Exploring Fertility Treatment Add-On Transparency in the UK: Patient Survey Results on Information and Costs

Manuela Perrotta[a]*, Marcin Smietana[ab], Melody Adesina[c] and Jack Wilkinson[c]

[a] Department of People and Organisation, Queen Mary University of London, London, UK

[b] Department of Philosophy and Cultural Heritage, Ca' Foscari University of Venice, Venice, Italy

[c] Division of Population Health, Health Services Research and Primary Care, University of Manchester, Manchester, UK

*Corresponding Author: Manuela Perrotta, m.perrotta@qmul.ac.uk

Abstract: This study presents the findings from a UK-based survey exploring fertility treatment add-ons, treatment costs, and information transparency. The online survey, distributed via social media, targeted current and prospective IVF patients, yielding 304 eligible responses. Results indicate an increase in the use of fertility treatment add-ons compared to previous data. Respondents primarily relied on multiple sources for information about these add-ons, with search engines being the most frequently used, followed by fertility clinic websites, the HFEA website, and medical or scientific articles. These sources were also deemed more reliable. In contrast, social media, online forums, and blogs were less frequently used and rated as less reliable. Respondents reported significant variation in privately funded treatment costs, ranging from £5,000 to £13,000, with an average of £11,950. Although there was a slight upward trend in costs with rising household income, no strong correlation was observed. Fertility clinic websites were the primary source of cost-related information, with 99.3% of respondents emphasised the importance of clinics providing accurate and up-to-date information on their websites. The findings also reveal respondents' views on potential policy actions to improve transparency around information and costs in the fertility sector.

Keywords: Fertility treatment add-ons; Quality of information; Cost transparency; Fertility clinics websites

Introduction

Fertility treatment add-ons refer to a range of additional tests, treatments, and technologies offered to patients undergoing IVF cycles. These add-ons are often marketed as ways to enhance the chances of success, but they often lack robust evidence supporting their effectiveness. Over the past decade, these interventions have become a focal point in discussions among fertility professionals, patients, and media outlets. Critics argue that many of these treatments are promoted without sufficient scientific validation, leading to concerns about their real value in improving fertility outcomes (Heneghan et al., 2016; Harper et al., 2017; Gleicher et al., 2021).

One of the major issues surrounding fertility add-ons is the quality of information provided to patients. Studies have shown that the available information is often incomplete or framed in ways that emphasise potential benefits without adequately addressing the limitations or risks (Spencer et al., 2016; Van de Wiel et al., 2020; Perrotta et al., 2024). This lack of clear, balanced communication can leave patients feeling uncertain or misled, making it difficult for them to make fully informed decisions about whether to invest in these treatments (Perrotta, 2024).

Another pressing concern is the lack of transparency surrounding the costs of fertility add-ons and their impact on the overall treatment expenses. While the financial burden of infertility is well-documented, the actual costs incurred by patients and the manner in which cost-related information is provided by fertility clinics remain under-investigated. While UK clinic websites typically advertise the cost of basic fertility treatments as ranging from £3,000 to over £7,000 (Perrotta et al., 2024), a survey conducted by the Fertility Network UK (2022) revealed that patients spend an average of £13,750. Without clear and consistent pricing information,

patients often struggle to understand the full financial implications of these optional treatments until they are already deeply involved in their fertility journey (CMA, 2020, 2022). This opacity can lead to unexpected costs, adding significant stress to an already emotionally and financially burdensome process. Concerns have been raised that the inability to easily compare prices between providers may contribute to mis-selling and prevent patients from making informed financial decisions (Perrotta and Smietana, 2024a).

There is currently no data on how patients seek out and evaluate information about fertility add-ons and their associated costs. Little is known about the sources patients rely on, their understanding of the available options, or how the available information influences their decisions about these treatments. This article addresses these gaps by presenting findings from a patient survey, offering new insights into how patients seek information on fertility add-ons and their associated costs.

Materials and methods

Survey Design

An online survey was designed to target individuals in the UK who were either current or prospective IVF patients. The survey focused on capturing their experiences with IVF and related add-ons, including how they searched for information about these treatments and their associated costs.

The questionnaire was developed using JISC Online Surveys and was designed to be completed in approximately 15 minutes. It underwent a pilot test involving members of the research team, a representative from Fertility Network UK, and three patients with IVF experience. Based on the feedback received, minor adjustments were made to the wording of certain questions and response options.

The survey questions covered a range of topics, including patient experiences with fertility treatment, use of fertility treatment add-ons, and methods of seeking information about these treatments and their costs. Eligibility criteria required participants to be aged 18 or older, reside in the UK, and identify as (prospective) fertility patients.

Recruitment Strategy

Participants were recruited through social media platforms, with the support of Fertility Network UK, which promoted the survey via their social media channels. While the recruitment strategy may not yield a fully representative sample of the UK population, it aimed to gather a wide range of perspectives and experiences.

To avoid bias and disproportionately attracting respondents with particularly strong opinions, the participant information materials, social media posts, and survey landing page were designed to broadly reference fertility treatments in the UK, without explicitly mentioning costs or add-ons.

The social media posts included a link to the participant information sheet, which provided detailed information about the study. From this sheet, participants could access the survey directly via a provided link.

Data Collection

The survey was available online from January 17, 2024, to June 17, 2024. After providing consent, the survey began with three mandatory screening questions to assess these exclusion criteria. Respondents who did not meet the eligibility requirements (e.g., being under 18, residing outside the UK, or not identifying as current or prospective fertility patients) were automatically redirected to the survey end page, concluding their participation in the survey.

Participants were then asked a series of sociodemographic questions modelled after the HFEA (2022) national patient survey. These included questions on sex, age, ethnic background, relationship status, and family status. Additional questions gathered information on participants' education level and household income. Participants were also asked about the timing of their fertility treatment and how it was funded.

Participants were then asked to indicate which fertility add-ons they had used from a list of 13 options, developed based on the HFEA's (2023) add-on rating system. Participants were further asked whether their treatment was conducted at an NHS or private facility, the costs of individual items in their most recent treatment cycle, the total cost of IVF-related expenses to date, and whether the final treatment costs aligned with their expectations.

Additionally, participants were asked where they sought information on fertility add-ons and costs, selecting from an expanded list of 18 options derived from the HFEA patient survey. They were also asked to rate the reliability of these sources and share their views on potential policy actions to improve transparency around information and costs in the fertility sector.

When multiple options were presented within the same question (e.g., for add-ons used or information sources), participants were asked a yes/no sub-question for each item. This approach was implemented to ensure that non-responses were not misinterpreted as a lack of preference or non-use of the item.

The survey used conditional logic to tailor questions based on participants' previous responses. Prospective patients were asked about their intentions, while those who had already undergone treatment were questioned about their experiences. Most survey questions offered multiple-choice responses or rating scales, with options for participants to provide additional free-text information when selecting the "other" option. The survey concluded with two open-ended questions inviting free-text responses.

Responses were collected anonymously to encourage honest participation and to protect participant privacy.

Statistical analysis

Descriptive analyses of survey responses were undertaken. Summaries of the cost variables were presented as mean, standard deviation, interquartile range and range, while we presented the summaries of the categorical variables as frequencies and percentages. Comparisons of the mean of the cost variables across the different groups of patient treatment trajectory were assessed using ANOVA, with the level of statistical significance set at $p < 0.05$. Given the large number of tests performed and in the absence of prespecified analyses, these analyses should be construed as exploratory and p-values as nominal. R studio software was used to conduct all analyses.

