Social Science & Medicine 279 (2021) 113987

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Short communication

Willingness to pay for quality and length of life gains in end of life patients of different ages

Vivian Reckers-Droog [a,*], Job van Exel [a,b], Werner Brouwer [a,b]

[a] Erasmus University Rotterdam, Erasmus School of Health Policy & Management, Rotterdam, the Netherlands
[b] Erasmus University Rotterdam, Erasmus School of Economics, Rotterdam, the Netherlands

ARTICLE INFO

Keywords:
Willingness to pay
QALYs
Age
Severity
End of life
Priority setting

ABSTRACT

Health gains are increasingly weighted in economic evaluations of new health technologies to guide resource-allocation decisions in healthcare. In Norway and the Netherlands weights are, for example, based on the disease severity of patients. In England and Wales, a higher weight is attached to quality-adjusted life-years (QALYs) gained from life-extending end-of-life (EOL) treatments. Societal preferences for QALY gains in EOL patients are increasingly examined. Although the available evidence suggests that gains in health-related quality of life (QOL) may be preferred to gains in life expectancy (LE), little is known about the influence of EOL patients' age on these preferences. In this study, we examine the willingness to pay (WTP) for QOL and LE gains in EOL patients of different ages in a sample (n = 803) of the general public in the Netherlands. We found that WTP was relatively higher for QOL and LE gains in younger EOL patients. We further found indications suggesting that WTP may be relatively higher for QOL gains at the EOL, except for patients aged 20 for whom we observed a higher WTP for LE gains. Our results may inform discussions on attaching differential weights to QOL and LE gains in EOL patients of different ages with the objective to better align resource-allocation decisions with societal preferences.

1. Introduction

Health gains are increasingly weighted in economic evaluations of new health technologies to guide healthcare priority setting. Currently applied weights, for example in Norway and the Netherlands, are based on some definition of disease severity and typically increase with increasing levels of severity (HOD, 2017; ZIN, 2018). The National Institute for Health and Care Excellence (NICE) in England and Wales, attaches—under strict conditions—a higher weight to quality-adjusted life-year (QALY) gains in patients at the end of life (EOL) (NICE, 2009). One might consider that this 'EOL premium' is related to a specific (and arguably narrow) definition of disease severity. In this context, it is good to note that NICE has recently proposed to replace this premium by QALY modifiers that relate to disease severity more broadly in order to better align the decision-making framework with societal preferences (NICE, 2020).

Since NICE introduced the EOL premium in 2009 (NICE, 2009), societal preferences for health gains in EOL patients (as compared to non-EOL patients) are increasingly examined. Possibly because the premium solely applies to *life-extending* EOL treatments (NICE, 2009), most of these studies examined societal preferences solely in relation to gains in life expectancy (LE) (Shah et al., 2018). Only a few studies (also) examined these preferences in relation to gains in health-related quality of life (QOL). The results of studies that examined preferences for both types of health gains seem to suggest that societal preferences for QOL gains may be stronger than for LE gains in EOL patients, thus calling into question NICE's EOL premium (e.g. Hansen and Kjær, 2019; McHugh et al., 2020). The extent to which any EOL preferences are influenced by the age of the patients to date remains largely unexplored. Indeed, to our knowledge, this is limited to one study by Shah et al. (2014). When aiming to better align the decision-making framework with societal preferences, further insight into age-related preferences for health gains in EOL patients, therefore, remains important. Moreover, it may inform the broader weighting scheme proposed by NICE (NICE, 2020), as well as similar schemes considered, now or in the future, in countries other than England and Wales.

