ORIGINAL ARTICLE

Infertility

Who should pay for assisted reproductive techniques? Answers from patients, professionals and the general public in Germany

O. Rauprich*, E. Berns, and J. Vollmann

Institute for Medical Ethics and History of Medicine, Ruhr-University Bochum, Markstr. 258a, D-44799 Bochum, Germany

*Correspondence address. E-mail: oliver.rauprich@rub.de

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Introduction

Financing ART is quite heterogeneously regulated in Europe with respect to the share of public funding, kinds and providers of publicly funded services and eligibility criteria (Dill, 2002; Sorenson, 2006; Dostál, 2007; IFFS, 2007). Several countries have special regulations for ART that differ significantly from general health care funding. Regulations have changed in recent years in some countries, indicating an ongoing political process of finding an adequate place for assisted reproduction within the social security systems. Frequently, regulations are contested and provoke public debate. In any case, funding policies are tightly connected to cultural and social morals, justice and ethics. The ESHRE Task Force on Ethics and Law considers equity and access among the most urgent questions for medically assisted reproduction and defends the position that infertility treatment should be at least partially reimbursed in every European country (ESHRE Task Force on Ethics and Law, 2008).

In Germany, insurance benefits for assisted reproduction are regulated in a special paragraph in the Code of Social Law [Sozialgesetzbuch V (SGB V), § 27a]. It applies to members of statutory health insurances, about 90% of the German population. From its introduction in 1990 until 2003, 100% of the costs for up to four treatment cycles were covered, including medication. Effective from 2004, a revision has been enacted, which restricts coverage to 50% of the costs for a maximum of three treatment cycles (GMG, 2003). The couples’ co-payment amounts to ~1500/1800 € per treatment cycle (IVF/ICSI). Assuming an average of between two and three cycles, the total charge will frequently be around 3000–5000 €.

BACKGROUND: Financing ART is variously regulated in the different countries of Europe. In Germany, coverage of assisted reproduction by statutory health insurances was restricted to 50% in 2004. We conducted a national survey among patients, professionals (physicians and other academics in IVF centres, psychosocial counsellors, medical ethicists, social lawyers, health politicians) and the general public in Germany regarding their opinions on financing ART.

METHODS: Standard questionnaire techniques (paper and pencil interviewing, computer-aided web interviewing, computer-aided telephone interviewing) were used.

RESULTS: The vast majority of all groups supported public coverage of ART. Co-payments by patients were considered appropriate by about one-third of the patients, two-thirds of the physicians and three quarters of all other groups. According to the respondents, the amount of co-payment should cover 15–25% of the costs, considerably less than what patients actually have to pay (50%). Support for public coverage was strongly correlated with the views (i) of infertility as a disease, (ii) that there is a need for assisted reproduction for infertile couples and (iii) that every human should have the opportunity to have children. The respondents had varying opinions on whether to increase medical insurance premiums in order to cover ART. Reducing services in other areas of health care in favour of reproductive medicine was supported only by the group of reproductive physicians. Financial incentives for oocyte sharing were rejected by most groups as was a money-back guarantee for unsuccessful treatments.

CONCLUSIONS: Experts and the general public in Germany accept moderate co-payments for ART. No clear pattern of opinion emerged regarding the question of how public co-funding should be financed.

Key words: financing / assisted reproductive techniques / survey / Germany / ethics
In addition, age limits were introduced, restricting eligibility to couples in which the woman is between 25 and 39 years and the man between 25 and 49 years. Treatments of non-married couples or of HIV-positive patients, and treatments involving third parties (sperm donation) are completely excluded from coverage.

The revision served the goal to cut public expenses for assisted reproduction in order to keep premiums for statutory health insurances low. As a result, the number of treated women, treatment cycles and children born after IVF/ICSI decreased 38–48% between 2003 and 2004 in Germany (DIR, 2006). Analysing data from the German IVF registry, a recent study estimated that short-run price elasticity for IVF/ICSI consumption was \( -0.36 \), i.e. a 10% increase in consumer payment decreases demand by 3.6% (Connolly et al., 2009). This is significantly lower than the estimated price elasticity of \(-3.18\) calculated from international comparisons of prices and consumed cycles per million population (Collins, 2002).

