pay for quality-of-life gains was compared to the amount the participants would be prepared to donate to charity.

The third theme that was identified relates to the disease severity as the quality-of-life gains in the CV-tasks. When determining their willingness to pay, the participants took their experience with illness for themselves or close ones into account. Knowing what it is like to suffer from a disease themselves or their family resulted in a higher willingness to pay for the quality-of-life gains. Furthermore, all participants tried to imagine what living in the given quality-of-life scores would look like. This demonstrated that member of the public has different interpretations of the quality-of-life scores, which influenced their preferences. Some participants imagined that a quality-of-life score of 70 points would be acceptable to live with, while others found this already severe. These different interpretations resulted in differences in the willingness to pay. There was a higher willingness to pay for getting treatment for those with a lower quality-of-life score.

The fourth theme includes reasons related to the characteristics of the treatment in the CV-tasks. Participants attached a higher value to treatment that could increase the quality-of-life score from 20 to 40 points, than treatment for an increase from 70 to 90 points. A score of 20 was seen as being close to death, where a score of 70 was seen close to feeling fine. This resulted in the opinion that those with a score of 70 points were not really in need of treatment compared to the patients with 20 points. In the CV-tasks, it was stated that whether or not you, or the patient group, would receive treatment, the quality-of-life score would return to 100 points after one year. This certainty was taken into account in the participants' preferences. They reviewed a quality-of-life score of 70 points as acceptable for one year, but not acceptable for a lifetime. They expressed the thoughts of being prepared to pay more for the treatment, if they would only need to pay this for one year.

The fifth theme that was identified is about moral considerations that were mentioned by the participants. Participants were aware of their choices, stating that they felt selfish when they realized that their willingness to pay was higher for themselves and their families compared to strangers in need of treatment. In this situation, the participants were willing to pay a small amount, however they expressed that this should not have a large impact on their daily lives. The exact amount was based on the thoughts on what amount per month would not make any difference for their own lives. The feeling of helping a little bit, with a small amount per month, was also based on the idea of solidarity. The participants were willing to pay something because they hoped that others would do the same if they were in need of treatment themselves. In addition, the participants had determined the quality-of-life score they found acceptable and should be achieved by everyone. They mentioned that the willingness to pay related to the deviation of the quality-of-life score with disease from their acceptable score.

The sixth and last theme concerns the influencing factors mentioned by the participants. The participants expressed the thought of how the ability to pay influenced the preferences. They mentioned that the willingness to pay for themselves needing treatment was higher than for others needing treatment. This result shows that the willingness to pay of the participants would be different between the applied perspectives. The participants also had a trade-off between spending their money on receiving treatment or spending their money on something else, also known as opportunity costs. These financial considerations were related to how they value health. They believed that receiving treatment should not be related to your financial situation. Participants had the idea that in principle, life is priceless. Furthermore, the participants thought about the Dutch healthcare system when determining their willingness to pay. The fact that all adult citizens pay their health insurance premium every month resulted in the idea that health insurers should take responsibility for providing treatment to those who are not able to pay themselves.

#### 5.1.1. The perspectives in the CV-tasks

In the CV-tasks where the social or socially inclusive personal perspective was applied, the participants needed to imagine a group of 100 patients getting ill. The size of 100 patients was made on the idea that participants would be able to imagine a group of 100 persons. If the patient group would contain more persons, this could lead to the inability of the participants to imagine and estimate this amount of people. The participants preferred providing treatment to a large patient group, to contribute to more pain relief and a better societal health. It should be noted that in practice, the size of the patient group can be smaller or larger. It is important that these results needed to be interpreted within the framework of this study. Furthermore, the participants were only asked if they believed their willingness to pay would change if the size of the patient group would increase. They did not really make the CV-tasks for the larger patient group. There are indicators for that the size of the patient group would influence the willingness to pay, but this is not actually measured. In addition, it should be kept in mind Dutch citizens barely pay healthcare costs out of their own pocket, because most costs are covered by their health insurance (Van Gils et al., 2013). As a consequence, participants can choose a willingness to pay that is not realistic.