Based on empirical evidence that societal preferences for health gains in younger patients may be relatively strong (Bobinac et al., 2015; Reckers-Droog et al., 2019), it seems plausible to hypothesise that societal preferences for QOL and LE gains in younger EOL patients would

* Corresponding author.
E-mail address: reckers@eshpm.eur.nl (V. Reckers-Droog).

https://doi.org/10.1016/j.socscimed.2021.113987
Received in revised form 16 April 2021; Accepted 29 April 2021
Available online 4 May 2021

be stronger than for similar gains in older EOL patients. Based on empirical evidence that societal preferences for health gains and losses may be dependent on what is considered an acceptable health state at different ages (Olsen, 2013; Wouters et al., 2015), it also seems plausible to hypothesise that the *relative* preferences for QOL and LE gains would be different for EOL patients of different ages. As there is little evidence on the role of age in this context, we explore whether there is indeed any evidence of this by examining the relative strength of societal preferences for QOL and LE gains in EOL patients of different ages.

We elicited preferences in terms of the willingness to pay (WTP) for QOL and LE gains and, given the aim of our study, focused on the relative rather than absolute height of the WTP. Our results may inform discussions in countries that consider attaching differential weights to QALYs gained from life-extending EOL treatments, like England and Wales, or to QOL and LE gains in EOL patients of different ages with the objective to (better) align resource-allocation decisions with societal preferences.

2. Methods

2.1. Sample and data collection

We collected data as part of a larger contingent-valuation (CV) study in August 2019 (Reckers-Droog et al., 2021)). Here, we report on the WTP elicited from 803 respondents who were quota sampled to be representative of the general public in the Netherlands by age (18–75 years), sex, and education level and to cover a broad range of household incomes.

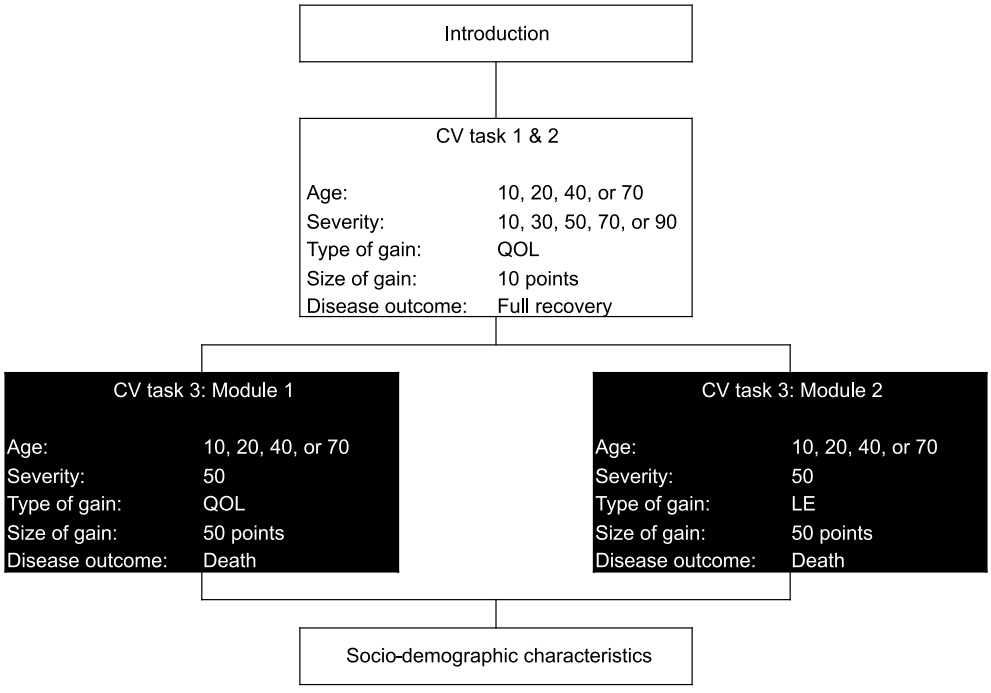
We asked respondents to complete the tasks from a socially-inclusive-personal (SIP) perspective and take into consideration that they themselves, their family, friends, and/or acquaintances as well as unknown others could be part of the hypothetical patient group. This perspective represents a combination of the personal and social perspectives (Dolan et al., 2003) and facilitated the use of an increase in monthly health-insurance premium as payment vehicle, which is how adult inhabitants of the Netherlands contribute to the collectively funded healthcare system.

