Current Internet use and preferences of IVF and ICSI patients

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BACKGROUND: Nowadays, the Internet has a tremendous impact on modern society, including healthcare practice. The study aim was to characterize current Internet use by IVF and ICSI patients and to identify their preferences regarding Internet applications in fertility care. METHODS: A total of 163 couples with fertility problems awaiting an IVF or ICSI procedure in the University Medical Centre Nijmegen, The Netherlands, was asked to complete a written questionnaire on Internet use in general, and also for fertility-related problems, preferences regarding Internet applications in fertility care and demographic characteristics. RESULTS: The response rate was 82%. In total, 81% of infertile couples used the Internet. Multivariate logistic regression analysis showed ethnic background and annual family income to be significant predictors of Internet use. Some 66% of Internet users and 54% of the total study population used the Internet for fertility-related problems. The female partners were the main Internet users with regard to fertility-related issues. In terms of preferences of the study participants, the majority favoured personal medical information online. CONCLUSIONS: Most infertile couples used the Internet with respect to fertility-related problems and were interested in implementation of Internet applications in fertility care. Healthcare providers should actively participate in the development and implementation of Internet applications in fertility care. Key words: Fertility problems/ICSI/Internet/IVF/preferences

Introduction

During the past decade, the use of the Internet has shown a spectacular growth, and today it has a tremendous impact on modern society, including healthcare practice.

The use of the Internet in healthcare practice offers many opportunities. Patients can use the Internet to obtain medical information and also to interact with other patients, patient organizations and healthcare providers. Access to information can empower patients to make better-informed decisions about health-related issues and participate more actively in healthcare practice (Ford, 2000; Berland et al., 2001). In addition, online contact with other patients, patient organizations and healthcare providers can offer comfort and support (Epstein et al., 2002). The Internet can also contribute to the development of new ways of health promotion, disease prevention and the treatment of medical problems (Eysenbach and Diepgen, 1999).

However, use of the Internet in healthcare practice has some potential disadvantages, notably as the accessibility, quality and readability of health-related information on the Internet are often deficient (Impicciatore et al., 1997; Berland et al., 2001; Suarez-Almazor et al., 2001; Okamura et al., 2002). Consequently, patients may base their medical decision-making on irrelevant, unreliable or misleading health-related information, which in turn could cause damage to their physical and emotional well-being. Other possible threats to patients concern the purchase of medication via the Internet and its subsequent use without consulting a healthcare provider, in addition to a violation of privacy during Internet use.

In the field of reproductive medicine, numerous Internet resources about fertility-related problems are available to infertile couples. Couples with fertility problems are, by their demographic profile, the perfect Internet population and are likely to use the Internet in relation to their fertility problems. First, infertile couples are relatively young and therefore often familiar with the use of information and communication technologies. Second, couples with fertility problems generally wish to be well informed about fertility-related issues.

Little is known about use of the Internet by infertile couples however, with only one study having shown that a considerable proportion of infertile couples from all socio-economic levels have used the Internet to obtain information and seek support with regard to their fertility problems (Weissman et al., 2000).
Clearly, there is a lack of awareness of more recent data about the extent and consequences of Internet use by infertile couples, and in particular among European countries. Moreover, the preferences of infertile couples with regard to Internet applications in fertility care are also unknown.

In the present study, the aim was to characterize current use of the Internet by couples with fertility problems awaiting an IVF or ICSI procedure, and to identify their preferences regarding Internet applications in fertility care.

Materials and methods

Study design

A cross-sectional survey was conducted in which the study population consisted of all couples with fertility problems on the waiting-list of October 2001 for an IVF or ICSI procedure at the University Medical Centre Nijmegen (UMCN), The Netherlands. The UMCN is a tertiary clinic at which approximately 950 IVF and ICSI procedures are carried out annually.

Data were collected using a written questionnaire. The first version of the questionnaire was pre-tested in a clinical setting by a trial group of eight infertile couples attending the UMCN for an IVF or ICSI procedure, and also by two fertility specialists working at the UMCN. Their comments were evaluated in face-to-face interviews, and subsequently the questionnaire was adapted and sent by mail in November 2001 to the selected study population. At 3 weeks after the initial mailing, a reminder was sent to the non-responders requesting them to complete and return the questionnaire. The questionnaires were collected during the period November 2001 to January 2002.

