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To what extent do citizens support the disinvestment of healthcare interventions? An exploration of the support for four viewpoints on active disinvestment in the Netherlands

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ABSTRACT

Background: Active disinvestment of healthcare interventions (i.e. discontinuing reimbursement by means of a policy decision) has received limited public support in the past. Previous research has identified four viewpoints on active disinvestment among citizens in the Netherlands. However, it remained unclear how strong these viewpoints are supported by society, and by whom. Therefore, the current study aimed to 1) measure the support for these four viewpoints and 2) assess whether support is associated with background characteristics of citizens.
Method: In an online survey, a representative sample of adult citizens in the Netherlands (n = 1794) was asked to rate their agreement with short narratives of the four viewpoints on a 7-point Likert scale. The survey also included questions on sociodemographic characteristics, health status, healthcare utilization, and opinions about responsibility and costs in the healthcare context. Logistic regression models were estimated for each viewpoint to assess the association between viewpoint support and these characteristics.
Results: The support for the different viewpoints varied between 46.8% and 57.7% of the sample. Viewpoint support was associated with participants' age, gender, educational level, financial situation, healthcare utilization, opinion on the responsibility of the government for the health of citizens, and opinion on whether the increase in healthcare expenditure and health insurance premiums is considered a problem.
Conclusion: Resistance to active disinvestment may partially be explained by the consequences of disinvestment citizens anticipate experiencing themselves. Citizens considering the increase in healthcare expenditure a larger problem were more supportive of disinvestment than those considering it less of a problem.

1. Introduction

In many countries, healthcare expenditures have been increasing due to innovation, changes in the demand for healthcare and demographic developments (de la Maisonneuve and Martins, 2015; van der Horst et al., 2011). Healthcare expenditures have been rising faster than the gross domestic product of countries, putting pressure on the public financing of healthcare (de la Maisonneuve and Martins, 2015; van der Horst et al., 2011). As a result, the affordability of healthcare in the future is of major concern for policymakers. To keep healthcare affordable, policymakers have been taking different cost containment measures (Stadhouders et al., 2016). An example of such a cost-containment measure is Health Technology Reassessment (HTR) (Leggett et al., 2012; MacKean et al., 2013). HTR is the structured, evidence-based reassessment of healthcare interventions currently being used and reimbursed, based on their clinical, economic, social and ethical aspects (Leggett et al., 2012; MacKean et al., 2013). When HTR shows that healthcare interventions do not meet current requirements for reimbursement, one may argue that these interventions need to be actively disinvested. With active disinvestment we mean the partial or full withdrawal of reimbursement by means of a policy decision (Daniels et al., 2013; Elshaug et al., 2007).

Previous studies have estimated that, in OECD countries, about 20–30% of the healthcare budget is spent on ineffective healthcare interventions (Brody, 2012; OECD, 2017). Hence, a lot could possibly be gained from HTR and disinvestment, both in terms of health and

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healthcare expenditures. Nonetheless, HTR initiatives are scarce and disinvestment rarely takes place (Orso et al., 2017; Rotteveel et al., 2021a). Even when there was clear evidence that an intervention was not effective or not safe, proceeding to disinvestment appeared to be difficult (MacKean et al., 2013; Robinson et al., 2011). Support among the public, policymakers as well as healthcare providers has been shown to be essential to proceed to actual disinvestment (Daniels et al., 2013; Rotteveel et al., 2021a), in addition to other essential factors such as sufficient dedicated resources and mechanisms that enable the identification of disinvestment candidates (Elshaug et al., 2007; Gerdvilaite and Nachtnebel, 2011). Previous research showed that in cases where such support was limited, the disinvestment process was terminated at some point and reimbursement of the healthcare intervention concerned was maintained (Rotteveel et al., 2021a).

In a previous Q-methodology study from the Netherlands, four viewpoints on active disinvestment of healthcare interventions were identified among a purposively selected sample of 43 Dutch citizens. These viewpoints were: 1) Reimbursement of necessary healthcare should be maintained, even if healthcare is expensive or results in small health gains only, 2) Reimbursement of necessary healthcare should be maintained if necessity is objectively determined and if there is no support for disinvestment, 3) Unnecessary, ineffective and inefficient healthcare should be disinvested, and 4) It is most important that disinvestment decision-making processes are transparent and consistent (Rotteveel et al., 2021b). Participants in this study were asked to rank a set of 43 statements, broadly covering the issues participants might consider relevant in the disinvestment context from 'most agree' to 'least agree', and asked to explain their ranking. The statement set was derived from the conceptual framework used in a qualitative interview study on active disinvestment (Rotteveel et al., 2021a), complemented with relevant considerations obtained from three previous Q-methodology studies on priority setting (Reckers-Droog et al., 2020; Wouters et al., 2017; van Exel et al., 2015), and four previous articles on active disinvestment (Bentley et al., 2019; Coast, 2001; Costa et al., 2019; Street et al., 2015). Analysis of the ranking of the statements by 43 purposively selected members of the public revealed four factors in the ranking data. These were interpreted as distinct viewpoints on disinvestment, using the factor arrays and questionnaire responses of participants associated with the identified viewpoints. Viewpoint 1 was interpreted as most strongly opposed to disinvestment, followed by viewpoint 2 that was open to disinvestment, but only under specific conditions. Viewpoint 3 was interpreted as most supportive of disinvestment. Viewpoint 4 was supportive of disinvestment, but only if the condition of transparency and consistency in the disinvestment decision-making process is met (Rotteveel et al., 2021b). The correlations between the viewpoints are displayed in Appendix A.

Although Q-methodology (Watts and Stenner, 2012), is very useful for obtaining rich, holistic descriptions of the different viewpoints present in society, it provides no information about the degree of support for these viewpoints in society, or how these are related to background characteristics of the citizens supporting them (Baker et al., 2010). Knowing not only the societal viewpoints on active disinvestment, but also the degree of support for the viewpoints may be relevant if policymakers wish to be responsive to the preferences of citizens with regards to the disinvestment of healthcare interventions (Mason et al., 2016). Insight in how widespread the support for the different viewpoints is, may provide policymakers with guidance on approaches to disinvestment (regarding decision-making and communication strategies) that may receive most public support. In addition, knowing how the support for the viewpoints relates to the background characteristics of citizens may provide insight in the factors explaining viewpoint support and guidance on targeted communication strategies on disinvestment.