2.2. Questionnaire

At the start of the questionnaire (see Fig. 1), we introduced respondents to the following concepts: (i) QOL, operationalised in points on a visual analogue scale (VAS) ranging from 0 “dead” to 100 “full health”, (ii) severity, operationalised in terms of disease-related QOL loss (in points from 100 on the VAS) and LE loss (in years from 80 life years), and (iii) treatment-related QOL and LE gains. We familiarised respondents with the concepts and tasks by asking them to assess their own QOL “today” on the VAS and complete one practice task from a personal perspective. Respondents then assessed the level of clarity of the practice task on a seven-point Likert scale ranging from 1 “very unclear” to 7 “very clear” and indicated on what expenses they would likely cut back to cover the stated WTP. We asked the latter to increase respondents’ awareness of the associated opportunity costs.

We then asked respondents to complete three tasks from a SIP perspective. For the first two tasks, we randomly assigned respondents to two out of 20 scenarios in which patients fully recovered one year after falling ill. For the third task, we randomly assigned respondents to one out of eight scenarios in which patients died one year after falling ill. These eight scenarios were evenly distributed across two modules and are the main focus of this report (see Supplementary Material S1 and S2 for an overview of the characteristics and a description of the scenarios). Each of the scenarios described a group of 10,000 patients who would have lived in full health (a score of 100 on the VAS) until the age of 80 had they not fallen ill at age 10, 20, 40, or 70. Due to the disease, patients’ QOL decreased from 100 to 50 on the VAS for the duration of one year, after which they died. We explained that a treatment was available that improved patients’ health with 50 points.

In module 1, treatment increased patients’ QOL from 50 to 100 points on the VAS but did not affect their LE (this remained one year). In module 2, treatment increased patients’ LE with one additional year but did not affect their QOL (this remained 50 on the VAS). We explained that the treatment could be made available to patients by increasing the



[a] CV task 3 (i.e. modules 1 and 2) is the main focus of this study and, therefore, presented in contrasting black.

Fig. 1. Questionnaire structure[a]. [a] CV task 3 (i.e. modules 1 and 2) is the main focus of this study and, therefore, presented in contrasting black.

monthly health-insurance premium for all adult inhabitants of the Netherlands for the duration of one year. We elicited respondents' WTP for the health gains by applying a two-step CV procedure (see Supplementary Material S2 for a description of the procedure and a task example).

At the end of the questionnaire, we asked respondents about their socio-demographic characteristics.

2.3. Statistical analyses

Before conducting the analyses, we classified WTPs of €0 as either a true or protest zero valuation (see Supplementary Material S2 for the classification criteria and S3 for the distribution of true and protest zero valuations and the main reason of respondents for stating a WTP of €0). We excluded protest zero valuations, outlying WTPs (z-score ≥1.64, determined based on the distribution of raw WTPs), and speeders (minimum completion time of 90 s, determined based on a timed test by three researchers).

We first analysed the data obtained from the third task. We calculated the mean (SD; 95% CI) and differences in mean (SE; 95% CI) WTP for QOL and LE gains in EOL patients of different ages (see Supplementary Material S3 for median (IQR) WTPs). We applied two-tailed Welch's t-tests (Bonferroni corrected) to examine whether WTP for QOL and LE gains was different *at* different ages. We bootstrapped (5000 repetitions) the differences in means to examine whether WTP for LE gains and QOL gains was relatively different *between* different ages. We further applied Ordinary Least Squares (OLS) models to examine the (interaction) effect of patients' age and the type of health gain on WTP.