The results of this study indicate that there are a lot of different considerations that the participants took into account when determining their willingness to pay. It indicates that the differences in willingness to pay were related to the applied perspective. The participants expressed the thoughts that they were willing to pay the highest amount for getting treatment themselves, which made them feel selfish. The personal perspective showed that participants were thinking about the



consequences of being ill for one year on their personal life. They considered their ability to pay for receiving the treatment. The results indicate that when the personal perspective is applied, the participants do not take the preferences of other into consideration. This would mean that the individual willingness to pay is not the same as the societal willingness to pay. When the social perspective was applied, most participants compared payment for a stranger to donations to charity. They would pay to help others without seeing the benefits of those patients getting treatment. Most participants were willing to pay something for the patient's group in need of treatment but much lower than they were for themselves or for their closed ones. Despite the argument of paying for people they did not know, almost all participants were willing to pay something to help people in need of treatment. They felt bad for those patients having a decrease in their quality of life, but not so much that paying that amount per month would have consequences for their personal life. The socially inclusive personal perspective asked the participants about their willingness to pay if family, friends, or acquaintances could become ill. When this perspective was applied, most participants mentioned the emotional aspect being from influence. When their family or friends could belong to the patient group, the willingness to pay was higher than for strangers. It was often mentioned that when their close ones would receive treatment, they would be able to see them feel better and have a better quality-of-life.

## 5.2. Strengths and limitations of the study

The main strength of this study is the use of three different perspectives that are often used in willingness to pay studies. Applying the different perspectives, while all the other factors in the CV-tasks were kept constant, made it possible to compare and detect the different considerations that were mentioned by the participants. The differences in willingness to pay were supported by differences in thought and beliefs that are associated with the different perspectives. Another strength lies in the choice of limiting the duration of the quality-of-life decrease due to illness and gain by treatment to one year, which avoids other considerations. Furthermore, the use of purposive sampling is a strength of this study. The advantage of purposive sampling is that information-rich individuals can be selected for participation, based on which broad insight can be obtained into the various considerations behind their preferences, leading to more in-depth understanding (Patton., 2015). Nevertheless, the sample in this study contains fourteen participants. The definite choice for the sample size of fourteen participants was based on the fact that after the fourteen interviews, no new information came forward. The participants kept mentioning the same thoughts while performing the CV-tasks. The conclusion was made that data saturation was reached where no new data or insights were obtained. Still, the small sample size leads to limitations for the generalizability and validity of

the results. The sample size of qualitative research usually is small due to diminishing returns (Spencer et al., 2003). The Think aloud study of Karimi et al. (2017), for example, had a sample size of 21 participants. Further, the sample used for this qualitative study was relatively highly educated. In the Netherlands, higher educated persons tend to have a higher income (CBS, 2018). The absence of more low-educated participants could have influenced the results, resulting in a higher willingness to pay. Furthermore, the sample is limited to individuals living in Rotterdam, with an overall high education level. The small size of the sample of fourteen participants should be noted as a limitation of this study. As a consequence, the generalizability of the results is limited. Therefore, the choice was made not to analyze the obtained quantitative data from the CV-tasks. In order to draw any conclusion from a statistical analysis, a sample with more than fourteen respondents is required, as well as randomized sampling.

While performing the interviews, an interview guide was used to make sure that all the interviews had the same structure. The questionnaire was created online to be sent to the participants by sending the link. These kinds of studies with CV-tasks, are mostly done online (Bobinac et al., 2010; Blomquist et al., 2011; Reckers-Droog., 2021). When using structured interviews or questionnaires, there can be a risk for the appearance of order bias. According to Hanemann (1994), order bias can be prevented by randomizing the order of items across the interviews. The choice was made to change the order of the applied perspectives in the questionnaire after every three participants to limit the change of order bias. The order of the applied perspectives changed, but all the participants were first asking about their preference for the quality-of-life gain from 20 to 40 points and second the quality-of-life gain from 70 to 90 points. It should be noted that this procedure could have changed the results, because there is a possibility that the participants preferences and thoughts were influenced by their earlier choices.