Ethics approval

This project received ethics approval from the School of Business and Management Queen Mary University of London Research Ethics Committee, under Reference: DSREC/2024/ DSREC56.

Results

Participant characteristics

A total of 306 responses were collected for the study, with 304 deemed eligible for inclusion. Although the survey was not specifically targeted at women, the majority of respondents (300) were female, reflecting a common trend in fertility research participation (Culley et al., 2013). In terms of ethnicity, 272 respondents identified as White, closely mirroring the distribution reported in the HFEA patient survey (2021).

The majority of participants (262) reported being in a heterosexual relationship, with 25 in same-sex relationships and 5 identifying as single. Respondents were geographically distributed across the UK and represented a wide age range. Of the respondents, 169 reported not having children.

Regarding fertility treatment, 177 participants had undergone treatment within the last two years, 45 had treatment between two and five years ago, and 63 were prospective patients. In terms of treatment experience, 187 respondents had undergone between one and three treatment cycles, while 73 had undergone four or more cycles. Forty-six respondents were still considering fertility treatment. Among respondents, 48 had their fertility treatments funded solely by the NHS, 109 were self-funded, and 82 reported a combination of both NHS and self-funding.

Participants were generally highly educated, with 131 holding undergraduate degrees and 113 having completed postgraduate education. In terms of household income, most respondents (222) reported a gross annual income of over £50,000. Further demographic details can be found in the accompanying Table 1.

Table 1 Demographics of survey participants

Participants characteristics	**N = 306**	
Age		
18-26	4	(1.3)
27-34	115	(37.6)
35-37	60	(19.6)
38-39	39	(12.7)
40-42	47	(15.4)
43-45	27	(8.8)
46-50	11	(3.6)
Over 50	3	(1.0)
Location		
East Midlands	19	(6.2)
East of England	23	(7.5)
London	33	(10.8)
North East England	15	(4.9)
North West England	38	(12.5)
Northern Ireland	9	(3.0)
Scotland	14	(4.6)
South East England	57	(18.7)
South West England	32	(10.5)
Wales	23	(7.5)
West Midlands	16	(5.2)
Yorkshire and the Humber	26	(8.5)
Number of treatment cycles undergone		
Undergone four or more treatment cycles	73	(23.9)
Undergone from one to three treatment cycles	145	(47.5)
About to start or in the first treatment cycle	39	(12.8)
Considering fertility treatment	46	(15.1)
None of the above	2	(0.7)
Gender		
Female	300	(99.0)
Male	2	(0.7)
Non binary	1	(0.3)
Current relationship status		
In a heterosexual relationship/married	262	(86.8)
In a same sex relationship/married	25	(8.3)
Single	15	(5.0)
Number or children		
I do not have children presently	169	(55.8)
One child or expecting first children	98	(32.3)
Prefer not to say	2	(0.7)
Two or more children	34	(11.2)
Ethnicity		

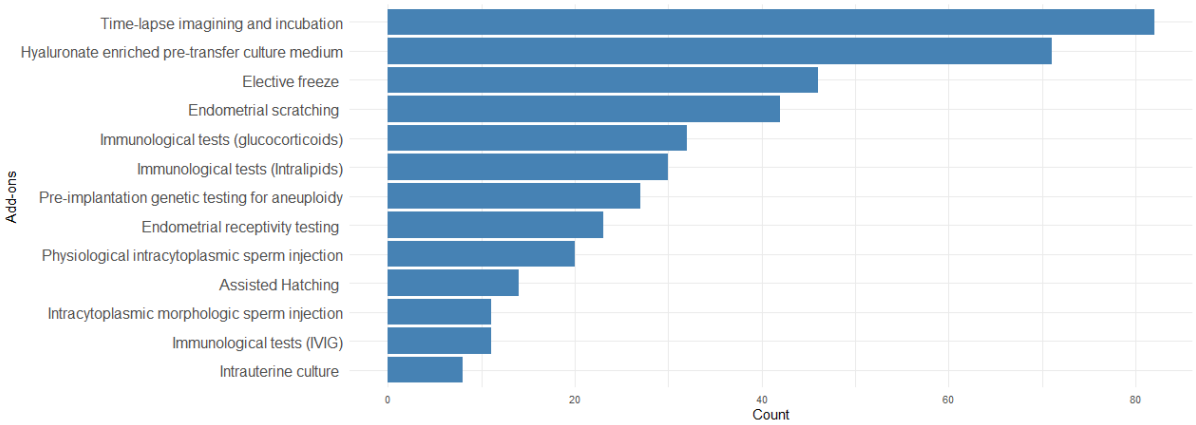
Asian or Asian British	12	(4.0)
Black/African/Black British or Caribbean	6	(2.0)
Mixed or multiple ethnic groups	9	(3.0)
Other (Welsh white, Jewish, Arab)	3	(1.0)
Prefer not to say	1	(0.3)
White	272	(89.8)
Level of education		
A levels, vocational level 3 and equivalents	28	(9.3)
Qualifications at level 1 and below	1	(0.3)
GCSE/O Level grade A*- C, vocational level 2 and equivalents	10	(3.3)
Higher Education postgraduate degree	113	(37.5)
Professional/vocational education	18	(6.0)
Higher Education undergraduate degree	131	(43.5)
Total household income per year (gross salary)		
£0 to £25,000	10	(3.3)
£25, 001 to £50,000	52	(17.2)
£50, 001 to £75,000	87	(28.8)
£75, 001 to £100,000	69	(22.8)
Above £100,001	66	(21.9)
Prefer not to say	18	(6.0)
Most recent treatment		
Currently or in the last two years	177	(58.4)
Over 10 years ago	5	(1.7)
Between 2 and 5 years ago	43	(14.2)
Between 6 and 10 years ago	15	(5.0)
I am a prospective patient	63	(20.8)
Values are frequencies (%), calculated on observed cases. Numbers do not sum to 306 due to missing data		

IVF Add-Ons: Use, information sources and perceived trustworthiness

The survey asked respondents to indicate which add-ons from a provided list were used in their treatment. This list included all the add-ons outlined in the HFEA rating system (2023), including the three subcategories related to immunological treatments and drugs.

Among the respondents, time-lapse imaging was the most frequently used add-on (82 instances), followed by hyaluronate enriched media (71), elective freezing (46), and endometrial scratch (42). Figure 1 ranks the usage of these add-ons, while a comprehensive breakdown can be found in Supplementary Table SI.

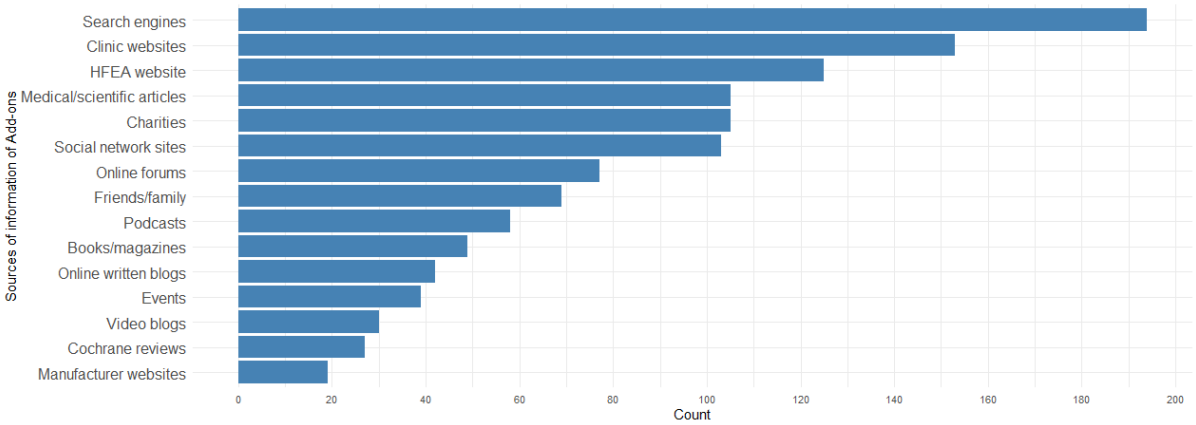
Figure 1 – Fertility treatment add-on use



In terms of where participants received additional fertility tests and/or treatments (add-ons), 128 reported receiving them at a private clinic, 29 in both NHS and private clinics, and 28 in the NHS (see Supplementary Table SII).