Table I. Demographic characteristics of study participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Fertility-related Internet users (n = 72)</th>
<th>Only general Internet users (n = 37)</th>
<th>Non-users (n = 25)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>35.2 ± 4.62</td>
<td>36.5 ± 6.44</td>
<td>34.8 ± 4.69</td>
<td>0.52a</td>
</tr>
<tr>
<td>Women</td>
<td>32.2 ± 3.94</td>
<td>32.5 ± 3.14</td>
<td>31.1 ± 5.05</td>
<td>0.19a</td>
</tr>
<tr>
<td>Ethnic backgroundb</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dutch (n)</td>
<td>70 (97)</td>
<td>36 (97)</td>
<td>17 (68)</td>
<td>&lt;0.001b</td>
</tr>
<tr>
<td>Non-Dutch (n)</td>
<td>2 (3)</td>
<td>1 (3)</td>
<td>8 (32)</td>
<td></td>
</tr>
<tr>
<td>Education leveld</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0 (0)</td>
<td>1 (3)</td>
<td>5 (20)</td>
<td>&lt;0.001b</td>
</tr>
<tr>
<td>Middle</td>
<td>31 (43)</td>
<td>16 (43)</td>
<td>10 (40)</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>40 (56)</td>
<td>20 (54)</td>
<td>10 (40)</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annual family income (euros)</th>
<th>Only general Internet users</th>
<th>Non-users</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;22 700</td>
<td>3 (4)</td>
<td>8 (32)</td>
<td>&lt;0.001b</td>
</tr>
<tr>
<td>22 700–45 400</td>
<td>31 (43)</td>
<td>11 (44)</td>
<td></td>
</tr>
<tr>
<td>&gt;45 400</td>
<td>31 (43)</td>
<td>3 (12)</td>
<td></td>
</tr>
</tbody>
</table>

*Values are mean ± SD.
Values in parentheses are percentages.
Mann–Whitney test.
Chi-square test.
The ethnic background of infertile couples was determined by the origin of both partners. Dutch = one or both partners of the couple are of Dutch origin; Non-Dutch = both partners of the couple are not of Dutch origin.
The education level of infertile couples was determined by the highest education level of both partners. Low = primary or lower vocational education; Middle = secondary or intermediate vocational education; High = higher professional education or university.

Questionnaire

The five-page written questionnaire consisted of 30 questions. Most questions were multiple-choice with two or more answer possibilities, sometimes including a category ‘other’ with a free text space. Four open questions were included in the questionnaire.

Both partners of the infertile couple were asked to complete the questionnaire together. All subjects were questioned about:
1. Demographic characteristics such as age, ethnic background, education and annual family income.
2. Frequency of general and fertility-related Internet use.
3. Location of Internet use and type of Internet connection.
4. Preferences regarding Internet applications in fertility care.
Subjects who used the Internet with regard to fertility-related problems were also asked about:
1. The start of fertility-related Internet use.
2. The main Internet user within the couple with regard to fertility-related issues.
4. Favourite website on the Internet about fertility-related issues.
5. Use of Internet applications to communicate with other patients, patient organizations and healthcare providers about fertility-related problems.
7. Frequency of searching on the Internet for specific topics and websites regarding fertility-related issues.
8. Motivation for Internet use regarding fertility-related issues.
9. Consequences of fertility-related Internet use.
10. Opinions about online information regarding fertility-related issues.
11. Privacy during Internet use.
The information was confusing and difficult to understand 72 13 15
The information was accurate and could be trusted 41 17 42
We wanted to obtain a second opinion 5 20 75
We were dissatisfied with the information provided by healthcare providers about fertility-related issues 11 27 62

**Consequences of fertility-related Internet use**
Our knowledge about fertility problems improved 64 25 11
Decision-making about the treatment of our fertility problem was facilitated 39 44 17
We discussed the information found on the Internet with our healthcare providers 17 35 48
The information could be found easily 66 28 6
The information was accurate and could be trusted 48 48 4
The information was confusing and difficult to understand 0 25 75