There is an ongoing political debate in Germany about the fairness and prudence of reducing coverage for assisted reproduction (Rauprich, 2008). Beside normative considerations (Brock, 1996; Neumann, 1997; Warnock, 2003; Tannsjo, 2007; ESHRE Task Force on Ethics and Law, 2008), it is important to inform the debate with valid empirical data on the views of relevant parties. In national surveys, people have tended to have low priority for ART in comparison with other health care services (Swedish Parliamentary Priorities Commission, 1995, pp. 86 ff.; Bowling, 1996; Ryan, 2001, p. 4). In a recent survey in Germany, assisted reproduction was ranked last out of 17 different kinds of health care (Johannsen, 2009). However, when considered on its own, support for public funding of ART was more favourable (Bonnicksen and Blank, 1988; Byrne et al., 1999). Several studies have investigated how much people would be willing to pay for assisted reproduction under certain circumstances (Dalton and Liflord, 1989; Neumann and Johannesson, 1994; Granberg et al., 1995; Ryan, 1997). Data from these studies suggest that people are often willing to pay much more for ART than it actually costs.

At the same time, costs are assumed to be one major reason (beside lack of success and psychological stress) why couples refuse or discontinue ART (Dawson et al., 2005). Three quarters of couples who visited a German IVF centre for a first consultation but decided against treatment stated that they would start treatment if co-payments were significantly reduced (25%) or abandoned (50%; Wilke et al., 2008). From a sample of women in Germany who at the time of interview experienced an unfulfilled desire to have a child (n = 186) or did so beforehand (n = 118), the vast majority (75 and 66%, respectively) stated that in their view the current co-payments are unreasonably high (Berlin-Institut für Bevölkerung und Entwicklung, 2007).

We report data from the first comprehensive national survey among patients, relevant professionals and the general public regarding their views on financing ART. The professional groups included physicians and other academic professionals working in the field of assisted reproduction, psychosocial counsellors, medical ethicists, social lawyers and health politicians in Germany. The objective of the study presented here was to investigate and analyse their answers to the following questions: should ART be funded publicly? Are co-payments appropriate, and if so, to what amount? Should health insurance benefits be increased or services in other areas of health care reduced in order to cover ART? Is there saving potential in reproductive medicine? Should oocyte sharing or a money-back guarantee be allowed as financial strategies and incentives? Should outcome parameters of fertility centres be made public?

**Materials and Methods**

**Survey populations**

Seven survey populations were operatively defined as follows: (i) Patients (P), i.e. residents in Germany who are or have been under infertility treatment; (ii) Physicians and other academics (e.g. biologists, psychologists) who provide professional services (including, e.g. laboratory work) in one of the fertility centres listed in the German IVF Registry (DIR, 2006). For the sake of brevity, this population is collectively referred to as ‘reproductive physicians’ (RP); (iii) Psychosocial counsellors (PC), identified as members of the Counselling Network for Infertility Germany (Beratungsnetzwerk Kinderwunsch Deutschland, BKID), a network of professional counsellors specialized in the psychosocial aspects of infertility and infertility care; (iv) Medical ethicists (ME), operatively defined as members of the German Scientific Society for Medical Ethics (Akademie für Ethik in der Medizin, AEM), who are professionals at research institutions (e.g. universities, university hospitals); (v) Social lawyers (SL) were defined as professionals working at German university departments for social law or medical law or teaching classes in these subjects at German universities in the summer term of 2007; (vi) Members of the federal parliament (Bundestag) or state parliaments (Landtag) who serve on parliamentary committees on health policy were referred to as ‘health politicians’ (HP); (vii) Finally, the general public (GP), i.e. adult residents of Germany (18 years and older) who live in a household connected to the German landline telephone network.

**Sampling and survey methods**

We obtained complete sampling frames for the professional populations using homepages of German fertility centres listed in the German IVF Registry (RP), the registry of members of BKID (PC) and AEM (ME), homepages and syllabi of German university departments for social law and medical law (SL) and homepages of the German Federal Parliament and German States Parliaments (HP), respectively. This enabled us to perform complete postal surveys in all professional populations (paper and pencil interview PAPI).

The sampling of patients was coincidental. Eighteen cooperating German IVF centres (i.e. 15% of all 120 IVF centres listed in the German IVF Registry) handed out the questionnaires to their patients. In addition, we posted a call for participation on two German internet forums for persons experiencing infertility (www.klein-putz.net; www.wunschkindernet.net), linked to an online version of the questionnaire. This computer-assisted web interview (CAWI) was conducted in cooperation with Globalpark AG, Cologne, a provider of online survey software and server resources. Data from both samplings were pooled for analysis (Table I).

The general public was surveyed by computer-assisted telephone interviews (CATI). A representative sample of 13 000 telephone numbers of the German landline network was drawn randomly using the Gabler/Häder method (Gabler and Häder, 1999) as a basis for realising about 1000 telephone interviews. The adult member of the household with the most recent birthday was selected for interviewing. Sampling and realization of the telephone interviews were carried out by the opinion research centre Sozialwissenschaftliches Umfragezentrum (SUZ), Duisburg.
Table I  Survey populations, survey methods and response rates.