Although the Think Aloud method is a valid method to understand the differences between individuals' choices while performing contingent valuation tasks, there is a limitation to the use of this method. The participants are free to express their thoughts. However, it will never be known whether they will tell every thought and the entire truth. The warming-up exercise was added to the questionnaire to let the participants get a little bit familiar with speaking out loud what they were thinking off while answering the questions. After the warming-up exercise, the participants needed to complete six CV-tasks in total. This number of CV-tasks could have caused automaticity by the participants. Ericsson and Simon (1980) stated that repeated practice of a task might promote automaticity before thought processes could be reported. During think aloud studies, it is an essential task for the researcher to be aware of their influence. The researcher always has his feelings and belief,

which could cause bias in the results. The researcher has the task to be aware of those feelings and beliefs during the research.

Before the official interview was executed, the questionnaire and understanding of the CV-tasks were tested on a pilot study of two persons. Applying a pilot study was done to improve the validity of the study. The pilot study was used to test the created questionnaire to see if everything was working online. Both participants answered the question about understanding the explanation of the quality-of-life principle, and the performed CV-tasks were clear and understandable. The reliability of the study is concerned with the consistency of the results (Mortelmans, 2007). In qualitative research, it often happens that the research design evolves while the researcher is collecting data. To guarantee reliability, it is essential to document these decisions carefully. Finally, the generalizability of the results for policy makers in the Netherlands is limited. This is because the study only used quality-of-life increases and decrease, and not QALY loss or remaining QALY's to define disease severity.

Furthermore, the sensitivity of the results is a common limitation in most elicitation-preference studies (Reckers-Droog et al., 2019). How the questions were framed influenced the results. This study only looked at quality-of-life gains, but not to life expectancy gains or loss, and only the disease severity of the patients varied between the CV-tasks. The life expectancy gain or loss was not relevant in the CV-tasks, since it was stated that the decrease in quality-of-life points would only be for one year. This may have influenced the preferences regarding this characteristic. When also changing other characteristics between the CV-tasks, preferences may differ.

### 5.3. Recommendations for further research & policy

The Netherlands explicitly incorporates equity considerations, related to the disease severity, into the decision-making framework. The influence of the disease severity on people's willingness to pay has been studied and recognized for some time (Svensson et al., 2015; Blomquist et al., 2011; Reckers-Droog et al., 2019). In the Netherlands, this is operationalized by evaluating the ICER of a new health technology against a flexible monetary threshold. The equity-adjusted threshold uses the results of willingness to pay studies as an empirical base. These studies can ask member of the public to adopt a certain perspective, from which they need to determine their willingness to pay. Dolan et al. (2003) mentioned that the relevance of the applied perspective depends on the policy issue. Currently, the personal perspective is most often used in this kind of research. But, Bobinac et al. (2010) critically reviewed the relevance of applying the personal perspective in willingness to pay studies. They

mention the critical role of equity considerations in societal decisions, while such preferences are not reflected in individuals' preferences for their health gains.