**Table II.** Perceptions of Internet users about fertility-related Internet use

<table>
<thead>
<tr>
<th>Statements about fertility-related Internet use</th>
<th>Agree (%)</th>
<th>Neutral (%)</th>
<th>Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivations for fertility-related Internet use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We wished to understand our fertility problem better</td>
<td>72</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>We were seeking emotional support</td>
<td>41</td>
<td>17</td>
<td>42</td>
</tr>
<tr>
<td>We wanted to obtain a second opinion</td>
<td>5</td>
<td>20</td>
<td>75</td>
</tr>
<tr>
<td>We were dissatisfied with the information provided by healthcare providers about fertility-related issues</td>
<td>11</td>
<td>27</td>
<td>62</td>
</tr>
<tr>
<td><strong>Consequences of fertility-related Internet use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our knowledge about fertility problems improved</td>
<td>64</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Decision-making about the treatment of our fertility problem was facilitated</td>
<td>39</td>
<td>44</td>
<td>17</td>
</tr>
<tr>
<td>We discussed the information found on the Internet with our healthcare providers</td>
<td>17</td>
<td>35</td>
<td>48</td>
</tr>
<tr>
<td>The information could be found easily</td>
<td>66</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>The information was accurate and could be trusted</td>
<td>48</td>
<td>48</td>
<td>4</td>
</tr>
<tr>
<td>The information was confusing and difficult to understand</td>
<td>0</td>
<td>25</td>
<td>75</td>
</tr>
</tbody>
</table>

The English translation of the questionnaire is available on the Internet (http://www.umcn.nl/userfiles/other/Questionnaire_Internet_use.doc).

**Statistical methods**

To test for statistical significant differences between the two groups of Internet users and non-users, the Mann–Whitney test was used in the case of quantitative variables and the chi-square test in the case of categorical variables.

A univariate logistic regression analysis was performed to evaluate the prognostic ability of the variables separately to discriminate between Internet use and non-Internet use. Crude odds ratios (OR) with 95% confidence intervals (CI) were presented.

In addition, a multivariate logistic regression analysis with selection procedures was carried out to analyse which variables were sufficient and complete to contribute independently to the probability of Internet use. Adjusted OR with 95% CI were presented.

**Results**

Initially, 89 (55%) of 163 distributed questionnaires were returned. After reminding non-responders, a total of 134 (82%) of 163 selected couples with fertility problems completed and returned the questionnaire.

Overall, 109 (81%) of the 134 couples used the Internet, while 25 (19%) couples were never online. The Internet was used for fertility-related problems by 72 couples; that is, by 66% of the 109 Internet users and by 54% of all couples. Thirty-seven couples reported using the Internet only in general (34% of the Internet users and 28% of all couples).

The demographic characteristics of the study participants are presented in Table I.

**General Internet use**

The 72 couples who used the Internet for fertility-related problems were questioned about their general Internet use. The majority (49/72; 68%) indicated their main location for Internet use to be at home, while the remainder mainly used it either at work (17/72; 24%), equally at home and at work (7/72; 10%), at the homes of relatives or friends (5/72; 7%), or in public places (1/72; 1%).

The majority of couples (46/72; 64%) used analogue telephone lines to access the Internet. Others used digital subscriber lines, such as ‘Integrated Services Digital Network’ (ISDN) (17/72; 26%) or faster connections such as ‘Asymmetric Digital Subscriber Line’ (ADSL) or cable (5/72; 7%).

**Fertility-related Internet use**

The 72 couples who used the Internet for fertility-related problems were asked about such usage. The majority (48/72; 67%) used it less than once a month for such purpose, and 17 couples (24%) used it once or more each month. A minority (4/72; 6%) were online once or several times a week, or at least once each day (3/72; 4%) for fertility-related problems.

Of the 72 couples, 36 (50%) reported their fertility-related Internet use to be largely self-initiated, while 26 couples (36%) were referred to the Internet by healthcare providers, and 10 couples (14%) had been advised by relatives or friends, patient organizations or the media.

The majority of the couples (51/72; 71%) used the Internet most frequently for fertility-related problems during the period after referral to the UMCN. Eleven couples (15%) were most frequently online before referral to the UMCN, and 10 (14%) indicated other episodes of frequent Internet use for fertility-related issues.

Among 72 couples, 43 (60%) reported the female partner to be the main Internet user for fertility-related problems, whilst the male partner was the main user in only nine cases (13%). Twenty couples (28%) reported that both partners used the Internet equally for fertility-related issues.