<table>
<thead>
<tr>
<th>Survey population</th>
<th>Survey method</th>
<th>n (distributed)</th>
<th>n (returned)</th>
<th>RR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P: patients</td>
<td>PAPI</td>
<td>n.d.</td>
<td>232</td>
<td>n.d.</td>
</tr>
<tr>
<td></td>
<td>CAWI</td>
<td>n.d.</td>
<td>1338</td>
<td>n.d.</td>
</tr>
<tr>
<td>RP: reproductive physicians</td>
<td>PAPI</td>
<td>638</td>
<td>230</td>
<td>36</td>
</tr>
<tr>
<td>PC: psychosocial counsellors</td>
<td>PAPI</td>
<td>99</td>
<td>66</td>
<td>67</td>
</tr>
<tr>
<td>ME: medical ethicists</td>
<td>PAPI</td>
<td>245</td>
<td>135</td>
<td>55</td>
</tr>
<tr>
<td>SL: social lawyers</td>
<td>PAPI</td>
<td>313</td>
<td>140</td>
<td>45</td>
</tr>
<tr>
<td>HP: health politicians</td>
<td>PAPI</td>
<td>292</td>
<td>78</td>
<td>27</td>
</tr>
<tr>
<td>GP: general public</td>
<td>CATI</td>
<td>2429</td>
<td>1005</td>
<td>41</td>
</tr>
</tbody>
</table>

PAPI, paper and pencil interviewing; CAWI, computer-aided Web interviewing; CATI, computer-aided telephone interviewing; n, number of distributed/returned questionnaires; RR, response rate; n.d., not determined.

Questionnaires
Questionnaires were adapted to different populations when appropriate and included a set of 6 questions for the general public and 18 questions for all other groups on the topic of financing ART which is presented here. Other parts of the surveys will be published elsewhere.

The questionnaires were developed on the grounds of a comprehensive literature search on the survey topics, 21 explorative, guided telephone interviews with representative members of each survey population, and methodological guidelines for questionnaire development (Willis and Lessler, 1999; Porst, 2000; Statistisches Bundesamt, 2004; AAPOR, 2008). Construction was methodologically advised by experts from the Center for Survey Design and Methodology (CSDM), Mannheim and SUZ. Questionnaires were validated in pre-tests with one to four representatives of each PAPI survey (patients and professionals) and 25 representatives of the CATI survey (general public).

Statistical methods
Data entry of PAPI questionnaires was done manually using Epidata software (v 3.1). Double checks of about 10% of all entries revealed an error rate of ~1%. Data management, analysis, statistics and graphics were performed with R (v 2.6.2) package (R Development Core Team, 2008) and typesetting system LaTeX (http://www.latex-project.org). Most questions were designed in such a way that results could be recorded as frequency or percentage in each category of response. In some questions, a 6-point Likert scale was used to specify respondents’ level of agreement to a specific statement. Median, quartiles and extremes were calculated to describe frequency distribution of variables and graphically displayed in box plots (Fig. 3). Boxes represent the middle 50% of the data (i.e. inter-quartile range) with the lower and upper boundaries indicating the 25 and 75 percentiles, respectively. Whiskers indicate data outside of the boxes, extending up to their maximum of 1.5 times the inter-quartile range. Outliers beyond that range are represented by circles. The central line in the box locates the median in the dataset. The width of the box’s notches indicates the 95% confidence interval for the median and allows for significance testing. If the notches of two plots do not overlap, this is strong evidence that medians differ significantly.

To investigate variables that have significant effects on attitudes towards public financing of ART, we performed regression analysis (logit model) in R. We tested for socio-demographic data, views on medical and social significance of infertility, and views on the need and fairness of being capable of fulfilling one’s desire for a child as independent variables. All survey groups were integrated into the model assuming an identical gradient across all groups.

Results
Field summary
The enquiry period of all surveys was from January to June 2008. CATI survey was conducted in January and February 2008. The random sample of 13 000 telephone numbers from the German landline network became reduced after sample neutral dropouts (e.g. no connection, no pick up within 10 calls, fax) to a corrected gross sample of 2429 valid telephone numbers of German households. From calling these numbers, 1005 interviews were completed (response rate = 41%).