Respondents reported relying on multiple sources for information about add-ons. As shown in Figure 2, search engines (e.g., Google) were used by the majority of respondents (194), followed by fertility clinic websites (153), the HFEA website (125), and notably, medical/scientific articles (105). While these sources were frequently used, other sources had lower usage rates. Social networking sites (e.g., Facebook, Instagram, Twitter) were reported by 103 respondents, online forums (e.g., Mumsnet, Netmums, FertilityFriends) by 77, and online blogs by 42. The full ranking of sources used can be found in Figure 2.

Figure 2 – Sources patients used for seeking information on add-ons



While respondents reported relying on multiple sources for information about add-ons, their trust in these sources varies significantly. As detailed in Table 2, certain sources were rated as either 'rather' or 'extremely' reliable by the majority of respondents, including charity websites (e.g., Fertility Network UK), the HFEA website, fertility clinic websites (both private and NHS), and medical/scientific articles. In contrast, other sources, such as social networking sites, online blogs, and forums, were rated as reliable by a much smaller portion of respondents.

Table 2 – Perceived reliability of sources on fertility add-ons

Charity websites (e g. Fertility Network UK)	
1.Extremely unreliable	0 (0.0)
2.Rather unreliable	7 (3.6)
3.Neither unreliable nor reliable	41 (21.4)
4.Rather reliable	85 (44.3)
5.Extremely reliable	59 (30.7)
HFEA website	
1.Extremely unreliable	0 (0.0)
2.Rather unreliable	8 (4.3)
3.Neither unreliable nor reliable	44 (23.5)
4.Rather reliable	64 (34.2)
5.Extremely reliable	71 (38.0)
NHS website	
1.Extremely unreliable	6 (3.4)
2.Rather unreliable	22 (12.3)
3.Neither unreliable nor reliable	65 (36.3)
4.Rather reliable	58 (32.4)
5.Extremely reliable	28 (15.6)
NHS fertility clinic websites	
1.Extremely unreliable	4 (2.3)
2.Rather unreliable	19 (10.9)
3.Neither unreliable nor reliable	64 (36.6)
4.Rather reliable	68 (38.9)
5.Extremely reliable	20 (11.4)
Private fertility clinic websites	
1.Extremely unreliable	1 (0.5)
2.Rather unreliable	19 (9.9)
3.Neither unreliable nor reliable	56 (29.3)
4.Rather reliable	91 (47.6)
5.Extremely reliable	24 (12.6)

Social network sites (e g. Facebook, Twitter)	
1.Extremely unreliable	13 (7.1)
2.Rather unreliable	32 (17.6)
3.Neither unreliable nor reliable	89 (48.9)
4.Rather reliable	43 (23.6)
5.Extremely reliable	5 (2.7)
Online blogs	
1.Extremely unreliable	11 (6.7)
2.Rather unreliable	37 (22.4)
3.Neither unreliable nor reliable	85 (51.5)
4.Rather reliable	29 (17.6)
5.Extremely reliable	3 (1.8)
Video blog(s) (e g. on YouTube)	
1.Extremely unreliable	12 (7.4)
2.Rather unreliable	33 (20.4)
3.Neither unreliable nor reliable	91 (56.2)
4.Rather reliable	25 (15.4)
5.Extremely reliable	1 (0.6)
Forums (e g. Mumsnet, Netmums, Fertility friends)	
1.Extremely unreliable	12 (6.9)
2.Rather unreliable	39 (22.5)
3.Neither unreliable nor reliable	90 (52.0)
4.Rather reliable	28 (16.2)
5.Extremely reliable	4 (2.3)
Medical/scientific articles	
2.Rather unreliable	7 (4.3)
3.Neither unreliable nor reliable	49 (30.2)
4.Rather reliable	54 (33.3)
5.Extremely reliable	52 (32.1)
Cochrane reviews	
1.Extremely unreliable	2 (1.4)
2.Rather unreliable	6 (4.2)
3.Neither unreliable nor reliable	86 (60.1)
4.Rather reliable	26 (18.2)
5.Extremely reliable	23 (16.1)
Manufacturer websites	
1.Extremely unreliable	4 (2.8)
2.Rather unreliable	14 (9.7)
3.Neither unreliable nor reliable	102 (70.3)
4.Rather reliable	20 (13.8)
5.Extremely reliable	5 (3.4)
Numbers are reported as frequencies (%), calculated on observed cases	

Cost analysis, information sources and perceived trustworthiness

Survey respondents reported significant variation in the costs incurred for privately funded treatment, ranging from £5,000 to £13,000, with an average cost of £11,950. The additional cost for respondents accessing fertility treatment with NHS funding was £325, with a range from £0 to £2,750.

The survey asked how much respondents approximately paid for each treatment category in their last cycle (for a breakdown, see Table 3). NHS-funded patients reported paying £0 for treatment, while those who were self-funded incurred an average cost of £7,598. Several additional expenses were incurred, further increasing the variation in costs between NHS-funded and privately funded cycles. The average cost of fertility testing, treatment add-ons, and other expenses was £120, £112, and £109, respectively, for NHS-funded treatment, compared to £1,015, £1,708, and £3,217 for self-funded cycles. Additional details on how the costs vary based on the type of provider can be found in Supplementary Figure SI.

Table 3 – Reported cost of treatment

Questions/N	Total	NHS funded only	Private / self-funded only	Both NHS and private / self-funded
	239	48	109	82
Q15a. How much in £ did you have to pay yourself to cover additional costs in your last NHS funded treatment?	325.49 (711.72) 0 0 – 70 0 – 2750 198	205.78 (548.17) 0 0 – 33.75 0 – 2750 16	2200 (NE**) 2200 2200 – 2200 2200 – 2200 108	570 (963.31) 0 0 – 742.5 0 – 2750 74
Q15b. How much in £ did you have to pay in total to cover your last privately funded treatment?	11950.39 (24040.85) 8050 5000 – 13000 800 – 300000 72	NE* (NE*) NE* NE* NE* 48	14003.25 (30175.86) 9000 5000 – 13000 800 – 300000 6	8646.562 (5534.51) 7000 4750 – 11400 2000 – 21000 18
Q16. How much in £ did you approximately pay for each of the categories below in your last treatment? Please state the price in £.				
Fertility treatment	6778.31 (8755.30) 5000 2700 – 8750 0 – 75000 94	0 (0) 0 0 – 0 0 – 0 34	7598.49 (8752.32) 6000 3500 – 9575 1000 – 75000 33	7370.36 (9208.98) 5000 2950 – 8250 0 – 60000 27
Fertility testing (pre-treatment)	870.70 (1388.60) 500 190 – 1000 0 – 10000 140	120 (288.34) 0 0 – 0 0 – 1000 31	1015.29 (1529.01) 620 300 – 1000 0 – 10000 64	967.16 (1382.10) 500 200 – 1000 0 – 6000 45