Most couples (47/72; 65%) used search engines to seek information on the Internet. When asked to state one or two of their most frequently used search terms, 34 couples reported a total of 62 search terms. The most-stated search terms were ‘IVF’ (21/62; 34%), ‘infertility’ (17/62; 27%), ‘ICSI’ (5/62; 8%) and ‘fertility’ (2/62; 3%). Other search terms mentioned...
used the Internet to obtain a second opinion, and few couples (8/71; 11%) indicated dissatisfaction with the information provided by healthcare providers about fertility-related issues as a reason for their Internet use.

In addition, the couples were questioned about the consequences of their fertility-related Internet use. Among 71 couples who responded, 45 (64%) felt that Internet use improved their knowledge about fertility problems, and 28 (39%) felt that the Internet facilitated decision-making about treatment of their fertility problem. Only 12 of the couples (17%) discussed the information found on the Internet with their healthcare providers.

Finally, the couples’ opinions about online information relating to fertility-related problems were identified. Among 71 responding couples, 47 (66%) agreed that such information could be found easily, and 34 (48%) felt that the information found was accurate and could be trusted. None of the 71 couples reported that the information obtained was either confusing or difficult to understand.

Preferences regarding Internet applications in fertility care

All 134 subjects, including those who did not use the Internet, were asked about their preferences regarding Internet applications in fertility care. Of 129 responding couples, the majority were interested in using the Internet to obtain access to their personal medical information (great preference 40%, some preference 42%, no preference 18%). In particular, the ability of these couples to obtain results of diagnostic tests online was considered desirable (great preference 55%, some preference 31%, no preference 14%). Furthermore, a substantial proportion of 127 responding couples stated that they would like to communicate regularly by e-mail with their healthcare providers (great preference 12%, some preference 57%, no preference 31%). Of 128 responding couples, a considerable proportion indicated that they were interested in giving their healthcare providers online feedback (great preference 13%, some preference 53%, no preference 34%). More than half of the couples reported that they would like to chat with other patients undergoing similar treatment in the same medical centre (great preference 14%, some preference 41%, no preference 45%).

### Table III. Crude odds ratio (OR) of the probability of Internet use, using univariate logistic regression analysis

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>OR</th>
<th>95% CI</th>
<th>R²</th>
<th>AUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>1.04</td>
<td>0.95–1.14</td>
<td>1%</td>
<td>56%</td>
</tr>
<tr>
<td>Women</td>
<td>1.09</td>
<td>0.98–1.21</td>
<td>3%</td>
<td>59%</td>
</tr>
<tr>
<td>Ethnic background&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>1.00</td>
<td>Reference</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Non-Dutch</td>
<td>0.06</td>
<td>0.02–0.25</td>
<td>20%</td>
<td>65%</td>
</tr>
<tr>
<td>Education level&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.67</td>
<td>1.26–5.62</td>
<td>8%</td>
<td>62%</td>
</tr>
<tr>
<td>Annual family income (euros)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>5.07</td>
<td>2.18–11.76</td>
<td>22%</td>
<td>74%</td>
</tr>
</tbody>
</table>

<sup>a</sup>The ethnic background of infertile couples was determined by the origin of both partners. Dutch = one or both partners of the couple are of Dutch origin; Non-Dutch = both partners of the couple are not of Dutch origin.

<sup>b</sup>The education level of infertile couples was determined by the highest education level of both partners. 1 = primary or lower vocational education; 2 = secondary or intermediate vocational education; 3 = higher professional education or university.

<sup>c</sup>Annual family income (euros): 1 = <22 700; 2 = 22 700–45 400; 3 = >45 400.

AUC = Area under the ROC-curve, a measure of predictive discrimination (50% is equivalent to random guessing and 100% is the perfect prediction); CI = confidence interval; R² = rescaled R-square, indicating the percentage explained variance.