We then analysed the data obtained from all three tasks to account for the panel structure of the data and allow for individual effects. We applied random-effects Generalised Least Squares (GLS) models to further examine the (interaction) effect of patients' age, the type of health gain, and respondent characteristics on WTP. We controlled for the scenario characteristics of the first two tasks, i.e. severity, age, size of the health gain, disease outcome (the latter two variables coded as 0 ″10 points/full recovery after one year" and 1 ″50 points/death after one year" to avoid perfect multicollinearity), and a time-effect (labelled "CV task") in all GLS models.

We performed sensitivity analyses to assess the robustness of our results by regressing log(WTP+1) on scenario and respondent characteristics and by examining the effect of respondents' proximity to the age of patients (coded as |Age respondents – Age patients|) on WTP. We assessed the latter as respondents closer to the specified age of patients may have had strong(er) self-regarding preferences, and hence a higher WTP in some scenarios. We further assessed robustness by examining the effect of the WTP stated in the practice task on the subsequent WTP and by repeating the analyses excluding respondents with a low clarity score (i.e. 1–3 level) for the practice task and relaxing the minimum completion time to 39 s (z-score ≤ -1.64, based on the distribution of completion times).

We conducted the analyses using Stata 16.1 (Stata Corp LP, College station, Texas).

3. Results

Table 1 presents the descriptive statistics of the sample (n = 495) that remained after excluding protest zero valuations (n = 86), outliers (n = 25), and speeders (n = 197).

Table 2 presents the mean (SD; 95% CI) WTP for QOL and LE gains in EOL patients of different ages and the difference in means (SE; 95% CI). On average, WTP was €8.7 per month for the duration of one year for QOL gains and €7.9 for LE gains. WTP was higher for QOL and LE gains in younger than in older EOL patients, except for a relatively low WTP for QOL gains in EOL patients aged 20. The results indicate that WTP for QOL and LE gains were similar in EOL patients aged 10, but higher for LE than for QOL gains in EOL patients aged 20. WTP was higher for QOL than for LE gains for EOL patients aged 40 and 70. The observed differences were not statistically significantly different from 0 *at* different ages, nor *between* different ages (p > 0.10).

Table 1
Sample characteristics ($n = 495$)[a].

	%	Mean (SD)
Age (Years)		52.4 (16.3)
Sex (Female)	49.3	
Education level[b]		
Low	12.7	
Medium	55.6	
High	31.7	
NS	NA	
Household income (After tax)		
<€1999	32.3	
€2000 – €3999	39.8	
≥€4000	22.4	
NS	5.5	
Children (Yes)	59.8	
QOL (0–100 VAS)		80.5 (16.9)
Completion time of CV tasks (Minutes)		5.1 (8.4)

CV, contingent-valuation; NA, Not Applicable; NS, Not Stated;
[a] Respondents who gave protest zero valuations (n = 86) or stated an outlying raw WTP (n = 25) in the third CV task as well as respondents who completed the three CV tasks in less than 90 s (n = 197) are excluded from this table. Of the respondents who completed the tasks too quickly, 10 also stated an outlying WTP;
[b] Low = lower vocational and primary school, Medium = middle vocational and secondary school, High = higher vocational and academic education.

Table 3 presents the OLS regression results. These results indicate that compared to EOL patients aged 10, a higher age was, ceteris paribus, associated with a lower WTP for health gains (model 1: β −1.48 to −2.60). The difference in WTP for QOL and LE gains was not statistically significant, neither was the interaction between patients' age and the type of health gain. Nonetheless, it may be worth noting that we observed a negative additional WTP for LE gains in EOL patients aged 40 and 70 (model 2: β −1.66 and −1.67) and a positive additional WTP for LE gains in EOL patients aged 20 (model 2: β 0.92).