The first aim of this study is to obtain insight into the support for the four previously identified viewpoints on active disinvestment of healthcare interventions among citizens in the Netherlands. The second aim is to assess whether the support for the different viewpoints was associated with background characteristics of citizens, i.e. their socio-demographic characteristics, health status, healthcare utilization, and opinions about responsibility and costs in the healthcare context.

2. Materials and methods

2.1. Online survey

Data were collected using an online survey. To enable participants to assess their level of agreement with the four viewpoints, we asked

Table 1
Short narratives for the four viewpoints.

#	Title	Narrative[a]
1	Maintain necessary healthcare, even if it is expensive or only results in small health gains	Treatments that are necessary must continue to be reimbursed. Necessary treatments are treatments for critically ill patients, treatments that are listed in the medical guidelines and treatments that doctors believe to be necessary. If a treatment exists, it is morally unacceptable to deny it to a patient. Even if treatment has little effect, is very expensive, or if the quality of life is still poor after treatment, the reimbursement may not be discontinued.
2	Maintain necessary healthcare, if objectively determined and if there is no support for disinvestment	Treatments that are necessary must continue to be reimbursed, regardless of the costs. However, it is important that necessity is established based on research (objective) rather than based on the patient's opinion or wishes. If the quality of life is still poor after treatment or if patients are able to pay for the treatment themselves, reimbursement of this treatment may be discontinued. However, this must be supported by society and must not happen at the expense of vulnerable groups.
3	Disinvest unnecessary, ineffective and inefficient healthcare	It is important that we are conscious of our healthcare expenditure. That is why discontinuing reimbursement is morally acceptable in certain situations. For example, the reimbursement of treatments that are not necessary, that do not work or that are expensive in relation to the health they provide must be discontinued. It is not important whether patients themselves think they benefit from a treatment. Treatments for diseases that are contagious or life-threatening to young people should continue to be reimbursed. Preventive care must also continue to be reimbursed.
4	Transparent and consistent disinvestment decision-making processes	Decisions about discontinuing reimbursement should always be made in the same way and properly explained. In this way, everyone is treated equally, and people understand the decision better. Treatments that work well, are necessary, or help patients to function better in society must continue to be reimbursed. However, we must make sure that health care remains affordable. That is why costs must be considered in decisions about discontinuing reimbursement.

[a] The narratives were originally in Dutch for the purpose of the survey and were translated into English language for this paper by a professional translation company.

participants to rate their agreement with short narratives for the four viewpoints, displayed in Table 1. We chose this approach over other approaches, such as rating or ranking a selection of the statements from the underlying Q-methodology study, as the short narrative approach enables participants to assess the different viewpoints as a whole, which better fits the holistic nature of the original viewpoint descriptions (Baker et al., 2010; Mason et al., 2016). Although rating or ranking a selection of statements may be less burdensome to participants than the short narrative approach, these other approaches involve issues with the selection of statements and the matching of participants to viewpoints. Furthermore, it is uncertain whether any selection of a limited number of statements from a large set of statements will be a sufficiently adequate representation of the viewpoints to participants (Baker et al., 2010). In the formulation of the narratives, we aimed to capture the key elements of the different viewpoints. For this reason, we focussed on the aspects that were identified as characterising (i.e. aspects people who hold the viewpoints feel most strongly about) and distinguishing (i.e. aspects that set each viewpoint apart from the other viewpoints) for the viewpoints in the underlying study (Rotteveel et al., 2021b), as suggested by previous studies (Baker et al., 2010; Mason et al., 2016). The summaries were edited to make them clear and concise enough for assessment by citizens in a survey. In this editing process, we tried to ensure that each description covered the essence of the viewpoint and was sufficiently distinct from the narratives for the other viewpoints.

In the survey, participants were shown the four narratives in a randomized order, each on a separate page, and unlabelled (i.e. without the title as shown in Table 1). Participants were asked to express their agreement with the narratives using a 7-point Likert scale ranging from completely disagree (1) to completely agree (7). After having rated all four narratives, participants were presented with their rating of the narratives on an overview page, and asked to check and, if desired, adjust their ratings. Finally, we asked participants who rated all four narratives with a 4 or lower, indicating they did not agree with any of them, to describe their viewpoint on active disinvestment of healthcare interventions in their own words. With this question, we aimed to identify any important societal viewpoints that may have been missed in the underlying Q-methodology study.

To measure whether support for the viewpoints is associated with background characteristics of citizens, a number of questions were added to the survey (see Appendix B). These background characteristics were selected because previous research showed that these characteristics may be associated with citizens' views or preferences regarding healthcare priority setting (Johnson et al., 2019; Kolasa and Lewandowski, 2015; Mason et al., 2016; Tsuchiya, 2001; van der Aa et al., 2018; Zhu et al., 2019). The survey questions covered the sociodemographic characteristics age, gender, educational level, and financial situation of participants. Financial situation was measured by asking participants to what degree their household could make ends meet. The survey also included questions on health status and healthcare utilization. Health status was measured using the EQ-5D-5L Dutch version (Versteegh et al., 2016). The questions on healthcare utilization concerned the number of times participants visited the general practitioner and hospital for themselves in the last year.

In addition, as we hypothesized that viewpoint support may be related to how people think about responsibility and costs in the healthcare context, we included four questions asking participants about their opinion on these topics: 1) To what extent do you think the government is responsible for **the health of Dutch people?** 2) To what extent do you think the government is responsible for **healthcare in the Netherlands**? 3) To what extent do you see **rising healthcare costs** as a problem? and 4) To what extent do you see **rising health insurance premiums** as a problem? Participants were asked to rate their opinion on these topics on a 5-point Likert scale.

The survey was pilot tested in a group of 16 citizens, varying in age, gender and educational attainment, recruited by a commercial panel organization. Participants were asked for their feedback on whether the instructions and survey questions (including the viewpoint narratives) were comprehensible. The pilot test showed that the survey was sufficiently clear and feasible, and that no adaptations to the survey were necessary. As the survey was not changed between the pilot test and main study, the responses of the pilot test participants were retained in the final dataset.

2.2. Data collection

Data were collected from a representative sample of adult citizens in the Netherlands, based on quota-sampling by age, gender, educational level and region of residence. Participants were recruited by a commercial panel organization. Selected members of their panel received an invitation by e-mail, which contained information on the aim and the organization conducting the study, the content and length of the survey, and data management. If panel members accepted the invitation to participate, their informed consent was obtained at the start of the survey.