Prescription charges for drugs	1539.27 (2425.16) 1000 200 – 2000 0 – 20000 93	56.48 (117.30) 17 0 – 40 0 – 500 27	2094.42 (3117.36) 1400 575 – 2125 0 – 20000 37	1372.64 (1335.37) 1000 500 – 2000 0 – 6000 29
Additional fertility tests and/or treatments (add-ons)	1299.45 (2459.66) 495 0 – 1425 0 – 15000 157	112.67 (326.20) 0 0 – 0 0 – 1200 33	1708.13 (3238.91) 500 0 – 1000 0 – 15000 77	1434.43 (2001.76) 880 200 – 2000 0 – 11000 47
HFEA fee	70.05 (79.87) 80 0 – 85 0 – 350 184	0 (0) 0 0 – 0 0 – 0 36	84.75 (71.85) 85 45 – 85 0 – 309 85	95.75 (91.04) 85 62 – 100 0 – 350 63
Other costs	1826.16 (4325.00) 500 0 – 1000 0 – 21000 196	109.09 (277.32) 0 0 – 0 0 – 900 37	3217.86 (5896.51) 500 300 – 2000 0 – 21000 88	886.36 (816.7285) 500 375 – 1250 0 – 2500 71
Q19. What is the total amount in £ you have personally paid for all the fertility treatment cycles you have undergone so far?	20536.17 (30555.76) 13000 5000 – 25000 0 – 300000 37	348.28 (914.8) 0 0 – 120 0 – 4000 19	27498.83 (39830.80) 16500 7500 – 30000 10 – 300000 11	19244.28 (15181.92) 15000 7400 – 25000 490 – 70000 7

Numbers are reported as:
Mean (SD)
Median
IQ range
Range
NA

*NE** (Not estimable because only one participant had data. This one person could have given the data in error)*
NE (all participants had NAs)*

Notably, the cost of self-funded treatment tends to rise as respondents undergo more cycles: the average cost of the first cycle is £7,180, increasing to £9,632 for those who have had two or three cycles, and up to £16,359 for those in their fourth cycle or beyond (see Supplementary Table SIII). Figure 3 reveals clear trends in how the costs of each treatment category vary with the number of treatment cycles. Across most cost categories (such as fertility treatment, add-ons, and total privately funded treatment costs) there is a noticeable increase in median costs as patients undergo more cycles, particularly in the group undergoing more than three cycles, which consistently shows the highest costs. However, the variation in costs is significant across all groups, especially for those who have completed more cycles, as evidenced by the wide range of values and outliers.

This version posted on October 10th, 2024, is a pre-print that has not yet been peer-reviewed and is currently under review.

Figure 3 – Costs of each treatment category by respondent treatment trajectory

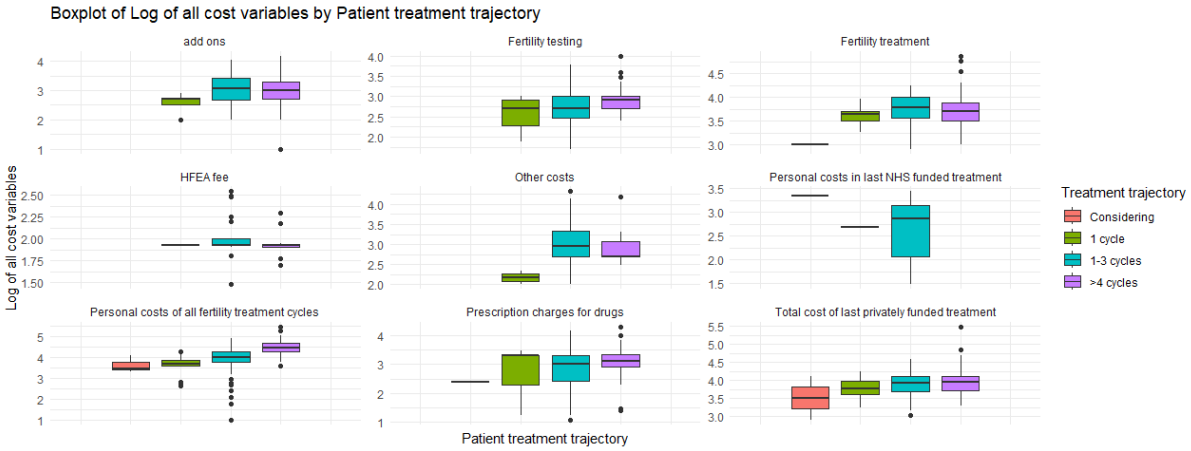
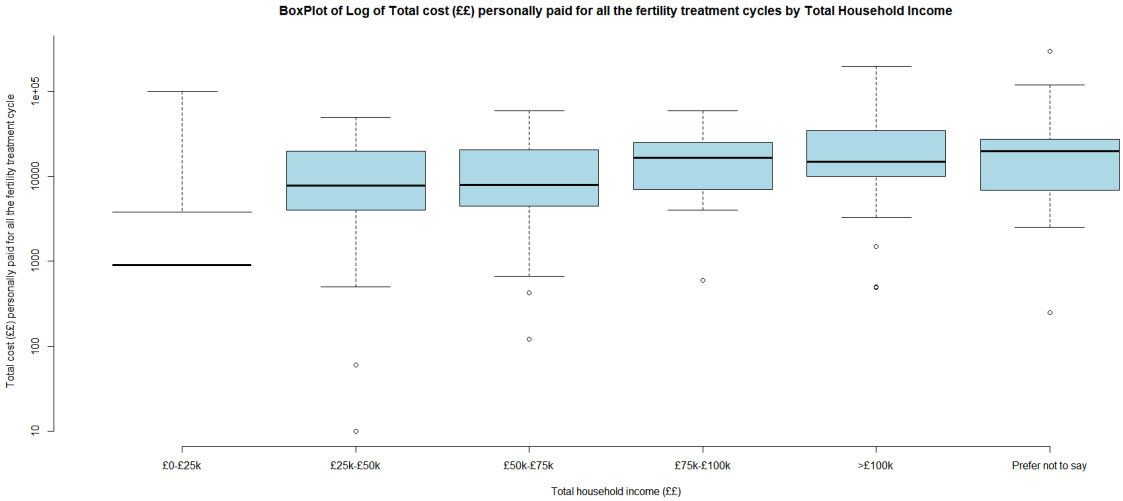


Figure 4 indicates a slight upward trend in fertility treatment costs as household income rises. Nonetheless, substantial variability exists within each income group, and the overall relationship between income and treatment costs appears weak.

