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Dutch Health State Utilities for Infertility and Subfertility

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INTRODUCTION

Despite the high number of people suffering from fertility problems, it is regularly questioned whether this justifies a claim on national health care budgets. The difficulty is that, although fertility is seen as a normal bodily function, policy makers may not directly consider infertility to be a disease or condition to which national health care spending should be allocated. In the Netherlands, for instance, there is an ongoing debate addressing whether fertility treatments should be (fully) reimbursed.[1] Currently, in the Netherlands, couples get a maximum of three in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI) attempts reimbursed through the basic benefit package of the mandatory health insurance.[2] Similarly, in many other countries there is limited access to fertility care through health insurance schemes, or National Health Service systems.

An important reason why policy makers limit access to fertility treatment is the pressure on health care budgets. Because budgets are limited, decisions between reimbursement of various treatments must be made. This also applies to reimbursement decisions concerning medical help for fertility problems. The difficulty for policy makers is that costs per live birth cannot be compared with cost-effectiveness outcomes of other medical interventions treating other diseases.

OBJECTIVES

This study aimed to:

- Determine utility weights for infertile and subfertile health states by direct utility measurement in the Dutch adult general population
- Explore the general Dutch populations' view on reimbursement of fertility treatments

METHODS

Data were gathered in January and February 2018. An online questionnaire was designed to determine the health-related quality of life values of six fertility-impaired health states. The study population consisted of a representative sample of the Dutch adult population (> 18 years) in terms of age and sex. Respondents were asked to evaluate the health states through direct health valuation methods, i.e. the Visual Analogue Scale (VAS) and the Time Trade-Off (TTO) method. In addition, respondents were asked about their opinions regarding reimbursement of fertility-related treatments. Six fertility-related health states were described for which utility values were elicited. Health states definitions consisted of a general health description, based on the EuroQol 5 Dimensions, 5 level (EQ-5D-5L) descriptive system, and a fertility-related part. An overview of all seven health states is presented in table 2. The final section of the questionnaire consisted of questions about the respondents' opinions regarding reimbursement of fertility-related treatments by the Dutch basic benefit package. Respondents were asked whether they thought IVF treatments should be part of the Dutch basic benefit package (fully/not at all/partly). If they answered that fertility treatments should be partly reimbursed by the basic benefit package, they were asked how many IVF attempts they thought should be reimbursed.

Table 1: Sample characteristics

Population	N=676
Female	51%
Age (SD)	45.1 (16.0)
Education, low (elementary school and lowest level of secondary education)	24%
Education, middle (highest level of secondary education)	40%
Education, high (university degree, bachelor or master)	36%
Respondents with one or more children	59%
Child-wish	33%
Fertility-related problems	12%
Self-reported health, VAS (SD)	0.719

RESULTS

- TTO utility values of the infertile health states ranged from 0.792 to 0.868. The lowest value was given for primary infertility and the highest value was given for secondary infertility while already having three children.
- Adjusted VAS scores for the subfertile health states were consistently lower than the TTO scores for the infertile health states. The lowest VAS score, 0.726, was estimated for the first subfertile health state: a childless individual during a fertility treatment with side effects and uncertainty about the (final) outcome.
- Subset results:
  - Older respondents valued all health states better than younger respondents.
  - People with the wish to have (more) children gave lowest values to almost all subfertile/infertile health states.
  - Respondents who have experienced fertility problems valued infertile health states better than average.

Figure 1: Example of TTO question

Health state X

Fertility

- You have a desire to have an additional child
- You have one child
- You are permanently infertile

General health

- You have no problems in walking about
- You have no problems washing or dressing yourself
- You have no problems doing your usual activities
- You have no pain or discomfort
- You are not anxious or depressed

Imagine:

- You are 38 years
- Your normal life expectancy is 83 years
- You would live another 45 years before you die

Click on the option you would prefer. If you think both options are more or less equal, click on option C.