The research project has been assessed by the Centre for Clinical Expertise (CCE) at the National Institute for Public Health and the Environment (RIVM) in the Netherlands. The CCE concluded that the research project is exempted from further review by a medical ethics committee as it does not fulfil the specific conditions as stated in the Dutch Medical Research Involving Human Subjects Act.

2.3. Data analysis

To estimate the proportion of participants supporting each viewpoint, a dummy variable was defined for each viewpoint. The cut-off value for these dummy variables was set at 6 (i.e. agree) on the 7-point Likert scale, with participants rating the narrative with a 6 or higher being classified as supporting the particular viewpoint. A cut-off value of 6, thus excluding those who rated the narrative with a 5 (i.e., agree a little), was chosen in order to focus the analysis on participants who were fairly confident that they agreed with the narrative.

In order to also estimate the distribution of support for the viewpoints in society, we matched participants to the viewpoint they agreed with most strongly, on the condition that they supported this viewpoint (i.e. rated the corresponding narrative with a 6 or higher). Overall support for a viewpoint was calculated as the proportion of participants matched to that viewpoint. If a participant agreed most with multiple viewpoints (i.e. rated more than one narrative highest), they were split over these viewpoints (e.g. 50% viewpoint 3 and 50% viewpoint 4). If participants did not support any of the viewpoints (i.e. rated all narratives with a 4 or lower), they were categorized as 'none'. Participants whose highest rating of any viewpoint was 5 were categorized as 'moderate' in order to distinguish them from the 'none' group, as they still elicited some support for at least one of the viewpoints.

To determine whether and how background characteristics of citizens were associated with support for the viewpoints, we estimated four logistic regression models, one for each viewpoint. The dependent variable was support for the respective viewpoint, as explained in the first paragraph of this section. In model formulation, a stepwise approach was taken. First, a model with the sociodemographic, health status and healthcare utilization characteristics as independent variables was estimated. Second, the opinion variables were added to the model to inspect whether they improved the models in terms of the Akaike's Information Coefficient (AIC). All analysis were conducted in R, version 4.0.2 (R Core Team, 2020).

3. Results

Data were collected in November and December 2020. In total, 4446 panel members were invited to participate in this study, of whom 2283 (51.3%) clicked on the link to the survey. Of these potential participants, 2182 (95.6%) provided informed consent and 1818 (79.6%) also

completed the survey. Of these, 17 participants were excluded because they took more than 20 minutes to complete one of the four viewpoint questions, indicating that they may not have had their full attention with the survey. Furthermore, 7 participants were excluded because they gave the four descriptions all the same score (i.e. straight lining) and had a response time to the viewpoint questions in the 5th fastest percentile (i.e. speeding). This left 1794 participants for the analysis.

Table 2 shows the descriptive statistics of the participants, and, for the sampling variables, the reference values in the general population of the Netherlands. Table 2 indicates that our sample was representative with regards to gender, educational level and region of residence, as intended. With regards to age, participants aged 66–75 years were overrepresented, while participants younger than 26 years and participants older than 75 years were slightly underrepresented.

3.1. Support for the four viewpoints

The rating participants gave to the four viewpoint narratives is displayed in Fig. 1. Viewpoint 1, which most strongly opposes disinvestment was rated most often with scores indicating disagreement. However, this viewpoint also most often received the score of 7 (completely agree), indicating a stronger preference both on the positive and on the negative side for this viewpoint, compared to the other viewpoints.

Table 3 displays the descriptive statistics of the viewpoint ratings and support for the viewpoints. It shows that viewpoint 1 is supported by a small minority of 46.8% of the sample. The other viewpoints are supported by a small majority of the sample, with viewpoint 4, which is about a transparent and consistent disinvestment processes, receiving most support (i.e. 57.7%).

Fig. 2 shows the result of the matching of participants to the four viewpoints and the categories none (i.e. supporting none of the viewpoints) and moderate (i.e. moderately supporting the viewpoints). The data underlying this matching are displayed in Appendix C, which shows that 40% of participants was matched to a single viewpoint, 28% was split over 2 viewpoints, 17% was split over 3 viewpoints and 6% was split over 4 viewpoints. Despite of the large proportion of participants that supported more than one viewpoint, Table 3 shows that the correlation between the viewpoints are low to moderate, indicating that these can still be interpreted as distinct viewpoints (i.e. sufficiently different for participants to have a different opinion on the viewpoints). Fig. 2 shows that the smallest proportion of participants (19.4%) was matched to viewpoint 2 and the largest proportion of participants (25.6%) was matched to viewpoint 1. Furthermore, Fig. 2 shows that 8.9% of participants was not matched to a viewpoint, with 6.9% being classified as moderate and 2.0% being classified as supporting none of the viewpoints. This very low proportion of participants supporting none of the viewpoints indicates that it is likely that no important viewpoints were missed in the underlying Q-methodology study. Of the 36 participants supporting none of the viewpoints, 19 (53%) provided an informative description of their viewpoint on active disinvestment. Nine of them were generally against any form of disinvestment, five felt that treatment decisions can only be taken on an individual basis, two felt they had insufficient information, two stated that disinvestment is not necessary as public money could be saved elsewhere (e.g. in other public sectors), and one had the opinion that only cosmetic interventions should be disinvested.

3.2. Variables associated with viewpoint support

Table 4 presents four logistic regression models that were estimated to assess whether the support for the four viewpoints was associated with the sociodemographic characteristics, health, and healthcare utilization of citizens. Because of missing values on independent variables, 45 participants (3%) were excluded from the regression analyses. This left 1749 participants for the estimation of the logistic regression

Table 2
Descriptive statistics of the sample and the general population of the Netherlands.