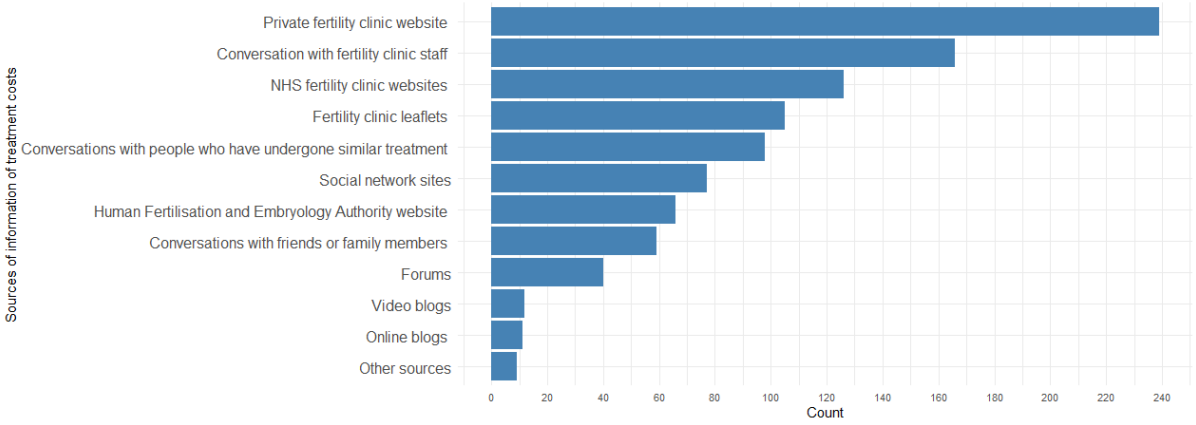
Figure 4 – Fertility treatment costs by household income



Regarding the transparency of information on costs, most respondents (66.8%) found the cost-related information provided by their clinic to be clear and reliable. However, less than half (48.2%) reported receiving complete cost information before starting treatment (see additional information in Supplementary Table SIV).

As detailed in Figure 5, the main sources of information regarding the cost of fertility treatments are private clinic websites (239), followed by conversations with fertility clinic staff (166), NHS clinic websites (126), and clinic leaflets (105). Similar to the information on add-ons, respondents perceive significant differences in the trustworthiness of these sources (see Supplementary Table SV for details).

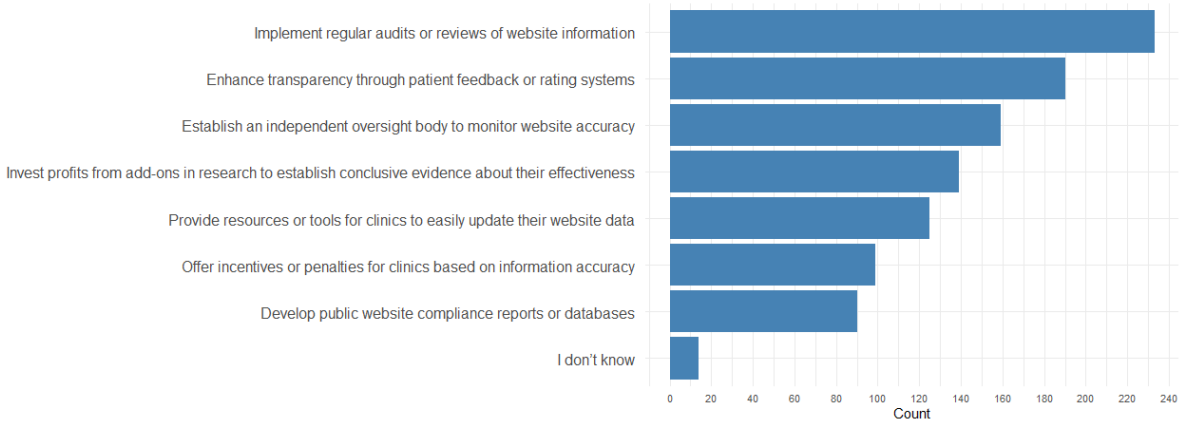
Figure 4 – Sources of information regarding the cost of fertility treatments



Patient Perspectives on Policy Action

The final section of the survey explored potential actions to ensure that fertility clinics maintain high standards of information accuracy. When asked how important it is for clinics to provide accurate and up-to-date information on their websites, an overwhelming 95.9% of respondents indicated it is "very important", with an additional 3.4% rating it as "quite important" (see Supplementary Table SVI). Respondents were also asked to select from a list of seven suggested actions to ensure clinics provide accurate and updated website information, as detailed in Figure 5. The vast majority (233 respondents) identified "Implement regular audits or reviews of website information" as the most important action, followed by "Enhance transparency through patient feedback or rating systems" (190), and "Establish an independent oversight body to monitor website accuracy" (159).

Figure 5 – Actions to Ensure Accurate and Updated Clinic Information



Finally, respondents were asked to rate five additional proposals aimed at improving cost transparency on a scale of 1 to 5, with 1 being "Not helpful at all", 2 "Rather unhelpful", 3 "Neither unhelpful nor helpful", 4 "Rather helpful", and 5 "Extremely helpful". While most respondents rated all five proposals (detailed in Figure 6) as rather or extremely helpful, the highest ratings were given to "Providing accurate and updated information about the total expected cost of treatment on fertility clinic websites" and "Providing accurate information about the total expected cost of treatment directly to patients after the initial consultation at a fertility clinic".

Figure 6 – Proposals aimed at improving cost transparency

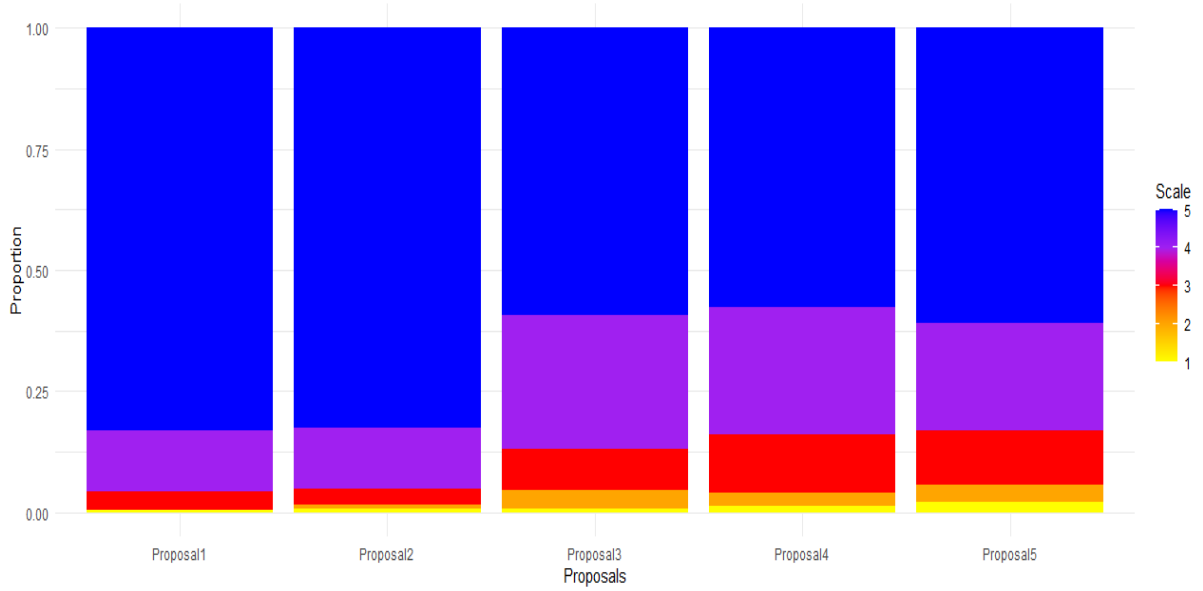
Proposal 1: Providing accurate and updated information about the total expected cost of treatment, on fertility clinic websites

Proposal 2: Providing accurate information about the total expected cost of treatment, directly to patients after initial consultation in a fertility clinic

Proposal 3: Sharing information about the total amount charged by a clinic on average per treatment

Proposal 4: Sharing information about the number and cost of treatment add-ons offered by a clinic per year

Proposal 5: Providing information on the actual costs of treatment add-ons incurred by clinics, including the mark-up compared to the charges imposed on patients



Discussion

This article presents the findings of a UK patient survey, providing insights into the use of fertility treatment add-ons, associated costs, and information transparency. The results broadly align with the trends observed in the HFEA National Patient Survey (2022), while also highlighting a notable increase in the use of common add-ons.