The first mailing of questionnaires was sent to the groups of professionals in February 2008. To those who did not respond, the questionnaire was sent a second time after 4 weeks. After correcting for sample neutral dropouts (e.g. questionnaires returned as address unknown) and incomplete returned questionnaires (<50% of all questions answered), final response rates were between 27 and 67% (Table I). Within the group of academics at IVF centres (‘reproductive physicians’), 70% were working as physicians, 23% as scientists (e.g. in laboratory) and 5% had other job descriptions. Of the responding psychosocial counsellors, 21% have been working regularly in an IVF centre. The distribution of party affiliation among responding health politicians approximated the distribution of political power in the German parliament.

From February to April 2008, altogether 1000 questionnaires were sent to cooperating IVF centres. Partners were asked to determine their demand and to hand out two questionnaires to each couple, allowing for separate responses from women and men. In all, 232 responses were received. Because it is not known whether all questionnaires actually were given to patients, the response rate could not be calculated for this survey. From April to June 2008, the CAWI survey was online. During this time, 2167 persons visited the page, 1855 started and 1294 finished the questionnaire. Couples were asked at the beginning that each partner complete the questionnaire separately. Cookies were set in order to forestall multiple responses from one person. After correcting for incomplete returns
(<50% of all questions answered), a total of 1358 questionnaires remained. Since it was not possible to determine the sample frame (i.e. the number of eligible persons who read our call for participation), the response rate could not be calculated. The number of included questionnaires completed by patients from both PAPI and CAWI was 1590.

**Financial burden of assisted reproduction for the patients**

Of the patients, 80% considered the financial burden of their co-payments as high or very high. Financing was not an issue for 9% of the respondents. Most people stated that they used their savings for the treatment (61%); many postponed purchases (47%), cut back on spending in everyday (45%) or leisure consumption (46%); or sacrificed holidays (46%); 3–12% of all respondents sold valuables, raised a loan, paid by instalments or took a part-time job to finance their infertility treatment.

**Preferences regarding public funding and private co-payments**

In all survey populations, the vast majority (74–96%) of the respondents supported public funding of ART, e.g. by statutory health insurances or tax money. At the same time, about one-fifth of the patients, two-fifth of the physicians and half of all other groups considered partial, and not complete, public funding as appropriate. Only in the group of patients, did a large majority (76%) of respondents vote for complete public coverage of ART. About 20% of the medical ethicists and social lawyers, and about 15% of health politicians and the general public rejected public funding completely (Fig. 1). When explicitly asked whether or not co-payments by patients seem generally appropriate, there was even more approval of private co-payments (37% of the patients, 65% of the reproductive physicians and 73–87% of the other groups). The majority of all groups suggested that medical insurance and, with the exception of patients, private co-payments are appropriate sources for financing ART. Tax money was suggested by most of the responding patients and reproductive physicians, and roughly half of the psychosocial counsellors, social lawyers and health politicians. Among the medical ethicists one-third supported the use of tax money (Fig. 2).

Next, we asked how much co-payment would be appropriate for patients, assuming total costs for one treatment cycle of 3000 € (Fig. 3). The median amount stated by the respondents ranged between 400 € and 775 € in different groups (health politicians: 400 €; patients, reproductive physicians and psychosocial counsellors: 500 €; general public 600 €; social lawyers: 700 €; medical ethicists: 775 €). This amounts to approximately 15-25% of the total costs, considerably less than what patients in Germany actually have to pay (50%).

**Normative convictions associated with support for public funding**

We performed regression analysis (logit model) in order to determine variables which have a significant effect on agreement to complete funding of ART (Table II). No significant odds ratios were detected with regard to age, sex and the number of children of the respondents ($P > 0.05$). Also, no significant odds ratios existed with regard to the

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**Figure 1** ‘Do you support public funding of ART?’ Answers in percent; category ‘other’ includes ‘not known’, ‘not specified’ and missing. Groups: P, patients; RP, reproductive physicians; PC, psychosocial counsellors; ME, medical ethicists; SL, social lawyers; HP, health politicians; GP, general public.

**Figure 2** ‘What source or sources do you regard as appropriate for financing ART?’ Positive answers in percent. Groups: P, patients; RP, reproductive physicians; PC, psychosocial counsellors; ME, medical ethicists; SL, social lawyers; HP, health politicians (The general public was not asked this question.).

**Figure 3** ‘How much co-payment would be appropriate for couples, assuming total costs of 3000 Euros per treatment cycle?’ Answers, in Euros per treatment cycle. Groups: P, patients; RP, reproductive physicians; PC, psychosocial counsellors; ME, medical ethicists; SL, social lawyers; HP, health politicians; GP, general public.
following propositions: (i) ‘Infertility is impairment’, (ii) ‘Infertility is a dysfunction’, (iii) ‘Infertility is a circumstance of life’ and (iv) ‘The desire for children is a basic human need’. However, those respondents who agreed to the propositions (i) ‘Infertility is a disease’, (ii) ‘Having children belongs to the basic opportunities every human should have in his/her life’ and (iii) ‘Infertile couples with an unfulfilled desire for children are usually in need of assisted reproduction’ had large odds also in favour of complete public funding (P, 0.01).