		Sample (n = 1794)		General population[a]
		N (%)	Mean (SD[b])	%
Sampling characteristics				
Age			50.8 (18.0)	
	18–25 years	190 (10.6)		12.5
	26–35 years	254 (14.2)		15.8
	36–45 years	258 (14.4)		14.7
	46–55 years	297 (16.6)		17.8
	56–65 years	325 (18.1)		16.4
	66–75 years	331 (18.5)		13.3
	>75 years	139 (7.7)		9.5
Gender	Male	905 (50.4)		49.7
	Female	886 (49.4)		50.4
	Other	3 (0.2)		–
Educational level[c]	Low	578 (32.2)		30.2
	Middle	642 (35.8)		36.8
	High	574 (32.0)		31.5
Region (province) of residence	Drenthe	66 (3.7)		2.8
	Flevoland	47 (2.6)		2.4
	Friesland	52 (2.9)		3.7
	Gelderland	204 (11.4)		12.0
	Groningen	65 (3.6)		3.4
	Limburg	118 (6.6)		6.5
	Noord-Brabant	259 (14.4)		14.7
	Noord-Holland	269 (15.0)		16.5
	Overijssel	101 (5.6)		6.7
	Utrecht	125 (7.0)		7.8
	Zeeland	41 (2.3)		2.2
	Zuid-Holland	440 (24.5)		21.3
	Missing	7 (0.4)		–
(Other) Sociodemographic characteristics				
Financial situation of household	We're not making ends meet at all	33 (1.8)		
	We're not quite making ends meet	90 (5.0)		
	We can make ends meet	440 (24.5)		
	We can comfortably make ends meet	832 (46.4)		
	We are financially very comfortable	362 (20.2)		
	Rather not say	37 (2.1)		

(continued on next page)

Table 2 (*continued*)

		Sample (n = 1794)		General population[a]
		N (%)	Mean (SD[b])	%
Health and healthcare utilization				
Health status	EQ-5D-5L utility score[d]		0.862 (0.174)	
Visited General Practitioner (GP) last year	Not at all	536 (29.9)		
	1 or 2 times	906 (50.5)		
	3 to 5 times	255 (14.2)		
	More than 5 times	93 (5.2)		
	Rather not say	4 (0.2)		
Visited hospital last year	Not at all	992 (55.3)		
	1 or 2 times	526 (29.3)		
	3 to 5 times	170 (9.5)		
	More than 5 times	102 (5.7)		
	Rather not say	4 (0.2)		
Opinion				
To what extent do you think the government is responsible for **the health of Dutch people**?	Not responsible	87 (4.8)		
	A little responsible	360 (20.1)		
	Moderately responsible	466 (26.0)		
	Responsible	683 (38.1)		
	Very responsible	198 (11.0)		
To what extent do you think the government is responsible for **healthcare in the Netherlands**?	Not responsible	21 (1.2)		
	A little responsible	120 (6.7)		
	Moderately responsible	117 (6.5)		
	Responsible	829 (46.2)		
	Very responsible	707 (39.4)		
To what extent do you see **rising healthcare costs** as a problem?	No problem at all	25 (1.4)		
	A small problem	116 (6.5)		
	A moderate problem	518 (28.9)		
	A large problem	867 (48.3)		
	A very large problem	268 (14.9)		
To what extent do you see **rising health insurance premiums** as a problem?	No problem at all	21 (1.2)		
	A small problem	125 (7.0)		
	A moderate problem	513 (28.6)		
	A large problem	760 (42.4)		
	A very large problem	375 (20.9)		

[a] Source: CBS Statline: https://opendata.cbs.nl/statline/#/CBS/en/.
[b] SD: standard deviation.
[c] Educational levels correspond to the SOI 2016 and the ISCED 2011 classifications.
[d] Calculated from the EQ-5D-5L score based on the Dutch tariff (Versteegh et al., 2016), using the eq5d package for R (Morton and Singh Nijjar, 2020).

models.

The results in Table 4 show that older participants were more likely to support viewpoints 2, 3, and 4. Furthermore, females were less likely to support viewpoints 2 and 3 than males. Higher educated participants were less likely to support viewpoint 1. With regards to financial situation, participants in a more financially comfortable position were less likely to support viewpoint 1 and more likely to support viewpoints 3 and 4. The health status of participants was not associated with viewpoint support. Participants who had visited the GP last year were less likely to support viewpoint 3, the viewpoint that is most open to disinvestment, while people who had visited the hospital last year were more likely to support viewpoints 1 and 2, which by and large oppose disinvestment.

Table 5 shows the results of additional analyses to assess whether adding the opinion variables improved the regression models shown in Table 4. As participants' opinion on the extent to which the Dutch government is responsible for healthcare did not add to any of the four models (i.e. AIC increased after adding this variable), this variable was not included in the models displayed in Table 5. The other three variables were retained in the models displayed in Table 5 as the AIC of at least one of the four models decreased when adding these variables. Table 5 shows that participants who considered the increase in healthcare expenditure a large problem were more likely to support viewpoints 2, 3 and 4, and less likely to support viewpoint 1. Furthermore, participants who considered the increase in health insurance premiums a (very) large problem were more likely to support viewpoints 1 and 4. Finally, participants who considered the government more responsible for the health of Dutch people were more likely to support viewpoint 1.

4. Discussion

4.1. Support for the four viewpoints

The first aim of this study was to measure the public support in the Netherlands for four viewpoints on active disinvestment of healthcare interventions that were previously identified in the literature. We found that viewpoint 1 (maintain necessary healthcare, even if it is expensive or only results in small health gains) was supported by 46.8% of the sample, viewpoint 2 (maintain necessary healthcare, if objectively determined and if there is no support for disinvestment) by 52.8%, viewpoint 3 (disinvest unnecessary, ineffective and inefficient healthcare) by 55.1%, and viewpoint 4 (transparent and consistent disinvestment decision-making processes) by 57.7%. This indicates that if policymakers would be responsive to any one of these viewpoints and adapt the disinvestment process in such a way that it is completely in line with this viewpoint, they would likely receive support from approximately half of the citizens (depending on which viewpoint they choose), indicating that resistance of a considerable part of the population should be anticipated as well.

Furthermore, we found that many people supported multiple viewpoints to the same extent. This indicates that there are certain elements in the different viewpoints that people can agree with simultaneously. The previous Q-methodology study already identified one aspect that people supporting the different viewpoints all considered to be relevant in the context of disinvestment, namely transparency. Although people supporting viewpoint 4 agreed most strongly that transparency is important, it was also considered relevant by people supporting the other viewpoints (Rotteveel et al., 2021b). Furthermore, Appendix C shows that many people support viewpoint 4 to the same extent as other viewpoints, further suggesting that transparency, but also consistency, are strongly supported in this context. Therefore, a policy option to increase public support for disinvestment is to ensure that such decisions are made in a consistent and transparent manner, both with regards to the underlying process as the rationale underlying these decisions.