As in the HFEA survey, time-lapse imaging and hyaluronate enriched medium emerged as the most frequently used clinical add-ons. However, the usage reported in this survey is significantly higher, with 41.4% and 36.6% of respondents, respectively, reporting the use of time-lapse imaging and hyaluronate enriched medium (see Supplementary Table SI). This contrasts with the 27% and 16% reported in the HFEA survey. The increased use of hyaluronate enriched medium may be influenced by its recommendation in the ESHRE guidelines (2023), while the rising popularity of time-lapse imaging, also highlighted in a recent study on clinic website advertisements (Perrotta et al., 2024), conflicts with recent evidence assessments by both ESHRE (2023) and the HFEA (2023). Time-lapse imaging has been rated as “black” in the HFEA system, indicating that it does not improve success rates.

This survey also reveals a rise in the use of add-ons such as endometrial scratching (22.3%), elective freeze-all cycles (24.6%), and pre-implantation genetic testing for aneuploidy (15.1%), compared to the HFEA survey, where these were reported by 15%, 9%, and 7% of respondents, respectively. Additionally, the use of immunological tests and treatments, including steroids (17.4%), intralipids (16%), and IVIG (6.1%), has increased compared to the combined category (9%) reported in the HFEA survey. Notably, this survey excluded acupuncture from the list of add-ons, adhering to the HFEA classification where complementary and alternative medicine (CAM) is not considered an add-on.

Regarding the sources respondents used to seek information on add-ons (see Figure 2), the vast majority conducted online research, primarily using search engines like Google, clinic websites, and the HFEA website. Notably, a significant number of respondents also consulted medical and scientific articles. While social media platforms and other online sources such as blogs and forums were commonly used, respondents considered these sources significantly less trustworthy (see Table 2). For instance, the highest percentage of respondents rating a source as either 'rather' or 'extremely' reliable was for charity websites like Fertility Network (75%), followed by medical and scientific articles (65.4%), private clinic websites (60.2%), and NHS clinic websites (50.3%). In contrast, only 26.3% rated social networks as reliable, with even lower trust placed in blogs (19.4%) and online forums (18.5%).

The survey findings reveal that the average cost of respondents' most recent fertility treatment was £11,950, slightly lower than the £13,750 reported in previous surveys (Fertility Network UK, 2022). This difference may be attributed to cases where the last cycle involved partial procedures, such as embryo transfer. Notably, respondents who underwent self-funded treatment in private clinics faced an average cost of £12,977, nearly double the £6,990 reported by those receiving treatment in NHS facilities. Given that 74% of IVF cycles in the UK were

self-funded in 2021 (HFEA, Dashboard) and the limited data available on patient-incurred costs, further research should focus on this aspect. The survey results also support recent economic research (Keller et al., 2023), confirming that income level does not significantly impact patients' willingness to pay for fertility treatment.

Regarding the sources respondents used to seek information on fertility treatment costs, the survey found that private clinic websites are the primary source of cost information (see Figure 4). However, transparency remains a significant issue despite the high costs of treatment (see Supplement Table SIV). While only a small group (9.8%) reported not finding any cost information, only half of respondents (49.5%) were able to find full details on clinic websites. Furthermore, less than 30.2% of respondents found only basic treatment costs, without additional details on potential extra expenses they might incur.

Respondents unanimously emphasised the critical need for clinics to provide accurate and up-to-date information on their websites (see Supplementary Table SVI), particularly regarding the actual costs of treatment (Figure 6). A large majority supported the implementation of regular audits or reviews to ensure the reliability of this information. This call for transparency is particularly pressing, as multiple analyses of clinic websites (Spencer et al., 2016; Van de Wiel et al., 2020; Perrotta et al., 2024) indicate that the information provided is often inconsistent, outdated, and incomplete, with a tendency to overstate benefits and minimise risks. Additionally, previous research (Perrotta and Smietana, 2024b) highlights that maintaining accurate fertility clinic websites presents challenges, often exceeding staff capacity due to time and financial constraints, as many clinics lack dedicated personnel for website management. Some clinics view their websites as the 'front window' of private businesses, prioritising the portrayal of treatments and procedures in a positive light.

Limitations of the study

This study has two key limitations. The first and most significant limitation pertains to the retrospective study design, which required respondents to recall their past and ongoing experiences with fertility treatment. This reliance on memory may have introduced bias and reporting errors. For instance, some respondents struggled to remember the exact cost of procedures and instead provided approximate amounts, while others reported ranges; in such cases, average values were used in the data analysis. Additionally, recruitment through social media may have further limited participation, as not all eligible respondents are active social media users.

The second limitation is the lack of a standardised definition of fertility treatment. The survey did not clearly specify what was meant by "last treatment", leading to varied interpretations among respondents. They reported information encompassing full cycles (including ovulation induction, egg collection, and transfer), donor cycles (which included the cost of gametes), or partial cycles (such as thawing and transferring existing embryos from previous cycles). Similarly, the interpretation of cost categories suffered from a lack of standardisation regarding what should be classified as an add-on. In the survey, add-ons were defined as a range of additional tests, treatments, and technologies offered to patients undergoing IVF cycles, with a list from the latest iteration of the HFEA rating system provided in the question related to their use. However, when respondents were asked to report the costs of specific subcategories of treatment, some interpreted the categories of add-ons and other costs interchangeably.

Conclusion

The findings from this survey raise important considerations regarding the increasing use of fertility treatment add-ons, the costs associated with fertility treatment, and the transparency of information within the sector.

First, the reported rise in the use of time-lapse imaging raises concerns, particularly in light of growing evidence suggesting that this tool does not enhance success rates. This case casts doubt on the tendency for costly innovations to remain in use despite a lack of supporting evidence, especially when they are implemented before such evidence is established. This is particularly problematic, as highlighted in this article, given that this innovation model significantly impacts treatment costs, which are primarily borne by patients due to the lack of public funding.

The results also corroborate previous research (HFEA, 2022; CMA, 2020, 2022) that underscores the central role of clinic websites as key sources of information for both add-ons and treatment costs. The findings of this survey should inform clinics about the critical importance of providing accurate and up-to-date information on their websites. Additionally, the survey results clearly demonstrate that patients demand monitoring of clinic websites regarding the accuracy of treatment information and cost transparency. While oversight of financial aspects of fertility treatment is beyond the current remit of the HFEA, these results support the need to extend the HFEA's powers to oversee how clinics present financial information. Although standardising costs may not be feasible (see Perrotta and Smietana, 2024a for a discussion), it is crucial to develop clear guidelines on how costs should be presented. This will improve the quality of cost-related information and facilitate comparisons across clinics.

Data availability statement

The data that support the findings of this study are available from the corresponding author, MP, upon reasonable request.