In the model, all 6-point Likert-scales were transformed into a binary code (1 = ‘agreement’ for Level 1 and 2; 0 = ‘non-agreement’ for Level 3–6). The estimates can be used to calculate the shifts in the percentage of agreement to full public funding in dependence of agreement/non-agreement to the variables of the model. For instance, taking the group of childless female patients at the age of 30, the percentage of agreement to complete public funding of ART rises from 45 to 57% when they agree that infertility is a disease. It rises further to 69% when they additionally agree that infertile couples with unfulfilled desire for children are usually in need of assisted reproduction. Finally, it rises to 73% when they also agree that having children is a basic opportunity every human should have.

**Preferences regarding different strategies for financing ART**

One way to allow for more public funding of ART would be to increase health care insurance premiums. An increase by 1.50 € per month and insurant would cover every demand for ART in Germany. This option was supported by the vast majority of the responding patients (86%) and reproductive physicians (77%), by the majority of the general public (57%) and by a slight majority of the social lawyers (49%; Fig. 4); it was rejected by the majority of the health politicians (54%) and medical ethicists (50%), and by a slight majority (41%) of psychosocial counsellors. Among the responding psychosocial counsellors, social lawyers and health politicians, between 13 and 21% were undecided or did not want to make a statement.

### Table II Log Odds ratios from a Logit regression model of agreement to complete public funding of ART.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Estimate</th>
<th>Estimated Odds ratios</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>−0.616</td>
<td>0.540</td>
<td>0.029*</td>
</tr>
<tr>
<td>Age</td>
<td>−0.003</td>
<td>0.997</td>
<td>0.492</td>
</tr>
<tr>
<td>Sex</td>
<td>−0.117</td>
<td>0.889</td>
<td>0.306</td>
</tr>
<tr>
<td>Number of children</td>
<td>0.052</td>
<td>1.053</td>
<td>0.320</td>
</tr>
<tr>
<td>Agreement to: ‘Infertility is a disease’</td>
<td>0.494</td>
<td>1.639</td>
<td>5.05e−06***</td>
</tr>
<tr>
<td>Agreement to: ‘Infertility is impairment’</td>
<td>0.113</td>
<td>1.120</td>
<td>0.352</td>
</tr>
<tr>
<td>Agreement to: ‘Infertility is a dysfunction’</td>
<td>0.067</td>
<td>1.070</td>
<td>0.532</td>
</tr>
<tr>
<td>Agreement to: ‘Infertility is a circumstance of life’</td>
<td>−0.099</td>
<td>0.906</td>
<td>0.326</td>
</tr>
<tr>
<td>Agreement to: ‘The desire for children is a basic human need’</td>
<td>0.178</td>
<td>1.195</td>
<td>0.173</td>
</tr>
<tr>
<td>Agreement to: ‘Having children belongs to the basic opportunities every human should have in his/her life’</td>
<td>0.514</td>
<td>1.672</td>
<td>0.002**</td>
</tr>
<tr>
<td>Agreement to: ‘Infertile couples with an unfulfilled desire for children are usually in need of assisted reproduction’</td>
<td>0.491</td>
<td>1.634</td>
<td>5.69e−05***</td>
</tr>
<tr>
<td>RP</td>
<td>−0.971</td>
<td>0.379</td>
<td>6.29e−07***</td>
</tr>
<tr>
<td>PC</td>
<td>−0.950</td>
<td>0.387</td>
<td>0.00873**</td>
</tr>
<tr>
<td>ME</td>
<td>−1.430</td>
<td>0.240</td>
<td>1.91e−07***</td>
</tr>
<tr>
<td>SL</td>
<td>−2.059</td>
<td>0.128</td>
<td>5.01e−14***</td>
</tr>
<tr>
<td>HP</td>
<td>−1.399</td>
<td>0.247</td>
<td>8.35e−05***</td>
</tr>
<tr>
<td>GP</td>
<td>−1.365</td>
<td>0.255</td>
<td>&lt;2e−16***</td>
</tr>
</tbody>
</table>

Estimate = Estimate of the regression coefficient; P-value = observed significance; significance codes: ***significant at P < 0.001, **P < 0.01, *P < 0.05. Group affiliation was incorporated in the model. The reference category for the survey population are the patients.