### Table IV. Adjusted odds ratio (OR) of the probability of Internet use, using multivariate logistic regression analysis with selection procedures

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>OR</th>
<th>95% CI</th>
<th>R²</th>
<th>AUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnic background&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>1</td>
<td>Reference</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Non-Dutch</td>
<td>0.13</td>
<td>0.03–0.60</td>
<td>23%</td>
<td>67%</td>
</tr>
<tr>
<td>Annual family income b&lt;sup&gt;h&lt;/sup&gt;</td>
<td>3.28</td>
<td>1.32–8.17</td>
<td>30%</td>
<td>76%</td>
</tr>
</tbody>
</table>

<sup>d</sup>The ethnic background of infertile couples was determined by the origin of both partners. Dutch = one or both partners of the couple are of Dutch origin; Non-Dutch = both partners of the couple are not of Dutch origin.

<sup>h</sup>Annual family income (euros): 1 = <22 700; 2 = 22 700–45 400; 3 = >45 400.

AUC = Area under the ROC-curve, a measure of predictive discrimination (50% is equivalent to random guessing and 100% is the perfect prediction); CI = Confidence interval; R² = rescaled R-square, indicating the percentage explained variance.
Demographic characteristics and Internet use

It was shown by statistical analysis that ethnic background, education level and annual family income contributed significantly to the probability of Internet use. The crude OR of the probability of Internet use are presented in Table III.

A possible relationship was found between the women’s age and Internet use (OR = 1.06, 95% CI, P = 0.06), though this proved unfounded following an adjustment for ethnic background. This may have been due to the fact that in the present data, the female partners of non-Dutch couples in particular were older and more frequently non-users of the Internet.

In order to identify demographic characteristics that are necessary and sufficient to predict Internet use, multivariate logistic regression analysis with selection procedures was performed on all variables. The adjusted OR are listed in Table IV. Only ethnic background and annual family income were found independently to contribute to the probability of Internet use. Consequently, education level was correlated with other variables in the model, including ethnic background and annual family income, but had no additional contribution to the probability of Internet use.

Discussion

In the present study, current use of the Internet by couples with fertility problems waiting for an IVF or ICSI procedure was characterized, and their preferences identified regarding Internet applications in fertility care.

The generalization of the results may be hampered by having selected only infertile couples pursuing IVF or ICSI, because not all couples with fertility problems will proceed to IVF or ICSI procedures, though large differences between Internet use and the preferences of different groups of infertile patients are not expected.

The present results showed that the majority of infertile couples in The Netherlands (81%) are relatively frequent users of the Internet. Indeed, recent data on general Internet use in The Netherlands showed that 73% and 62% of adults aged 25–34 and 35–44 years respectively are Internet users (IMCyberscan, 2002).

Whereas a large proportion of couples with fertility problems have access to the Internet, some couples never use it. Ethnic background and annual family income were found independently to contribute to the probability of Internet use. Infertile couples of non-Dutch origin and couples with a low annual family income are most likely not to use the Internet. Unfortunately, the so-called ‘digital divide’ in information and communication technologies seems also to exist in Europe, presumably as a result of socio-economic differences (Tan-Torres Edejer, 2000). Although one group (Weissman et al., 2000) were unable to show that the socio-economic characteristics of infertile couples from a public and a private clinic in Toronto predicted Internet use, it is likely that not all couples with fertility problems have access to the Internet. Hence, an effort should be made by all parties involved in healthcare practice to enable and encourage infertile couples from all socio-economic levels to benefit from the opportunities that the Internet has to offer.

Interestingly, in the present study it was shown that a substantial proportion of couples with fertility problems (66%) used the Internet with regard to fertility-related issues. Others (Weissman et al., 2000) reported a similarly high rate of fertility-related Internet use among infertile couples.

In the present survey, an important motivation for fertility-related Internet use was seen to be a need for a better understanding of fertility problems. This may reflect the motivation of infertile couples to become more involved in the medical decision-making process. Indeed, many couples felt that Internet use improved their knowledge about fertility-related issues and facilitated decision-making regarding treatment of their fertility problem. In this way, Internet use can contribute to patient empowerment and greater participation of patients in healthcare practice. According to one investigator (Ford, 2000), healthcare providers should accept that patients are becoming more empowered and involved in healthcare practice by using the Internet. In addition, healthcare providers should realise that sharing control and decision-making responsibility with their patients will become increasingly important, and that they need to change their attitude towards patients. Clearly, this will have a profound influence on the relationship between healthcare providers and patients.

Herein, it was also shown that a considerable proportion of couples turned to Internet resources for emotional support. Additional studies are necessary to gain insight into the reasons and motivations of couples with fertility problems to seek emotional support on the Internet. Likewise, their perceptions about the emotional support obtained by using the Internet should be further explored.