Supplementary Data

Supplementary Table SI - Fertility treatment add-on use

Add-ons	Yes (n (%))	No (n (%))	Total (N)
Assisted Hatching	14 (7.7)	167 (92.3%)	181
Elective freeze	46 (24.6)	141 (75.4%)	187
Endometrial receptivity testing	23 (12.6)	159 (87.4%)	182
Endometrial scratching	42 (22.3)	146 (77.7%)	188
Hyaluronate enriched pre-transfer culture medium (e.g. EmbryoGlue)	71 (36.6)	123 (63.4%)	194
Immunological tests and treatments for fertility – Intralipids	30 (16.0)	158 (84%)	188
Immunological tests and treatments for fertility – Intravenous immunoglobulin (IVIG)	11 (6.1)	168 (93.9%)	179
Immunological tests and treatments for fertility – Steroids (glucocorticoids)	32 (17.4)	152 (82.6%)	184
Intracytoplasmic morphologic sperm injection (IMSI)	11 (6.2)	165 (93.8%)	176
Intrauterine culture	8 (4.7)	163 (95.3%)	171
Physiological intracytoplasmic sperm injection (PICSI)	20 (11.1)	160 (88.9%)	180
Pre-implantation genetic testing for aneuploidy (PGT-A)	27 (15.1)	152 (84.9%)	179
Time-lapse imagining and incubation	82 (41.4)	116 (58.6%)	198
Other treatments	38 (22.8)	129 (77.2%)	167
I don’t know	11 (21.6)	40 (78.4%)	51
Prefer not to say	1 (3.2)	30 (96.8%)	31

Supplementary Table SII - Where patients received fertility treatment add-ons

	n (%)
Both NHS and private	29 (13.7)
I don know	18 (8.5)
NHS	28 (13.3)
Prefer not to say	8 (3.8)
Private	128 (60.7)

Supplementary Table SIII - Costs of Self-Funded Fertility Treatment by Cycle Count

	Considering	1 cycle	1-3 cycles	>4 cycles	Pvalue**
N	46	39	145	73	
Q15a. Personal additional costs (£) in last NHS funded treatment	733.33 (1270.17) 43	196.00 (268.38) 34	363.04 (759.99) 117	0.00 (0.00) 68	0.533
Q15b. Total cost (£) of last privately funded treatment	6900.00 (8626.70) 44	7180.50 (4633.02) 29	9632.58 (6301.12) 52	16359.35 (38419.18) 11	0.332
Q16. How much in £ did you approximately pay for each of the categories below in your last treatment? Please state the price in £.					
Fertility treatment	1000.00* 45	3999.29 (2912.33) 32	6086.45 (4486.22) 59	8439.71 (13421.89) 22	0.321^
Fertility testing	None reported 46	456.88 (405.00) 31	764.72 (1174.14) 87	1157.27 (1807.15) 40	0.296
Prescription charges for drugs	240.00* 45	1031.00 (1264.88) 32	1252.84 (1892.40) 58	2123.14 (3184.98) 22	0.19^
Add-ons	None reported 46	378.00 (326.22) 34	1208.59 (2168.58) 99	1582.90 (3004.88) 42	0.561
HFEA fee	None reported 46	28.33 (49.07) 36	75.26 (91.31) 110	66.71 (55.82) 56	0.616
Other costs	None reported 46	108.33 (112.73) 36	1930.00 (4495.74) 115	2030.00 (4593.24) 63	0.782
Q19. Total cost (£) personally paid for all the fertility treatment cycles undergone reported so far	6066.67 (6017.75) 43	5228.53 (5477.35) 22	12364.71 (13329.79) 28	39916.15 (45011.09) 8	<0.001

Numbers are reported as:
Mean (SD)
NA

None reported (All participant had missing data)
**(SD can't be estimated due to only one participant with reported data)*
*** (F- test), ^ (test excludes the group with *)*
The 'None of the above' category was removed because only two participants were in that category, and they had missing values
Numbers were calculated on observed cases. This makes the mean values in the 'considering' category erroneous

Perrotta et al., 2024.
This version posted on October 10th, 2024, is a pre-print that has not yet been peer-reviewed and is currently under review.

Supplementary Table SIV – Transparency of information on costs

Q17. In your last treatment, did you expect to pay for additional fertility tests and/or treatments (add-ons) other than IVF?	
I don't know	21 (9.4)
No. I did not expect to pay for additional fertility treatments before starting. I was informed during treatment	27 (12.1)
No. I did not expect to pay for additional fertility treatments before starting. They were included in the initial cost	39 (17.4)
Yes but I ended up paying more than advised before treatment	30 (13.4)
Yes. I paid the amount advised before starting treatment	90 (40.2)
Other	16 (7.1)
Prefer not to say	1 (0.4)
Q18. In your last treatment, was the total cost you were advised about before starting the treatment the same as the amount you paid at the end?	
I don't know	5 (2.3)
No but I am considering some of the above for the future	26 (11.8)
No. I had my preferred treatment	133 (60.5)
Yes. I chose egg sharing to reduce costs	2 (0.9)
Yes. I decided against having additional treatments, tests and add-ons to reduce costs	28 (12.7)
Yes. I didn't undergo fertility genetic tests to reduce costs	15 (6.8)
Other	11 (5.0)
Q31. Did you receive a bespoke costing for your treatment from your clinic?	
I don't know	18 (6.6)
I haven't started treatment yet	47 (17.3)
I received complete information about the cost before I started my treatment. This includes fertility testing, drugs and add-ons.	131 (48.2)
I received partial information about the cost before I started my treatment. This includes fertility testing, drugs and add-ons but additional costs I was not aware of were added later	74 (27.2)
Prefer not to say	2 (0.7)
Q32. Overall, was the cost-related information you received from your clinic clear and reliable?	
I don't know	30 (11.5)
No	53 (20.2)
Prefer not to say	4 (1.5)
Yes	175 (66.8)
Numbers are reported as frequency (%), calculated on observed cases	

Perrotta et al., 2024.

Supplementary Table V – Perceived reliability of sources on the cost of fertility treatment