Option A	Option B	Option C
Another 23 years in full-health (without fertility problems)	Another 45 years in health state X (being infertile)	Option A and B are equally good, I do not have a preference

Table 2 Health states for infertility and subfertililty

	General health state	Infertile 1	Infertile 2	Infertile 3	Sub-fertile 1	Sub-fertile 2	Sub-fertile 3
Fertility							
Desire to have (more) children	NS	Yes	Yes	Yes	Yes	Yes	Yes
Current n of children	NS	0	1	3	0	1	0
Current treatment	NS	No	No	No	IVF	IVF	IVF
General health							
Mobility	No problems	No problems	No problems	No problems	No problems	No problems	No problems
Self-care	No problems	No problems	No problems	No problems	No problems	No problems	No problems
Daily activities	Slight problems	No problems	No problems	No problems	Slight problems	Slight problems	No problems
Pain or discomfort	Slight problems	No problems	No problems	No problems	Slight problems	Slight problems	No problems
Anxiety or depression	Slight problems	No problems	No problems	No problems	Slight problems	Slight problems	No problems
Valuation method applied							
VAS	+	+	+	+	+	+	+
TTO	+	+	+	+	-	-	-

This study also investigated the viewpoint of the Dutch general population on the reimbursement of fertility related treatments. The results show that a strong majority of the general population is in favour of including these treatments in the Dutch basic benefit package: <10% of the general population sample is of opinion that fertility treatments should **not** be covered at all and >25 % of the population thinks fertility treatments should unlimitedly be reimbursed. Individuals who stated that reimbursement of IVF treatments should be limited, indicated (on average) that 4 IVF attempts should be included in the basic benefit package.

Table 3: Comparison of health states utilities between groups

	General health state	Infertile 1	Infertile 2	Infertile 3	Sub-fertile 1	Sub-fertile 2	Sub-fertile 3
Women	0.803	0.788	0.843	0.873	0.704	0.825	0.874
Men	0.764	0.796	0.847	0.862	0.798	0.849	0.889
Religious	0.795	0.781	0.842	0.862	0.768	0.837	0.880
Not religious	0.774	0.801	0.847	0.872	0.780	0.836	0.882
Age <45	0.747	0.745	0.797	0.822	0.751	0.814	0.862
Age >=45	0.821	0.841	0.894	0.915	0.799	0.859	0.901
Low education	0.795	0.802	0.823	0.854	0.803	0.837	0.870
Middle	0.786	0.802	0.855	0.885	0.773	0.834	0.879
High	0.774	0.776	0.847	0.857	0.757	0.839	0.891
Experience with fertility problems	0.816	0.811	0.868	0.883	0.737	0.828	0.876
No experience with fertility problems	0.778	0.788	0.842	0.865	0.782	0.840	0.884
Child-wish	0.750	0.708	0.783	0.822	0.741	0.814	0.867
No child-wish	0.806	0.838	0.878	0.892	0.792	0.850	0.889

CONCLUSIONS

- **This study identified the utility values of health states involving subfertility and infertility and indicated that subfertility and infertility have a strong negative effect on quality of life according to the viewpoint of the Dutch general population**
- **The identified values allow comparisons across diseases (e.g. by policy makers)**
- **This study showed that there is a strong support among the Dutch general population for reimbursing fertility treatments from the Dutch basic benefit package**

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DISCLOSURES

All respondents to the online questionnaire consented to use of the data for a scientific publication. The datasets generated and/or analysed during the current study are not publicly available due respondents were only asked to consent for the use of the data for scientific publication(s) but are available from the corresponding author on reasonable scientific request. Additional questions regarding the data and the questionnaire can be send to the corresponding author. Data is stored at the Erasmus University Rotterdam accordingly to the rules and regulations of the Erasmus University. The anonymization and use of the data was conducted compliant with Dutch data privacy law (Wet bescherming persoonsgegevens: Wbp). Ethical approval was not required in the Netherlands.

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MK conducted most of the writing and is overall responsible. **LG** has conducted the analysis. All authors contributed to the study design, the overall process and the writing of the paper.