To identify additional policy options to increase public support for active disinvestment, it may be interesting to further explore the

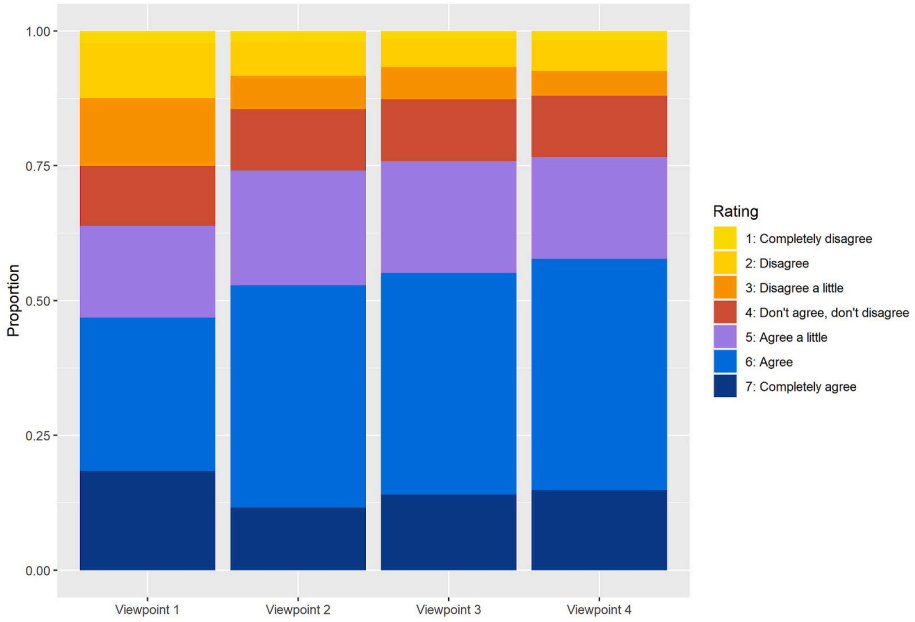

Fig. 1. Stacked bar chart of the rating of the viewpoints by participants.

Table 3
Descriptive statistics and support for the viewpoints.

Viewpoint		Mean	SD	Correlation			Support[a]	
				V2	V3	V4	N	%
1	Maintain necessary healthcare, even if it is expensive or only results in small health gains	4.9	1.7	−0.09	−0.17	−0.08	840	46.8
2	Maintain necessary healthcare, if objectively determined and if there is no support for disinvestment	5.1	1.5		0.33	0.27	948	52.8
3	Disinvest unnecessary, ineffective and inefficient healthcare	5.2	1.4			0.28	989	55.1
4	Transparent and consistent disinvestment decision-making processes	5.3	1.4				1036	57.7

[a] Support was determined based on a cut-off point of 6: Participants rating the viewpoint 6 or higher on the 7-point Likert scale were classified as supporting the viewpoint.

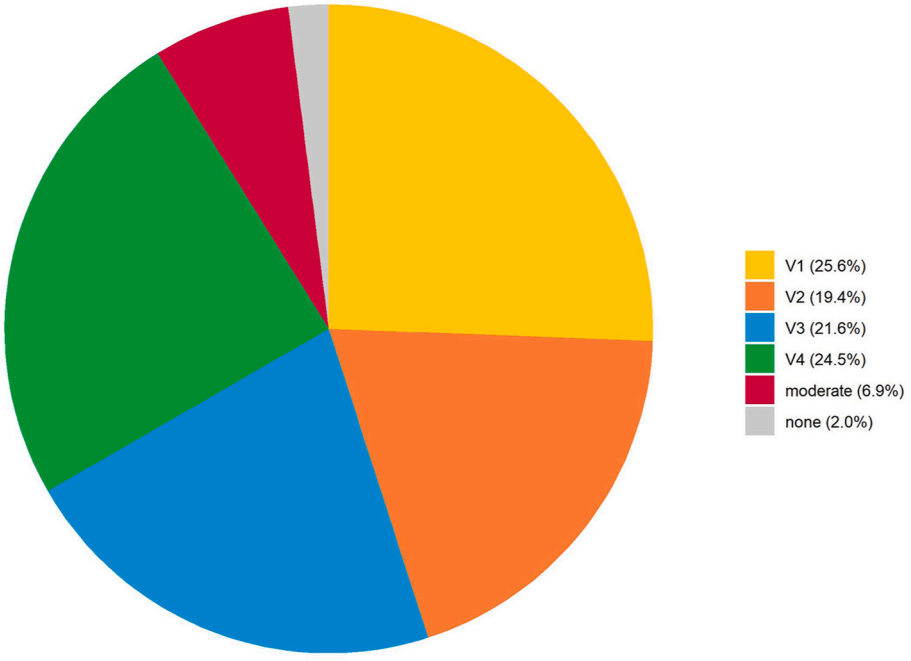

Fig. 2. Proportion of participants matched to viewpoints.

Table 4
Model results of the logistic regression models estimating the association between viewpoint support and the sociodemographic, health status and healthcare utilization variables.

		V1[a]	V2[b]	V3[c]	V4[d]
Variable		Coefficient	Coefficient	Coefficient	Coefficient
Intercept		0.89***	−0.12	−0.05	−0.42
Age		−0.01	0.01*	0.01*	0.01*
Gender (ref = Male)	Female	−0.07	−0.36***	−0.37***	−0.11
Education level (ref = Low)	Middle	−0.34*	0.04	−0.27*	0.15
	High	−0.90***	0.21	0.12	0.23
Financial situation household (ref = We can make ends meet)[e]	We're not making ends meet	0.03	−0.29	−0.29	−0.21
	We can comfortably make ends meet	−0.27*	−0.18	0.27*	0.29*
	We are financially very comfortable	−0.54***	−0.10	0.53***	0.50***
Health status (ref = Worse)[f]	Better	−0.17	0.05	0.08	0.20
Visited GP last year (ref = Not visited GP)[g]	Visited GP at least once	0.15	−0.06	−0.23*	0.01
Visited hospital last year (ref = Not visited hospital)[h]	Visited hospital at least once	0.35**	0.24*	0.16	−0.14
AIC		2328	2402	2350	2354