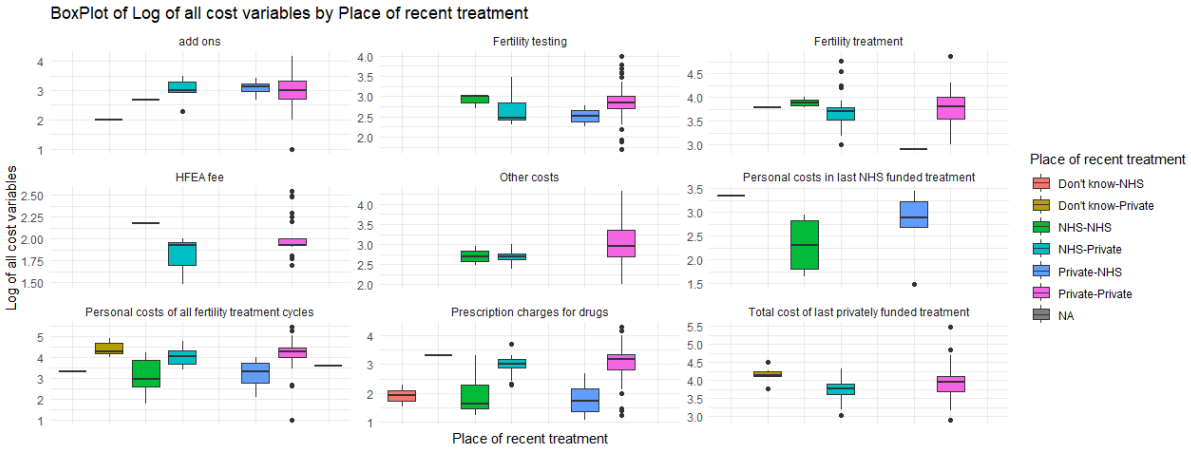
NHS fertility clinic websites	
1.Extremely unreliable	13 (6.8)
2.Rather unreliable	34 (17.7)
3.Neither unreliable nor reliable	66 (34.4)
4.Rather reliable	53 (27.6)
5.Extremely reliable	26 (13.5)
Private fertility clinic websites	
1.Extremely unreliable	7 (3.3)
2.Rather unreliable	21 (9.8)
3.Neither unreliable nor reliable	38 (17.7)
4.Rather reliable	102 (47.4)
5.Extremely reliable	47 (21.9)
Fertility clinic leaflets	
1.Extremely unreliable	3 (1.7)
2.Rather unreliable	18 (10.2)
3.Neither unreliable nor reliable	63 (35.8)
4.Rather reliable	68 (38.6)
5.Extremely reliable	24 (13.6)
Conversation with fertility clinic staff	
1.Extremely unreliable	3 (1.6)
2.Rather unreliable	16 (8.6)
3.Neither unreliable nor reliable	44 (23.7)
4.Rather reliable	74 (39.8)
5.Extremely reliable	49 (26.3)
Human Fertilisation and Embryology Authority (HFEA) website	
1.Extremely unreliable	2 (1.2)
2.Rather unreliable	13 (7.8)
3.Neither unreliable nor reliable	76 (45.8)
4.Rather reliable	53 (31.9)
5.Extremely reliable	22 (13.3)
Social network sites (e.g. Facebook, Instagram, Twitter)	
1.Extremely unreliable	11 (6.9)
2.Rather unreliable	30 (18.9)
3.Neither unreliable nor reliable	79 (49.7)
4.Rather reliable	33 (20.8)
5.Extremely reliable	6 (3.8)
Online blogs	
1.Extremely unreliable	13 (8.7)
2.Rather unreliable	28 (18.8)
3.Neither unreliable nor reliable	92 (61.7)
4.Rather reliable	15 (10.1)
5.Extremely reliable	1 (0.7)

Video blog(s) (e.g. on YouTube)	
1.Extremely unreliable	12 (8.2)
2.Rather unreliable	29 (19.7)
3.Neither unreliable nor reliable	94 (63.9)
4.Rather reliable	11 (7.5)
5.Extremely reliable	1 (0.7)
Forums (e.g. Mumsnet, Netmums, FertilityFriends)	
1.Extremely unreliable	13 (8.5)
2.Rather unreliable	33 (21.6)
3.Neither unreliable nor reliable	86 (56.2)
4.Rather reliable	19 (12.4)
5.Extremely reliable	2 (1.3)
Conversations with friends or family members	
1.Extremely unreliable	9 (5.8)
2.Rather unreliable	25 (16.0)
3.Neither unreliable nor reliable	80 (51.3)
4.Rather reliable	34 (21.8)
5.Extremely reliable	8 (5.1)
Conversations with people who have undergone similar treatment	
1.Extremely unreliable	3 (1.9)
2.Rather unreliable	18 (11.3)
3.Neither unreliable nor reliable	60 (37.7)
4.Rather reliable	60 (37.7)
5.Extremely reliable	18 (11.3)
Numbers are reported as frequency (%), calculated on observed cases	

Supplementary Table VI – Importance of accurate and updated clinic website information

Q33. In your opinion, how important is it that clinics provide accurate and updated information on their websites?	
Not important	0 (0.0)
Prefer not to say	0 (0.0)
I don't know	2 (0.7)
Quite important	10 (3.4)
Very important	281 (95.9)
Numbers are reported as frequency (%), calculated on observed cases	

Supplementary Figure S1 - Cost variations in fertility treatments by provider type



References

CMA (Competition and Markets Authority) (2020) The Competition and Markets Authority: Self- funded IVF Research, qualitative research report. Available from: https://assets.publishing.service.gov.uk/media/632c2fefe90e073721b08402/Consumer_research_report_160922.pdf

CMA (2022b) Patients' Experiences of Buying Fertility Treatment. Qualitative Research *Report*. Available from: https://assets.publishing.service.gov.uk/media/632c2fefe90e073721b08402/Consumer_research_report_160922.pdf

Culley, L., Hudson, N., & Lohan, M. (2013). Where are all the men? The marginalization of men in social scientific research on infertility. Reproductive biomedicine online, 27(3), 225-235.

Fertility Network UK (2022). Fertility Network UK survey. The impact of fertility challenges and treatment. Available from: https://fertilitynetworkuk.org/wp-

content/uploads/2022/10/Fertility-Network-Infertility-and-Fertility-treatment-Impact-report-2022.pdf

Gleicher, N., Mochizuki, L., & Barad, D. H. (2021). Time associations between US birth rates and add-Ons to IVF practice between 2005–2016. Reproductive Biology and Endocrinology, 19, 1-12.

Harper, J., Jackson, E., Sermon, K., Aitken, R.J., Harbottle, S., Mocanu, E. et al (2017) 'Adjuncts in the IVF laboratory: where is the evidence for "add- on" interventions?', Human Reproduction, 32(3): 485– 91.

Heneghan, C., Spencer, E.A., Bobrovitz, N., Collins, D.R.J., Nunan, D., Plüddemann, A. et al (2016) 'Lack of evidence for interventions offered in UK fertility centres', BMJ, 355: i6295.

HFEA (Human Fertilisation and Embryology Authority) (nd), HFEA dashboard. Available from: https://www.hfea.gov.uk/about-us/hfea-dashboard/

HFEA (2022) National Patient Survey 2021. Available from: https://www.hfea.gov.uk/about-us/publications/research-and-data/national-patient-survey-2021

HFEA (2023) Treatment Add-ons with Limited Evidence. Available from: https://www.hfea.gov.uk/treatments/treatment-add-ons/

Keller, E., Botha, W., & Chambers, G. M. (2023). What features of fertility treatment do patients value? Price elasticity and willingness-to-pay values from a discrete choice experiment. Applied Health Economics and Health Policy, 21(1), 91-107.

Perrotta, M. (2024). Biomedical Innovation in Fertility Care: Evidence Challenges, Commercialization, and the Market for Hope. Bristol University Press.

Perrotta, M., Smietana, M. (2024a). Ensuring Cost Transparency and Fully Informed Decision-making: Addressing Key Needs, Priorities, and Challenges, Research Digest #3, Remaking Fertility, Queen Mary University of London. Available from: https://remakingfertility.sbm.qmul.ac.uk/index.php/research-digests/

Perrotta, M., Smietana, M. (2024b). Information Provision on UK Fertility Clinic Websites: Addressing Key Needs, Priorities and Challenges, Research Digest #2, Remaking Fertility, Queen Mary University of London. Available from: https://remakingfertility.sbm.qmul.ac.uk/index.php/research-digests/

Perrotta, M., Zampino, L., Geampana, A., & Bhide, P. (2024). Analysing adherence to guidelines for time-lapse imaging information on UK fertility clinic websites. Human Fertility, 27(1), 2346595.

Spencer, E.A., Mahtani, K.R., Goldacre, B. and Heneghan, C. (2016) 'Claims for fertility interventions: a systematic assessment of statements on UK fertility centre websites', BMJ Open, 6(11): e013940.

van de Wiel, L., Wilkinson, J., Athanasiou, P. and Harper, J. (2020) 'The prevalence, promotion and pricing of three IVF add-ons on fertility clinic websites', Reproductive BioMedicine Online, 41(5): 801– 6.