Table 4 presents the GLS regression results. These results confirm that compared to patients aged 10, a higher age was, ceteris paribus, associated with a lower WTP for health gains (model 3 to 5: β −0.56 to −1.00). Note that the difference in WTP for health gains in patients aged 20, 40, and 70 became smaller when controlling for the scenario characteristics of CV tasks 1 and 2, and for respondent characteristics. Compared to QOL gains, LE gains were, ceteris paribus, associated with a lower WTP. However, this estimate was only statistically significant when modelled as a main effect (model 3: β −1.28), not when modelled as a conditional effect (models 4 and 5: β −1.39 and −1.22). The interaction between patients' age and the type of health gain was not statistically significant, although it may again be worth noting that we observed no or a negative additional WTP for LE gains in EOL patients aged 40 and 70 (models 4 and 5: β 0.00 to −0.86) and a positive additional WTP for LE gains in EOL patients aged 20 (models 4 and 5: β 1.07 and 1.08).

The results further indicate that WTP generally increased with increased severity (models 3 to 5: β 0.40 to 1.76) and was higher for a health gain of 50 points in patients who died than for a health gain of 10 points in patients who fully recovered one year after falling ill (models 3 to 5: β 1.99 to 2.08). Note that it was not possible to distinguish between the effect of the size of the health gain and patients' disease outcome on WTP. A higher respondent age was further associated with a lower WTP (model 5: β −0.28), whereas having children (model 5: β 1.65) and a higher household income (model 5: β 1.78) were associated with a higher WTP. The sensitivity analyses indicated that the WTP stated in the practice task (see Supplementary Material S4, model 5^B: β 0.01, p < 0.001) had a marginal effect on WTP and that our results were robust.

Table 2
(Difference in) mean (SD; 95% CI) WTP for QOL and LE gains in end-of-life patients of different ages ($n = 495$)[a].

	QOL gain[b]			LE gain[c]			Difference (QOL gain – LE gain)	
Age	*n*	Mean (SD)	95% CI	*n*	Mean (SD)	95% CI	ΔMean (SE)	95% CI
10	71	9.8 (6.7)	8.2, 11.4	51	9.8 (9.5)	7.1, 12.5	0.0 (1.5)	−3.1, 2.9
20	64	7.8 (6.2)	6.3, 9.4	62	8.7 (6.9)	7.0, 10.5	−0.9 (1.2)	−3.2, 1.4
40	61	8.9 (8.1)	6.8, 10.9	62	7.2 (6.0)	5.7, 8.7	1.7 (1.3)	−0.8, 4.2
70	60	8.0 (6.7)	6.2, 9.8	64	6.3 (6.4)	4.7, 7.9	1.7 (1.2)	−0.7, 4.0
n	256			239				
Average		8.7 (7.0)	7.8, 9.5		7.9 (7.3)	7.0, 8.8	0.8 (0.6)	−0.5, 2.0

[a] Respondents with protest zero valuations, outlying WTPs (Module 1: ≥€32.80; Module 2: ≥€46.75), and those who completed the tasks in less than 90 s are excluded from this table;
[b] Module 1: Treatment-related QOL gain is 50 points, and hence patients' QOL is restored to 100 points on the VAS for the duration of one year, after which they die;
[c] Module 2: Treatment-related LE gain is 1 year, and hence patients' will live one additional year with a QOL of 50 points on the VAS, after which they die.

Table 3
OLS regression results.

	Model 1		Model 2	
DV: WTP	β (SE)	95% CI	β (SE)	95% CI
Age (10 = reference)	–	–	–	–
20	−1.48* (0.90)	−3.25, 0.28	−1.98 (1.22)	−4.38, 0.42
40	−1.73* (0.91)	−3.51, 0.05	−0.95 (1.24)	−3.38, 1.48
70	−2.60*** (0.91)	−4.38, −0.83	−1.80 (1.24)	−4.24, 0.64
LE gain (QOL gain = reference)	−0.62 (0.64)	−1.87, 0.64	−0.02 (1.30)	−2.57, 2.53
Age*LE gain (Age 10; QOL gain = reference)			–	–
20*LE gain			0.92 (1.81)	−2.64, 4.48
40*LE gain			−1.66 (1.82)	−5.24, 1.92
70*LE gain			−1.67 (1.82)	−5.25, 1.90
Constant	10.06*** (0.69)	8.70, 11.43	9.81*** (0.84)	8.16, 11.46
R^2	0.02		0.03	
2	495			

DV, dependent variable; *p < 0.10, **p < 0.05, ***p < 0.01.