* P-value ≤0.05; ** P-value ≤0.01; *** P-value ≤0.001.
[a] Viewpoint 1: Maintain necessary healthcare, even if it is expensive or only results in small health gains.
[b] Viewpoint 2: Maintain necessary healthcare, if objectively determined and if there is no support for disinvestment.
[c] Viewpoint 3: Disinvest unnecessary, ineffective and inefficient healthcare.
[d] Viewpoint 4: Transparent and consistent disinvestment decision-making processes.
[e] As the lower two categories of this variable included a very small number of participants, these categories were combined into the category 'We're not making ends meet'. As this category was still quite small, the category 'We can make ends meet' was chosen as the reference category.
[f] As the data of this variable were skewed, participants were divided into two categories with the median EQ-5D value in the sample as the cut-off point.
[g] As the number of people that visited the GP multiple times last year was small, this variable was dichotomized, with 'not visited GP' being compared to 'visited GP at least once'.
[h] As the number of people that visited the hospital multiple times last year was small, this variable was dichotomized, with 'not visited hospital' being compared to 'visited hospital at least once'.

Table 5
Model results of the logistic regression models estimating the association between viewpoint support and the sociodemographic, health status, healthcare utilization and opinion variables.

		V1[a]	V2[b]	V3[c]	V4[d]
Variable		Coefficient	Coefficient	Coefficient	Coefficient
Intercept		0.66*	−0.13	−0.44	−0.35
Age		−0.01**	0.01*	0.01*	0.01*
Gender (ref = male)	Female	−0.02	−0.39***	−0.40***	−0.17
Education level (ref = low)	Middle	−0.32*	0.02	−0.29*	0.13
	High	−0.84***	0.18	0.10	0.17
Financial situation household (ref = We can make ends meet)	We're not making ends meet	−0.07	−0.26	−0.28	−0.22
	We can comfortably make ends meet	−0.19	−0.21	0.27*	0.24
	We are financially very comfortable	−0.39*	−0.16	0.50**	0.38*
Health status (ref = worse)	Better	−0.14	0.03	0.06	0.18
Visited GP last year (ref = Not visited GP)	Visited GP at least once	0.13	−0.06	−0.23*	0.02
Visited hospital last year (ref = Not visited hospital)	Visited hospital at least once	0.30**	0.26*	0.17	−0.12
To what extent do you think the government is responsible for the health of Dutch people? (ref = Moderately responsible)[e]	Not/A little responsible	−0.06	−0.03	0.20	0.02
	Responsible	0.50***	−0.08	0.13	−0.13
	Very responsible	0.59**	−0.29	0.04	−0.33
To what extent do you see rising healthcare costs as a problem? (ref = A moderate problem)[f]	No/A small problem	0.57*	−0.12	−0.10	−0.31
	A large problem	−0.47***	0.33*	0.40**	0.73***
	A very large problem	−0.68**	0.40*	0.59**	0.54**
To what extent do you see rising health insurance premiums as a problem? (ref = A moderate problem)[g]	No/A small problem	−0.34	0.12	0.38	0.08
	A large problem	0.17	−0.10	0.08	−0.58***
	A very large problem	0.67***	−0.23	−0.23	−0.32
AIC		2277	2407	2346	2321

* P-value ≤0.05; ** P-value ≤0.01; *** P-value ≤0.001.
[a] Viewpoint 1: Maintain necessary healthcare, even if it is expensive or only results in small health gains.
[b] Viewpoint 2: Maintain necessary healthcare, if objectively determined and if there is no support for disinvestment.
[c] Viewpoint 3: Disinvest unnecessary, ineffective and inefficient healthcare.
[d] Viewpoint 4: Transparent and consistent disinvestment decision-making processes.
[e] As the lower two categories of this variable (i.e. not and a little) included a small number of participants these categories were combined into the category 'Not/a little responsible' and the moderate category was taken as the reference category.
[f] As the lower two categories of this variable (i.e. no and a small problem) included a small number of participants these categories were combined into the category 'No/a small problem' and the moderate category was taken as the reference category.
[g] As the lower two categories of this variable (i.e. no and a small problem) included a small number of participants these categories were combined into the category 'No/a small problem' and the moderate category was taken as the reference category.

common elements of the viewpoints. To this end, future research may consider organizing citizen councils or Delphi studies with citizens supporting the different viewpoints to explore whether consensus can be achieved on certain types of disinvestment policies. Another possibility could be to conduct preference studies for disinvestment policies to assess the differences and similarities in preferences between those supporting the different viewpoints.

Nevertheless, even if there are ways to increase support substantially, some resistance should still be anticipated, especially because of the difficult, value-laden nature of disinvestment decisions. Although this is difficult to policymakers, it is certainly not uncommon. Policymakers often have to make decisions that are unpopular in parts of the population. To deal with this, we recommend policymakers to ensure procedural justice of their decisions. Procedural justice can be ensured through transparent, consistent decision-making, and proper procedures for appeal (Daniels and Sabin, 2008). Even though citizens may not agree with the outcome of the decision, procedural justice ensures that citizens at least feel that they are treated fairly (Daniels and Sabin, 2008).

4.2. Variables associated with viewpoint support

The second aim of this study was to assess whether support for the four viewpoints was associated with the sociodemographic characteristics, health and healthcare utilization and opinion of citizens. As in previous studies (Johnson et al., 2019; Kolasa and Lewandowski, 2015; Mason et al., 2016; Tsuchiya, 2001; van der Aa et al., 2018), we found that viewpoint support was associated with the sociodemographic characteristics age, gender and educational level. Furthermore, we found that these associations differed between the viewpoints (e.g. age was associated with support for viewpoint 2, 3 and 4, but not with support for viewpoint 1). In addition, we found that people in a better financial situation are less likely to support viewpoint 1 and more likely to support viewpoints 3 and 4, i.e. the viewpoints that are more favourable towards disinvestment. A possible explanation for this is that people who are financially comfortable may be more confident that if a treatment is disinvested, they will be able to finance the treatment themselves when they feel they need it. People who have trouble making ends meet, may worry more about future healthcare costs, causing them to be less supportive of viewpoints that are more favourable towards disinvestment.