![Figure 4](https://example.com/figure4.png)
Another way to allow for more publicly funded infertility treatments would be rationalization of treatment in order to use the saved money for treating more people. We asked reproductive physicians and psychosocial counsellors whether they see saving potential in some areas of infertility treatment, and if so, how much on a scale from 1 (very large potential) to 6 (no potential). Regarding diagnostics and anaesthesia, the majority of respondents saw no significant potential (median Level 5 or 6 on the scale). Regarding technologies, psychosocial counsellors but not reproductive physicians saw some moderate potential (median Level 4). With regard to medication, both groups considered some savings possible (median Level 3). Almost half of psychosocial counsellors stated that they could not answer these questions.

A third way to allow for more publicly funded assisted reproduction would be to reduce services in other (unspecified) areas of health care in favour of reproductive medicine. This was supported by a majority only in the group of reproductive physicians (46%). Supporters (36%) and opponents (37%) were equal among patients. Most respondents (48–72%) of the other survey populations opposed this idea (Fig. 5).

Since oocyte donation is prohibited in Germany, oocyte sharing is not a legal option at present. It would offer women the option to receive a discount for her infertility treatment as compensation for giving some of her oocytes to other couples. We asked hypothetically whether this financing model should be introduced in Germany in the case that oocyte donation would become legal. The most approval came from reproductive physicians (45%) and patients (39%). In all other groups, two-third of the respondents were against it. To the respondents, donating oocytes for research purposes or for reproductive purposes made no significant difference. Only in the group of reproductive physicians, paid or compensated donation for research was approved to a lesser extent (33%) than paid or compensated donating for reproduction. The fraction of respondents who were undecided or did not want to answer this particular question was relatively high in all groups (13–21%).

One way to enhance cost efficiency in reproductive medicine might be to foster competition between fertility centres by publishing suitable success parameters. Since the suitability of the different parameters is debatable (e.g., pregnancy rate, baby take home rate, healthy non-premature singleton birth rate, rate of satisfied customers), we intentionally did not specify them, assuming that consensus could be found among experts. Across all survey groups, there was broad support of this idea (patients 88%, psychosocial counsellors 76%, medical ethicists 75%, social lawyers 70% and health politicians 72%). Also in the group of reproductive physicians, a majority (49%) approved this measure.

Finally, we asked whether fertility centres should offer a money-back guarantee for unsuccessful treatments. In the questionnaire, we informed respondents that this regulation creates a financial incentive for IVF centres to refuse treatment for couples with low prospects of success. Money-back guarantee was unanimously and vigorously rejected from reproductive physicians. Also, all other groups were rather reserved about this financing model. On a scale from 1 (‘I fully agree’) to 6 (‘I totally disagree’), medium agreement was six for medical ethicists, social lawyers, health politicians and five for psychosocial counsellors. Even in the group of the patients, the majority tended not to support it (median agreement on Level 4).

Discussion

This is the most comprehensive study on relevant parties’ opinions and attitudes regarding financing ART to date, and includes couples, professionals (physicians and other academics in assisted reproduction, psychosocial counsellors, medical ethicists, social lawyers and health politicians) and lay people in Germany. Our principal findings show how patients cope with financial burdens for assisted reproduction; mainly by using their savings and by cutting back on spending in everyday and leisure consumption. The vast majority of all groups supported public financing of ART; at the same time the majority of all groups considered co-payments appropriate, with the exception of patients and reproductive physicians. In all groups, the appropriate amount of co-payments was considered to be considerably lower than they actually are in Germany. Those respondents who agreed with the propositions that (i) infertility is a disease, (ii) having children is a basic opportunity every human should have or (iii) infertile couples with unfulfilled desire for children are in need of assisted reproduction, tended strongly also to support complete public funding. Absolute majorities were in favour of an increase in insurance premiums to finance ART in the groups of patients, reproductive physicians and the general public, but not in the other groups. Respondents saw rather little potential for savings in infertility treatments. Rationing other services in order to cover ART was generally rejected. Oocyte sharing and money-back guarantees were considered by the majority of respondents as inappropriate measures to regulate access to and funding of ART. However, there was general support for publishing suitable success parameters of fertility centres.

We used the best method currently available for drawing a representative sample of the German population (Gabler and Häder, 1999). Complete sampling frames were obtained for the professional populations. The target population of the patients was not known and participants were self-selected. Therefore, statistical significance cannot be attributed to the sample of the patients, and their data cannot be generalized with confidence for all patients in reproductive medicine in Germany. Most of the participating patients were acquired via internet forums. It is to be expected that this caused some
selection bias towards a subgroup of patients who actively seeks information and help, and is sympathetic to internet communication. Also, the possibility cannot be excluded that cooperating infertility centres handed out the questionnaires somewhat selectively to their patients (e.g. to those they feel would not be bothered by their request to participate in the study). However, given the number of responding patients, the sample can be considered to have relevance in so far as it covers broadly shared views within the target group, even though it is not statistically representative.