4. Discussion

This study was one of the first to examine societal preferences for QOL and LE gains in EOL patients of different ages. We found that WTP is relatively higher for QOL and LE gains in younger compared to older patients, which may be explained by preferences relating to lifetime health (Olsen, 2013). We further found indications of a difference in relative WTP for QOL and LE gains in EOL patients of different ages. We found that WTP was generally higher for QOL gains than for LE gains, except for EOL patients aged 20 for whom WTP for LE gains was higher than that for QOL gains. This could be related to the, by definition, large discrepancy between average LE and that of young EOL patients. The differences in WTP for QOL and LE gains were not statistically significantly different from 0, which suggests that our findings are consistent with those of Shah et al. (2014). This in terms of the general preference for QOL over LE gains in EOL patients *as well as* the lack of statistical significance of the observed differences in preferences for QOL and LE gains in EOL patients of different ages. The latter may be due to insufficient statistical power to detect an actual difference in WTP, e.g. due to the small sample size or the between-subjects design applied in CV task 3.

Reckers-Droog et al. (2021) discuss the main strengths and limitations of our design. Here, we want to highlight that we applied a SIP perspective for eliciting WTP, and hence cannot clearly distinguish between (unobservable) self-regarding and other-regarding preferences. Nonetheless, this perspective likely aligns most with actual decisions regarding higher payments to a collectively funded healthcare system like that of the Netherlands. We also want to highlight that we elicited preferences under certainty (in terms of QALYs gained) in hypothetical scenarios, in which we standardised the healthy-life expectancy and total health gain of the patient groups. This aimed to increase the clarity of the tasks and reduce the possible influence of other considerations (e.g. associated with health maximisation). Nonetheless, this came at the expense of realism and generalisability, and may have influenced our results. For example, WTP may have been different if the scenarios described patients *at risk* of falling ill or if treatment improved patients' health with a specific probability. In addition, two limitations that are specific to this study deserve emphasis. First, the QOL gains of 50 points in module 1 fully restored patients' QOL to 100 points in their last year of life, which means that we cannot distinguish between the effect of QOL gains and patients' health being fully restored on WTP. Second, we did not separate the effect of patients' age in the first two tasks (where patients gained 10 points and fully recovered) from the effect of their age in the third task (where patients gained 50 points and died) in the GLS models. However, this enabled us to assess the effect of patients' age on WTP without introducing multicollinearity. Note that the direction and relative strength of the age coefficients correspond between the OLS and GLS models, indicating that our conclusions regarding age-related preferences in society may be robust and independent of the size of health gains and disease outcome of patients.

With this study, we aimed to contribute to the limited evidence on societal preferences for QOL and LE gains in EOL patients of different ages. Our findings confirm previous findings that societal preferences for health gains in younger patients are stronger than gains in older patients (e.g. Bobinac et al., 2015; Reckers-Droog et al., 2019) and extent these findings to the EOL context. They also confirm previous findings that dispute NICE's application of an EOL premium solely to life-extending treatments, rather than also to QOL-enhancing treatments, or to a combination of both. As such, our findings may inform discussions in countries that consider attaching differential weights to QOL and LE gains in EOL patients of different ages, aiming to better align resource-allocation decisions with societal preferences.

Funding

This study is part of a larger project examining the broader societal benefits of healthcare and was funded by a consortium of GlaxoSmithKline, AbbVie, and AstraZeneca in the Netherlands. The funders had no role in the study design, data collection and analysis, interpretation of the data, preparation of the manuscript, and/or decision to submit for publication. The views expressed in this article are those of the authors.