With regards to the health and healthcare utilization variables, different from what we anticipated, health status was not associated with viewpoint support. This indicates that participants with a worse health status, who may anticipate a higher personal need for healthcare in the future, do not have a different viewpoint on disinvestment than those with a better health status. On the other hand, we did find that people who had visited the hospital last year, are more likely to support viewpoints 1 and 2, which are most opposed to disinvestment. Furthermore, people who had visited the general practitioner last year are less likely to hold viewpoint 3, which is most supportive of disinvestment. Hence, people potentially anticipating a higher need for healthcare in the future because of their current healthcare utilization are more reluctant to disinvestment compared to those potentially anticipating a smaller need for healthcare in the future. In line with the endowment effect (Kahneman et al., 1991), we hypothesize that a potential explanation for this is that people currently utilizing healthcare may be more worried that disinvestment will result in their current treatment or the follow-up treatments they anticipate to require in the future no longer being available to them.

With regards to the opinion variables, concerns about the increase in healthcare expenditures particularly were relevant in relation to viewpoint support. People who consider this a larger problem are more likely to support viewpoints 2, 3 and 4, and less likely to support viewpoint 1. This is not surprising given that viewpoint 1 reflects being reluctant to disinvestment. Hence, the reluctance to disinvestment may partially be explained by not considering the current increase in healthcare expenditures problematic.

People who consider the increase in health insurance premiums a very large problem are more likely to support viewpoint 1. This seems to contradict our finding that people considering the increase in healthcare expenditures a large problem are less likely to support viewpoint 1. A possible explanation for this seemingly contradictory finding may be that people may not be aware that healthcare expenditures and health insurance premiums are directly associated with each other, as was previously observed by Reckers-Droog et al. (2020). It may also be that participants assess these questions from a different perspective. For instance, participants may consider the increase in health insurance premiums problematic for themselves, while an increase in healthcare expenditures may be considered only relevant for the government or society at large, less for themselves. To address these issues, policymakers may be recommended to better involve citizens in the complexity and necessity of disinvestment decisions. In addition to explaining citizens their choices and the need for disinvestment, policymakers may consider to use public participation methods such as participatory value evaluation (Mouter et al., 2021; Rotteveel et al., Under review) or citizen councils (Bijlmakers et al., 2020) to better involve citizens in disinvestment decision-making.

4.3. Policy implications

This survey-based study provides policymakers insight in the support for four previously identified viewpoints on active disinvestment and the extent to which viewpoint support is associated with the background characteristics of citizens. This information can be used to increase the support for disinvestment decisions in practice. Especially when making such complex, value-laden decisions as disinvestment decisions, it is important to ensure broad support. First, our study shows that, even though there is not one viewpoint that receives broad public support, the viewpoints contain elements that people holding different viewpoints can agree on at the same time. As explained in section 4.1, two elements that receive broad public support are transparency and consistency of disinvestment decision-making. Therefore, we recommend policymakers to increase the transparency and consistency of decision-making. This may not only increase public support, it may also increase the legitimacy and fairness of disinvestment decisions (Daniels and Sabin, 2008).

Second, our study also indicates that people who have trouble making ends meet as well as people who anticipate they may need healthcare in the future because of their current healthcare consumption are less supportive of disinvestment (see previous section). We hypothesize that the reason for this may be that these people worry more about the consequences of disinvestment for their future healthcare costs. This stresses the need to better explain to citizens why a treatment is disinvested. In case of ineffective treatments, we believe that it is important to make citizens aware that they will not benefit from those treatments. If it is clear that people will not benefit from treatment, they may no longer want that treatment, which eliminates any additional costs they may have as a result of disinvestment. In addition, we recommend policymakers to better communicate to citizens about the (cost-)effective (reimbursed) alternatives for the disinvested treatment. This may also limit worries about future healthcare costs.

Third, our study shows that people who are less concerned about the increase in health expenditures are less supportive of disinvestment. To increase public support, policymakers are recommended to better explain the direct relationship between increasing healthcare costs and annual increase in health insurance premiums and out of pocket payments to citizens. This may better involve citizens in the need for disinvestment: to explain what may be the consequences of increasing healthcare expenditures (both for society at large and for citizens themselves), how disinvestment may contribute to curb the growth in healthcare expenditures, and how disinvestment relates to other cost

containment measures.

4.4. Validity of the four viewpoints

In this study, we found that only a small proportion of participants (2.0%) did not support any of the viewpoints. This proportion of participants not supporting any viewpoint was similar to previous studies estimating the support for viewpoints on healthcare priority setting in Europe (Mason et al., 2016; Reckers-Droog et al., 2018). Combined with our finding that the descriptions of their viewpoint provided by these participants indicate that it is unlikely that an important viewpoint on active disinvestment was missed, the results of our current study appear to validate the findings of the underlying Q-methodology study.

There was a period of 1.5 years between the former Q-methodology study, identifying the viewpoints (in June & July 2019) and the current study, measuring the support for these viewpoints (in November & December 2020). In the meantime, Covid-19 spread across the world, resulting in a pandemic. In the Netherlands, as in many countries, this pandemic has put a considerable pressure on the healthcare system. Regular care was delayed or displaced (van Giesen et al., 2020) and healthcare providers worked extra hours to ensure that as many Covid-19 and other patients could be treated as possible. One could expect that such an extreme shock to the healthcare system may have affected the viewpoints of citizens on active disinvestment. For instance, as the pandemic has demonstrated the scarcity in healthcare resources, citizens may be more aware that choices have to be made, making them more supportive of disinvestment. From our study, however, we can infer that no new viewpoints seem to have emerged during the pandemic and that societal viewpoints on disinvestment, therefore, appear to be quite stable despite of this pandemic. However, we cannot exclude a shift in the support for the four viewpoints as we have not measured viewpoint support before the pandemic. For instance, because of the demonstrated scarcity in healthcare resources, there may be more support for viewpoint 3 now, compared to the period before the Covid-19 pandemic. On the other hand, delays in access to healthcare may have made citizens more reluctant to disinvestment, increasing the support for viewpoint 1.

4.5. Strengths and limitations

The survey was administered to a large sample of citizens representative of the adult Dutch population with regards to gender, educational level and region of residence. Therefore, the findings of this study are expected to be generalizable to the population in the Netherlands to a large extent. In addition, we gave participants the opportunity to assess the four viewpoints in a holistic way by providing them with short narratives of the viewpoints rather than a number of separate statements. This enabled participants to make a well-considered evaluation of their agreement with these viewpoints. However, this study also has some limitations. First, people aged 66–75 years were overrepresented in this study. Considering that this age group is somewhat more likely to have used healthcare in the past year than younger age groups, and that healthcare utilization was associated with viewpoint support, the overrepresentation of this age group may have slightly affected the observed support for the different viewpoints.