Another limitation of this study is that it is restricted to Germany. Policies and opinions on assisted reproduction, including financing, are quite heterogeneous in Europe and seem to be highly influenced by political and cultural factors. It is not to be expected that all answers obtained in this study are representative for corresponding groups in other countries. Therefore, one must be careful with generalizing our findings beyond Germany.

In Germany, many couples seek fertility treatment in spite of the necessary co-payments. This shows their willingness to pay for the services. Our findings confirm that most couples consider their expenses as high or very high financial burden and indicate how they manage to bear them by using their savings and control consumption in different areas. The motivation to bear the financial burdens show the high value many couples place on the fulfillment of their desire for a child and their hope that assisted reproduction will help them. At the same time, the fact that the necessary co-payments are perceived as burdensome explains why there is considerable cost elasticity of utilising ART in Germany (Connolly et al., 2009) and why many infertile couples refrain from assisted reproduction despite their desire for children (Wilke et al., 2008).

These limitations in the ability or willingness to pay for many couples in Germany stands in some contrast to people’s statements reported in several studies that they would be prepared to spend very high amounts of money for assisted reproduction or for having a child (Dalton and Lilford, 1989; Neumann and Johannesson, 1994; Granberg et al., 1995; Ryan, 1997) and cast some doubt on the validity of measuring the value of assisted reproduction by asserted, rather than demonstrated willingness to pay. We did not survey how respondents valued ART in comparison to specific other medical or non-medical goods. Therefore, it must remain unanswered in our study whether or not relevant groups in Germany rank assisted reproduction rather low in league tables, as indicated in other studies (Swedish Parliamentary Priorities Commission, 1995; Bowling, 1996; Johannsen, 2009).

Although significant co-payments are quite unusual in the German health care system, and generally regarded negatively in the public, a large majority in all groups of our study considered them as appropriate for assisted reproduction, with the exception of patients, of which still one-third agreed. This result may reflect a special, and often questioned status of ART within a publicly funded health care. However, one of the most important findings of our study was that all groups considered the current amount of co-payments as too high. This opinion has been shown before with couples who have experienced an unfulfilled desire for a child (Berlin-Institut für Bevölkerung und Entwicklung, 2007). Often, it is said that people who do not experience problems having children cannot understand what this means to those who are affected and, therefore, do not appreciate sufficiently their need for access to ART. However, our data indicate that also the majority of groups who are not affected by infertility acknowledged the relevance of assisted reproduction by supporting public financing and reduction of co-payments. Generally, the survey populations who are directly involved in assisted reproduction (patients, physicians and psychosocial counsellors) appeared somewhat more demanding of public resources for ART than the ‘external’ experts (medical ethicists, social lawyers, health politicians) and the general public. This may be due to their larger experience with infertility and assisted reproduction, as well as due to their stronger personal or professional interest in public funding of assisted reproduction. However, the differences were more in degree and details than in principle. There was a clear tendency towards consensus on moderate co-payments across all groups.

A practical implication of this near consensus is that reducing co-payments seems possible in the foreseeable future in Germany. This interpretation correlates with recent political developments. In an official resolution, the Federal Council of Germany (Bundesrat) called on the German Federal Government (Bundesregierung) to return to the legal regulations regarding financing ART that were in force before 2004. In 2009, one state in Germany (Saxony) decided to use tax money for additional funding of assisted reproduction. The result is a share of the costs between health insurances, taxpayers and the couples, which resembles the regulation in Austria (BMG, 2009). In our survey, tax money was regarded less often as one acceptable source for financing ART than medical insurance; but the support was still in the range between one-third and two-third of the respondents in different groups.

In view of our results, it seems politically unlikely, however, that co-payments will be abandoned. Therefore, IVF centres in Germany should prepare for the ongoing situation that their patients, unlike in other areas of health care in Germany, will face financial burdens at the point of consumption. As a result, the couples will more often act like market-driven consumers than in other areas of health care. That means they will make their demand of ART more frequently dependent on calculation of opportunity costs (i.e. what they must give up if they spend the money for assisted reproduction); they will be sensitive to service providers offering cheaper or better services (e.g. in other countries), and they will demand more control and decision-making authority regarding the type and quantity of their treatment. We do not propose that this development should necessarily be welcomed—we only propose that it will be likely.