Ethical statement

The Research Ethics Review Committee of the Erasmus School of

Table 4
GLS regression results.

	Model 3		Model 4		Model 5	
DV: WTP	β (SE)	95% CI	β (SE)	95% CI	β (SE)	95% CI
Age (10 = reference)	–	–	–	–	–	–
20	−0.57* (0.34)	−1.24, 0.10	−0.75** (0.34)	−1.41, −0.09	−0.86** (0.36)	−1.60, −0.16
40	−0.56* (0.31)	−1.16, 0.04	−0.56* (0.31)	−1.17, 0.04	−0.56* (0.32)	−1.19, 0.08
70	−1.00*** (0.34)	−1.65, −0.34	−0.89*** (0.33)	−1.53, −0.24	−0.86** (0.34)	−1.54, −0.19
LE gain (QOL gain = reference)	−1.28*** (0.45)	−2.17, −0.39	−1.39 (1.14)	−3.61, 0.84	−1.22 (1.20)	−3.58, 1.14
Age*LE gain (Age 10; QOL gain = reference)			–	–	–	–
20*LE gain			1.07 (1.22)	−1.32, 3.46	1.08 (1.30)	−1.47, 3.63
40*LE gain			0.00 (1.30)	−2.56, 2.55	−0.27 (1.38)	−2.98, 2.44
70*LE gain			−0.63 (1.22)	−3.02, 1.76	−0.86 (1.28)	−3.37, 1.66
Severity[a] (10 = reference)	–	–	–	–	–	–
30	0.40 (0.45)	−0.49, 1.29	0.43 (0.45)	−0.45, 1.30	0.34 (0.45)	−0.54, 1.23
50	0.92** (0.41)	0.13, 1.72	0.94** (0.40)	0.15, 1.73	0.90** (0.41)	0.08, 1.71
70	0.91** (0.39)	0.15, 1.67	0.91** (0.39)	0.15, 1.67	0.92**(0.40)	0.14, 1.69
90	1.73*** (0.43)	0.88, 2.58	1.71*** (0.44)	0.86, 2.57	1.76*** (0.45)	0.88, 2.64
Health gain 50 points + death (Health gain 10 points + full recovery = reference)	1.99*** (0.43)	1.14, 2.84	2.00*** (0.43)	1.15, 2.85	2.08*** (0.45)	1.19, 2.97
Age (of respondents)					−0.28*** (0.11)	−0.50, −0.06
Age^2 (of respondents)					0.00*** (0.00)	0.00, 0.00
Sex (Female = reference)					0.80 (0.59)	−0.36, 1.96
Children (No = reference)					1.65* (0.64)	0.39, 2.91
Education level (Low = reference)					–	–
Medium					−0.28 (1.12)	−2.48, 1.92
High					−0.77 (1.30)	−3.32, 1.79
Household income[b] (Thousands)					1.78*** (0.43)	0.95, 2.62
QOL (0–100 VAS)					−0.01 (0.02)	−0.04, 0.03
CV task	−0.79*** (0.19)	−1.16, −0.42	−0.80*** (0.19)	−1.17, −0.43	−0.79*** (0.20)	−1.17, −0.41
Constant	8.91*** (0.50)	7.93, 9.89	8.93*** (0.49)	7.97, 9.88	11.52*** (2.94)	5.76, 17.29
R^2 overall	0.01		0.01		0.08	
n observations; groups	1438; 495		1438; 495		1360; 468	

[a] Severity 50 coefficients represent the impact on WTP of disease severity level 50 of patients who fully recovered or who died one year after falling ill;
[b] Household income is adjusted for household size and calculated as household income/(household size)^0.5 to account for economies of scale (Johnson et al., 2005). In model 5, the number of observations and groups is lower than in models 3 and 4 as respondents who did not state their household income (n = 27) are excluded; *p < 0.10, **p < 0.05, ***p < 0.01.