Second, we found that a considerable proportion of participants supported multiple viewpoints (see Appendix C). Although this is not necessarily problematic as people may sympathise with aspects of different viewpoints, some combinations of viewpoint support (e.g. viewpoint 1 and 3) were surprising. Possibly, some participants scored the narratives similarly because they wanted to avoid the cognitive burden of reading and thinking about the short narratives or because of insufficient involvement with the questions due to unfamiliarity or overall disinterest with the topic of disinvestment. Nevertheless, participants may also have had valid reasons to agree with multiple viewpoints or with certain aspects of the viewpoints simultaneously. For instance, when reading the narrative for viewpoint 3, participants may have focused on the aspect of this viewpoint that we should be conscious of our healthcare expenditure and, therefore, have thought that unnecessary and ineffective care should not be reimbursed, while at the same time, they feel that costs should not be taken into account when it concerns necessary care, which is an aspect of viewpoint 1. In other words, although we anticipate that participants evaluate the narratives holistically, perhaps some participants have focused more strongly on certain aspects of the narratives. Therefore, further exploration of how participants read and interpret the short narratives seems warranted. For this reason, we recommend future research to conduct a follow-up interview/include follow-up questions after survey completion asking participants to explain why they do or do not support the viewpoints.

Third, the considerable proportion of participants that supported multiple narratives simultaneously may also indicate that the narratives of the viewpoints did not capture the underlying viewpoints adequately. Although we formulated the narratives in an iterative process with four different authors, considered the raw data of the underlying Q-methodology study in the formulation of the narratives and pilot-tested them, it is still possible that the narratives do not sufficiently represent the underlying viewpoints. A good test for the validity of the short narratives, as suggested by one of the reviewers of this article, would have been to ask a sample of participants to conduct the underlying Q-methodology study as well as to complete the survey with the narratives, and then inspect the congruence between the responses. This was not done in the current study. Nevertheless, we do agree that such a test would have provided valuable information about the validity of the short narratives we use to measure the support for the viewpoints from the underlying Q-methodology study and, hence, would have supported the validity of our findings. Therefore, we strongly recommend future research using the short narrative approach to conduct such a validation test in a small sample before using these narratives to measure the support for the viewpoints in a larger sample. Such a validation exercise could also include follow-up interviews or questions that help understand how participants interpret and rate the narratives and why certain narratives are rated similarly.

Fourth, a cut-off point of six was chosen as an indicator of support and to match participants to the different viewpoints. Even though we believe that a cut-off point of six is valid as this indicates that people are fairly certain of their agreement with the viewpoint, it is clear that our results might have been different if we would have chosen a different cut-off point. Previous studies using the narrative approach to match participants to viewpoints did not report a specific cut-off point for matching (Mason et al., 2016) or used a cut-off point of four on a five-point Likert scale (Vermaire and van Exel, 2018). Given the novel nature of the narrative approach, no clear guidance exists in the scientific literature on the selection of a cut-off point for the matching of participants. Therefore, a sensitivity analysis was performed using a cut-off point of five. As can be expected, lowering the cut-off value to five, leads to an increase in the support for the viewpoints (to 63%, 74%, 76% and 77%, respectively). However, with regards to the matching of participants to the four viewpoints and the category none (Fig. 2), only small differences were found (V1: 27.3%, V2: 21.3%, V3: 23.4%, V4: 26.0%, none: 2.0%).

Fifth, it is known that stated and revealed preferences may differ, and that for such a complex issue as disinvestment answering a questionnaire is considered much easier than accepting the implications of one's responses in a questionnaire. As a result, people may for instance state that they support the use of cost information in disinvestment decisions. However, when an actual treatment is being disinvested because of high costs, in reality they may support this to a lesser degree. This may especially be the case if disinvestment concerns a treatment they (expect to) receive themselves. Nevertheless, we believe that our findings do give useful insights in the general preferences people have with regards to the acceptability of the complex, value-laden decisions on disinvestment in healthcare. Although people may not like the outcome of their

general (stated) preferences with regards to disinvestment in practice, we believe that if the decision follows their general (stated) preferences they may still consider the decision procedurally legitimate.

Finally, this study was conducted in the Netherlands. Viewpoints and the support for them may be context specific. For instance, a study measuring the support for five viewpoints on healthcare priority setting across nine European countries, found that support for the viewpoints differed between countries (Mason et al., 2016). Therefore, readers are recommended to take the specific context of this current study into account when transferring the results to a different context.

5. Conclusion and recommendations

The four viewpoints on active disinvestment were each supported by approximately half of the participants. This indicates that if policymakers would be responsive to any one of these viewpoints, they would likely receive support from approximately half of the citizens, indicating that resistance of a considerable part of the population should be anticipated as well. Many participants expressed support for multiple viewpoints, indicating that the narratives may contain elements people can agree on simultaneously. We recommend future research using the short narratives approach to validate the narratives by asking participants to conduct the original Q-methodology study as well as to rate their agreement with the narratives, and by then inspecting the congruence between their responses. In addition, follow-up questions or interviews can be used to learn whether participants assess the narratives holistically or perhaps focus on particular aspects of the narratives. Resistance to active disinvestment may be partially explained by the consequences citizens anticipate to experience from disinvestment themselves, either as a result of their (lack of) opportunity to finance disinvested healthcare themselves or their anticipated need for healthcare in the future. People who consider the increase in healthcare expenditures a large problem were more supportive of disinvestment than those considering it less of a problem, suggesting that much can be gained by making people aware of the potential problems associated with increasing healthcare expenditures.

Credit author statement

A.H. Rotteveel: Conceptualisation, Data curation, Formal analysis, Validation, Investigation, Visualisation, Writing – original draft. M.S. Lambooij: Conceptualisation, Supervision, Writing – review & editing. N.J.A. van Exel: Conceptualisation, Supervision, Writing – review & editing. G.A. de Wit: Conceptualisation, Funding acquisition, Project administration, Supervision, Writing – review & editing.

Declaration of competing interest

None.

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Appendix A. Supplementary data

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