We indicated three major normative convictions that were statistically associated with support for public funding. (i) ‘Infertility is a disease’. Since the status of being a disease is often seen as a decisive normative and legal criterion for a legitimate claim on health care, this relationship is not surprising. We deliberately refrained from defining what we understand by ‘disease’ in order to investigate whether respondents associate this normatively charged term with infertility. Otherwise we would have only asked for the technical judgement of the respondents whether infertility is covered by a stipulated definition. (ii) ‘Having children is a basic opportunity every human should have’. This view appeals to fair equality of opportunity with regard to assisted reproduction, another criteria that is often put forward to legitimate claims on health care. (iii) ‘Infertile couples with an unfulfilled desire for children are usually in need of assisted reproduction’. This view stipulates that assisted reproduction is usually a medically necessary treatment. It is interesting that we
found respondents’ view regarding financing ART associated with theoretical assumptions that are also key issues in the philosophical and ethical discourse on financing ART, i.e. infertility as disease, having children as basic human opportunity and assisted reproduction as a medically necessary versus non-necessary treatment (c.f. Brock, 1996; Neumann, 1997; Warnock, 2003; Tännjo, 2007; ESHRE Task Force on Ethics and Law, 2008).

We also investigated the respondents’ views on three general strategies for (increased) public funding of ART: (i) increase health care insurance premiums; (ii) make infertility treatment more cost efficient (rationalization); (iii) reduce services in other areas of health care (rationing). None of these strategies received clear support among respondents. An increase of premiums by about 1.50 € per month and insurant would be needed to cover all demand for ART. Many respondents were concerned about this option. This may reflect the growing political and public sensitivity for health care premiums in Germany which are already among the highest in the world.

Significant saving potential in infertility treatment was generally not seen among the majority of reproductive physicians and psychosocial counsellors, with the possible exception of medication. We asked these two groups only, because we regarded all other groups as not sufficiently informed for this particular judgement. Apparently, low-budget IVF treatments that are considered for less affluent societies (Hovatta and Cooke, 2006) have not been taken into account as a reasonable option for Germany. However, since also in Germany a significant number of couples refrain from or discontinue treatment for financial reasons, it should in our view be considered whether offering a safe but less effective and less expensive treatment would not be better than no affordable treatment at all. This is no general plea for lowering the quality of assisted reproduction, but a pragmatic suggestion for dealing with the problem of access to services for low income groups when public financing is limited.

With regard to the possibility of rationing services in other fields of health care, respondents were rather sceptical, apart from the interesting exception of reproductive physicians. This result repeats the frequent experience that it is hard for people to indicate dispensable health care services. Together, the data show that although a great majority in all groups favoured reducing co-payments, there was considerable less support for any of the three possible financing strategies. In other words: it is easy to support public financing as long as one is not pressed to say how it should be financed.

In some countries oocyte sharing or money-back guarantee are available as special financing strategies (ASRM Ethics Committee, 1998; Blyth, 2002). Both options were regarded rather sceptically by the majority of the respondents in our study. This scepticism might have been fostered by information given in the questionnaires that oocyte sharing is legally prohibited in Germany and may reduce the donating women’s own chance of success and that money-back guarantee might induce incentives for physicians to refuse patients with a rather low chance of success. Although there is a clear risk that this negatively connotated information induced a bias, omitting it would have introduced an even greater bias. Moreover, we believe that the responses would not have been different in tendency if the survey participants would have been informed in depth on these issues (which was not possible in a questionnaire). The reason is that in Germany the general public as well as most experts are very sensitive to inequalities and financial incentives in health care. This view is supported by a survey of Krones et al. (2006) among experts, the general public and IVF couples, which also revealed a strong tendency to reject oocyte sharing. Whatever arguments may be there in favour of or against these regulations, it seems politically unlikely that oocyte sharing or money-back guarantee will be an option for Germany in the foreseeable future.

Conclusions

Policy makers should take notice of the opinions of patients, professionals and the general public in Germany regarding financing ART. The data show a significant tendency in favour of reduced co-payments but a less clear tendency how to finance it. Potential for significant savings were neither seen in the field of assisted reproduction nor in other areas of health care. Introducing financial incentives or other elements of commercialization to reproductive medicine tended to be rejected with the exception of publishing success parameters of fertility centres.

The majority approval of covering ART was founded on the beliefs that couples suffering from involuntary childlessness are in need of treatment because infertility is a condition of ill health and having children is a basic opportunity everyone should have. These normative assumptions correlate to major issues in the philosophical and ethical discourse on financing ART.

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