Only a minority of couples in the present study were found to use the Internet to seek a second opinion. This was a remarkable finding as, according to one group (Eysenbach and Diepgen, 1999), the Internet is an excellent medium for convenient and anonymous communication, and is often used by patients to contact healthcare providers at home and abroad for a second opinion. The fact that the majority of couples reported dissatisfaction with information supplied by healthcare providers about fertility-related problems not to be a reason for Internet use is reassuring, and may explain their infrequent use of the Internet to seek a second opinion.

Besides the sporadic use of the Internet to obtain a second opinion, it was also shown that in general the couples in the present study rarely used the Internet to interact with other patients, patient organizations or healthcare providers. However, further evaluation of these data is imperative in order to elucidate the underlying reasons.

The present results indicated that the female partners predominantly used the Internet for fertility-related issues. Again, this was a remarkable finding as, according to recent data on general Internet use in Europe, men are more frequently online than women (62–72% versus 28–38%) (Cyberatlas, 2002). Interestingly, it has also been reported that the female partners of couples with fertility problems more actively use the Internet for fertility-related issues (Weissman et al., 2000). The differences between men and women in terms of the extent of fertility-related Internet use may be attributable to gender differences in the extent of general health-related...
Internet use, the experience of infertility, the treatment of fertility problems and the strategies for coping with fertility-related problems (Jordan and Revenson, 1999; Pasch et al., 2002), and this point warrants further discussion.

In the present survey, most couples indicated that information about fertility-related issues was easy to find on the Internet. A high proportion of couples also felt that this information was accurate, trustworthy and neither confusing nor difficult to understand. These results are consistent with the findings of others (O’Connor and Johanson, 2000; Taylor et al., 2001), though several studies have demonstrated deficiencies in the accessibility, quality and readability of health-related information on the Internet (Impicciatore et al., 1997; Berland et al., 2001; Suarez-Almazor et al., 2001; Okamura et al., 2002). An important concern is that the decision-making process of patients about health-related issues may be negatively influenced by these deficiencies, which could cause damage to the physical and emotional well-being of patients. It can be argued that healthcare providers should reduce the potential threats of the Internet to patients by critically evaluating health-related information on the Internet and referring patients to relevant, reliable and comprehensible Internet information resources. Furthermore, it was found that only a minority of couples discussed the information about fertility-related problems retrieved from the Internet with their healthcare providers. Therefore, the latter should also take the initiative to discuss openly the Internet-based information with patients in order to clarify difficulties and correct possible misconceptions.

To the present authors’ knowledge, this is the first study to identify the preferences of couples with fertility problems in relation to Internet applications in fertility care. Many infertile couples were found to be very interested in using the Internet to obtain access to their personal medical information, and in particular to obtain the results of diagnostic tests online. The couples in the present survey were also interested in using interactive Internet applications, but to a lesser extent than obtaining access to their personal medical information online. All parties involved in the development and implementation of Internet applications in healthcare practice for couples with fertility problems should take these preferences into consideration.

One very important threat associated with Internet use concerns the violation of privacy, and in particular standard e-mail should be regarded as insecure. Despite the fact that the majority of infertile couples in the present study never felt their privacy to be threatened during Internet use, ensuring the security of sensitive medical information on the Internet must remain a priority.

The results of the present study must be interpreted in the light of limitations of data collection from a self-selected sample. It is possible that couples who were not interested in the Internet or not familiar with its use were less likely to complete and return the questionnaire. Non-response may be attributable to differences in demographic characteristics between study participants and non-responders. However, other causal explanations for non-response are possible. Because of the high response rate of 82% in the survey, there was a suspicion that the results had considerable validity, and so the issue of non-response was not further addressed.

Overall, the majority of couples with fertility problems used the Internet with regard to fertility-related issues and were interested in implementation of Internet applications in fertility care. Healthcare providers need to recognize the widespread use of the Internet by infertile couples and consider their preferences in this respect. In order to optimize fertility care, healthcare providers should actively participate in the development and implementation of Internet applications in fertility care. The input of couples with fertility problems and healthcare providers is essential to make Internet use in fertility care beneficial for both parties.

References


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