In this study, three different perspectives of Dolan et al. (2003) were applied that are commonly used in preference eliciting studies. However, Tsuchiya & Watson (2017) critically re-assessed the provided framework of perspectives from Dolan et al. (2003). They proposed a new framework with five different perspectives, because they state there are more preferences between personal and social preferences. According to Tsuchiya & Watson (2017), the first preference that should be included is where a respondent is asked about her WTP to provide treatment for a disease she or her family will not get, where she is not the user but the payer. According to Dolan et al. (2003), this could be defined as the social perspective, but this preference represents non-use value. The second preference is when a respondent is asked to assess the patient's WTP to provide treatment for a disease that the patients suffer from. In this case, the respondent is not the user nor the payer. Dolan et al. (2003) define this as the social preference, but this is about the respondent's estimate of other people's personal preferences. These can be called proxy values. The main issue addressed by Tsuchiya & Watson (2017) is that the perspectives from Dolan et al. (2003) only define the differences between the personal and social preferences as the respondent being a user. Nevertheless, participants can be not only be a user but also a payer and an assessor. Being an assessor, the respondent is asked to imagine themselves being a policymaker, needing to make decisions on behalf of the population. These social value judgments ask for a detached impartial perspective, separating the assessor from a payer or user. This is different from the socially inclusive perspective from Dolan et al. (2003), which asks the respondent to decide to combine their self-interest with that of society, where the respondent is a user herself. The choice was made only to apply three perspectives as Dolan et al. (2003) provided because these perspectives are currently the most often used one in willingness to pay studies (Bobinac et al., 2010; 2021; 2013). If these additional perspectives are being used in WTP studies to inform policy makers, more research should be done into the influence of those perspectives on the WTP.

Policy makers should decide if they want to change the willingness to pay threshold, based on the applied perspective in the studies into the societal willingness to pay. They could do further research in a diverse sample, using the personal perspective. Here, the participants would then only need to think for themselves. In another study, they could separately measure disease severity by adding that explicitly to the research. Or, do they want to use the socially inclusive personal perspective, in which people need to account for disease severity or age, but leave other factors completely out. Gaining more insight into the thoughts and ideas of individuals when determining their WTP from different perspectives, can help policy makers to choose which perspective they want to

apply, since they will know which considerations are included in the results. Eventually, being more aware of the used perspective, leads to a better decision-making framework for healthcare priority setting, by an optimal allocation of resources. Based on this information, it would not necessarily to also explicitly adjusted the monetary threshold to the disease severity.

## 6. Conclusion

The results of this study suggests that there are different thoughts and beliefs that participants considered when determining their willingness to pay. The results indicate that members of the general public already take the disease severity into their considerations when determining their willingness to pay. If so, there would be no need to explicitly account for disease severity in the threshold. Nevertheless, there are more thoughts and ideas related to the characteristics of the patients in need of treatment, characteristics of the treatment, moral considerations of the participants and other influencing factors. Furthermore, the results indicate that the perspective applied in CV-tasks provokes the thoughts and beliefs of the members, which may result in differences in WTP for similar sized quality-of-life gains. It is recommended to conduct further research into the differences between the used perspectives in willingness to pay studies, to further improve the decision-making framework.

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# Appendix 1: Interview Guide

## 1. Welcome and introduction

- Saying welcome to the participant + introduction with aim of the research + consent
- Mention that the recording device will start + data used for the thesis

Aim of the research:

The budget for healthcare is limited. Treatments for different diseases usually bring about different changes in patients' health states. In order to make choices about which treatments to reimburse through basic health insurance, policymakers are informed, among other things, by the value that the population attaches to these changes in health status. The aim of this study is to gain insight into the value that people attach to different health states for themselves and for others.

Explain procedure:

- You will first be asked to complete a short questionnaire about yourself, your health care premium and how you experience your health;
- This is followed by an explanation of the "Quality of Life" attribute using graphs and pictograms and what an increase/decrease looks like.
- You then complete 6 choice tasks, each of which asks you how much you would be willing to pay for a particular treatment for a patient group.
- While making the choice tasks, you always speak your thoughts and considerations out loud. Later, you will be given an exercise in which you can practice this;
- Finally, you will be asked a number of more in-depth questions;
- The interview lasts 45-60 minutes.

## 2. Explanation of think-aloud procedure and practice question

As mentioned earlier, for this study we are interested in what you think while making a number of choice tasks. For this, we ask you to continuously speak your thoughts out loud.

By this, I mean that you say out loud everything that comes to your mind-from the moment you see the task in front of you until the moment you have made a choice.

Focus on the task at hand and imagine that you are alone in the room. You do not need to think about how to express your thoughts or explain your thoughts to me.