Health Policy & Management assessed and waved ethical approval for this study (reference IRB 2020-05 WMO).

Declaration of competing interest

The authors have no conflict of interest to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2021.113987.

Author contributions

Vivian Reckers-Droog: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Visualization, Project administration; Job van Exel: Conceptualization, Validation, Investigation, Writing – review & editing, Supervision, Funding acquisition; Werner Brouwer: Conceptualization, Validation, Investigation, Writing – review & editing, Supervision, Funding acquisition.

References

Bobinac, A., van de Wetering, L., van Exel, N.J.A., Brouwer, W.B.F., 2015. Equity-dependent social willingness to pay for a QALY. In: Valuing and Refining Outcome Measures for Economic Evaluations in Health Care.

Dolan, P., Olsen, J.A., Menzel, P., Richardson, J., 2003. An inquiry into the different perspectives that can be used when eliciting preferences in health. Health Econ. 12 (7), 545–551. https://doi.org/10.1002/hec.760.

Hansen, L.D., Kjær, T., 2019. Disentangling public preferences for health gains at end-of-life: further evidence of no support of an end-of-life premium. Soc. Sci. Med. 236, 112375 https://doi.org/10.1016/j.socscimed.2019.112375.

Johnson, D.S., Smeeding, T.M., Torrey, B.B., 2005. Economic inequality through the prisms of income and consumption. Mon. Labor Rev. 128 (4), 11–24.

McHugh, N., Pinto-Prades, J.L., Baker, R., Mason, H., Donaldson, C., 2020. Exploring the relative value of end of life QALYs: are the comparators important? Soc. Sci. Med. 245, 112660 https://doi.org/10.1016/j.socscimed.2019.112660.

National Institute for Health and Care Excellence, 2009. Appraising life-extending, end of life treatments. In: MeReC Bulletin. https://doi.org/10.1097/01.qmh.0000281065.68473.e7.

National Institute for Health and Care Excellence, 2020. The NICE Methods of Health Technology Evaluation: the Case for Change.

Norwegian Ministry of Health and Care Services (HOD), 2017. Principles for Priority Setting in Health Care.

Olsen, J.A., 2013. Priority preferences: "End of life" does not matter, but total life does. Value in Health 16 (6), 1063–1066. https://doi.org/10.1016/j.jval.2013.06.002.

Reckers-Droog, V.T., van Exel, N.J.A., Brouwer, W.B.F., 2019. Equity weights for priority setting in healthcare: severity, age, or both? Value in Health 22 (12), 1441–1449. https://doi.org/10.1016/j.jval.2019.07.012.

Reckers-Droog, V.T., van Exel, N.J.A., Brouwer, W.B.F., 2021. Willingness to Pay for Health-Related Quality of Life Gains in Relation to Disease Severity and the Age of Patients. Value in Health. https://doi.org/10.1016/j.jval.2021.01.012.

Shah, K.K., Tsuchiya, A., Wailoo, A.J., 2014. Valuing health at the end of life: an empirical study of public preferences. Eur. J. Health Econ. 15 (4), 389–399. https://doi.org/10.1007/s10198-013-0482-3.

Shah, K.K., Tsuchiya, A., Wailoo, A.J., 2018. Valuing health at the end of life: a review of stated preference studies in the social sciences literature. Soc. Sci. Med. 204 (March), 39–50. https://doi.org/10.1016/j.socscimed.2018.03.010.

Wouters, S., van Exel, N.J.A., Rohde, K.I.M., Brouwer, W.B.F., 2015. Are all health gains equally important? An exploration of acceptable health as a reference point in health care priority setting. Health Qual. Life Outcome 13 (1), 1–10. https://doi.org/10.1186/s12955-015-0277-6.

Zorginstituut Nederland (ZIN), 2018. Ziektelast in de praktijk.