For the examination, it is important that you keep talking. Therefore, when you are quiet for a while, I will ask you to keep talking or to say out loud what you were just thinking. I may also ask you to repeat what you said.

Practice question:

*"Try to imagine the house you live in and think how many windows your house has. Tell me what you see and what you think about as you count the windows."*

#### **INTERVIEWER PROMPTS**

- *If the participant has not spoken for 20 seconds: "Please continue to speak your thoughts".*
- *If the participant says little or makes a choice in silence: "Would you please say out loud what you just thought?"*
- *If the participant does not speak clearly: "Could you please repeat what you just said?"*

### **3. Explanation of the CV-tasks**

You will now be given 6 choice tasks where you will be asked what you are willing to pay for different groups of patients. Please read the questions out loud. Again, remember to speak your thoughts and considerations aloud while completing the tasks.

#### **BREAKS**

- Give participant a break to finish one perspective and prepare for the next perspective, ask if participant would like something to drink
- Ask if the participant has thought about anything else but has not spoken out loud
- If necessary, ask questions to clarify the perspective.
- Remain silent after asking the question and give the participant time to answer it

**4. Repeat CV-tasks for self, others and self + others (remember the break between changes in perspective)**

**5. In depth questions**

- What was it like for you to make these tasks out loud?
- Is there anything you have not said aloud that you think is important to mention?
- Would your choice change if you had to make a choice for patients of (X +/- 50) years? Why would your choice change/not change?
- What choice would you make if the patient group was not 100 but 1000 patients? Can you explain how this influences your choice?
- Were there other factors that influenced your choices?

<b>INSTRUCTIONS</b>
<ul style="list-style-type: none"><li>▪ <i>Ask open questions. Always ask the participant to explain his/her answer. Can you tell me more about it? How did something play a role in making the choice? Was there a difference between the choice for yourself, others you know and strangers?</i></li><li>▪ <i>After asking the question, remain silent and give the participant time to answer.</i></li></ul>

**6. Closing**

- Do you have any questions?
- Thank the participant for his/her participation

## Appendix 2: Characteristics statistics

**Table 2.1.1.** Participant's sex

<b>Sex</b>	<b>Total number</b>	<b>Percentage</b>
<i>Male</i>	7	50%
<i>Female</i>	7	50%

**Table 2.1.2.** Participant's age

<b>Age in years</b>	<b>Total number</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<i>Age</i>	14	21	79	43,29	21,73

**Table 2.1.3.** Participant's education level

<b>Highest completed education level</b>	<b>Total number</b>	<b>Percent</b>	<b>Cumulative percent</b>
<i>Lower vocational</i>	1	7.1	7.1
<i>Middle vocational</i>	5	35.7	42.9
<i>Higher vocational</i>	5	35.7	78.6
<i>Academic education</i>	3	21.4	100.0

**Table 2.1.4.** Participant's having children

<b>Having children</b>	<b>Total number</b>	<b>Percent</b>	<b>Cumulative percent</b>
<i>Yes</i>	7	50.0	50.0
<i>No</i>	7	50.0	100.0

**Table 2.1.5.** Participant's household size

<b><i>Number of persons in household</i></b>	<b>Total number</b>	<b>Percent</b>	<b>Cumulative percent</b>
<i>One</i>	1	7.1	7.1
<i>Two</i>	10	78.6	78.6
<i>Three</i>	1	7.1	85.7
<i>Four</i>	2	14.3	100.0

**Table 2.1.6.** Participant's making end meets

<b><i>Making end meets</i></b>	<b>Total number</b>	<b>Percent</b>	<b>Cumulative percent</b>
<i>Very difficult</i>	0	0.0	0.0
<i>Little bit difficult</i>	2	14.3	14.3
<i>Relatively easily</i>	4	28.6	43.9
<i>Easily</i>	8	57.1	100.0

**Table 2.1.7.** Interview duration

	<b>Total number</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<i>Interview Time</i>	14	46	61	52	4,2